DIPRAX
PROYECTOS Y AUTOMATISMOS GENERALES

ACCESORIOS FITOK

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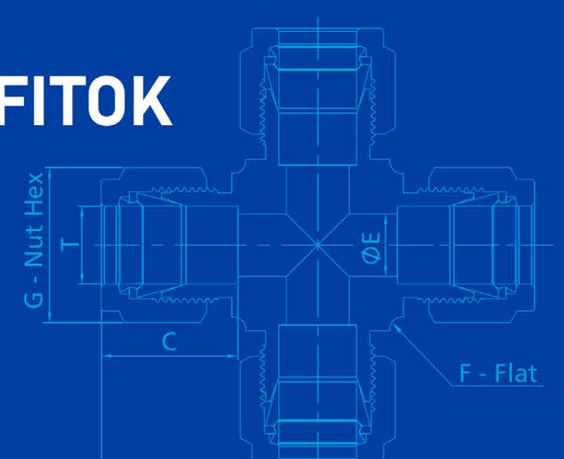

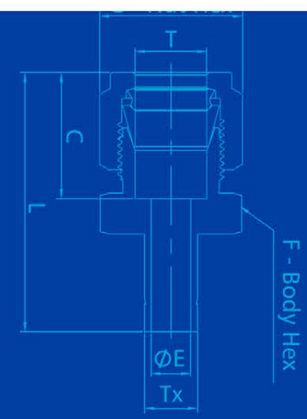

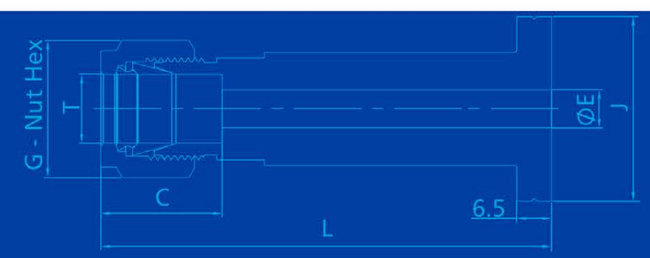

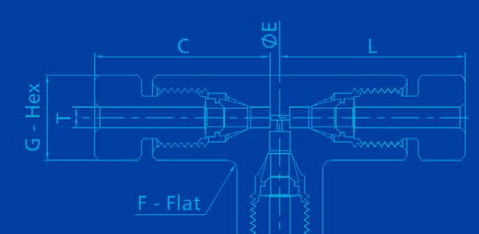

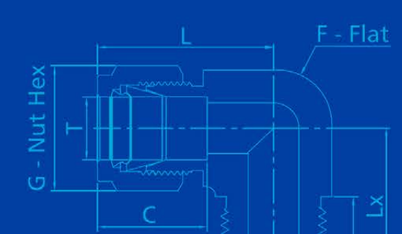

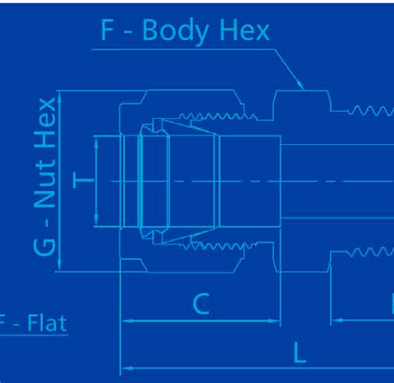

A Fittings

6 Series Tube Fittings A-02

37° Flared Tube Fittings A-86

6 Series Pipe Fittings A-102

6 Series Weld Fittings A-136

VL Series Vacuum Tube Fittings A-154

6 Series Tube Fittings

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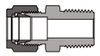
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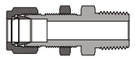
Bulkhead Male Connectors - BCM

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Thermocouple Connectors - TCM

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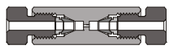
Chromatograph Fittings - U

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Female Connectors - CF

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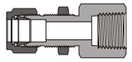
Bulkhead Female Connectors - BCF

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Unions - U

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Conversion Unions - U

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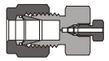
Column End Fittings - U

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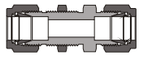
Bulkhead Unions - BU

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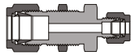
Bulkhead Reducing Unions - BU

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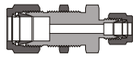
Bulkhead Conversion Unions - BU

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Bulkhead Locknuts - BN

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Male Elbows - LM

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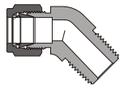
45° Male Elbows - VM

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Adjustable Male Elbows - LP

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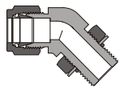
45° Adjustable Male Elbows - VP

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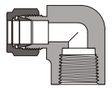
Female Elbows - LF

A-45

Union Elbows - LU

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Union Reducing Elbows - LU

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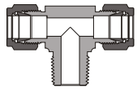
Male Branch Tees - TTM

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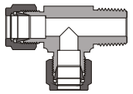
Male Run Tees - TMT

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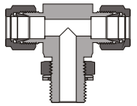
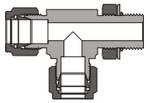
Adjustable Male Branch Tees - TTP

A-50

Adjustable Male Run Tees - TPT

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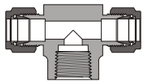
Female Branch Tees - TTF

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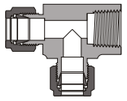
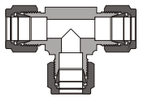
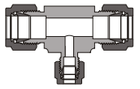
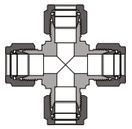
Female Run Tees - TFT

A-53

Union Tees - TTT

A-54

Reducing Union Tees - TTT

A-55

Union Crosses - C

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Caps - TC

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Vent Protectors - VPF

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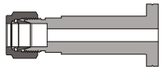
Lapped Flange Connectors - LFC

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Nuts - N

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Knurled Nuts

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Front Ferrules - FF

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Rear Ferrules - RF

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Ferrule Sets - FRS

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Reducers - R

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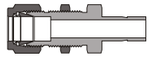
Bulkhead Reducers - BR



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Reducer Elbows - LR

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Insert for Soft Plastic Tubings - IN

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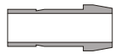
Port Connectors - P



A-65

Reducing Port Connectors - P

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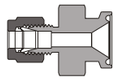
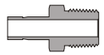
Sanitary Flange Fittings - SFF



A-66

Male Adapters - AM



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Female Adapters - AF

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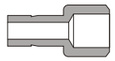
Weld Adapters - AW



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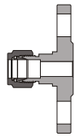
Flange Adapters - FA



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Weld Connectors - CW

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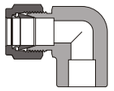
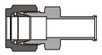
Weld Elbows - LW



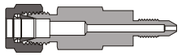
A-79

Automatic Tube Weld Connectors - CW



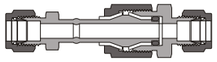
A-80

Calibration Fittings - FC



A-80

Dielectric Fittings - DF



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RS Gaskets - RS

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RP Gaskets - RP

A-82

RG、RJ Gaskets - RG、RJ

A-83

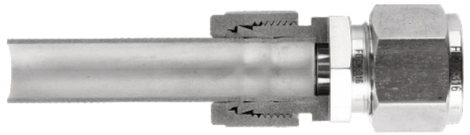
O-rings - VI, BN

A-83

Part Number Description A-85

Features

- ◎ Sizes range from 1/16" to 2" and 2 mm to 50 mm.
- ◎ Diverse materials and configurations are available.
- ◎ Precision machined components ensure perfect deformation of the ferrules and tubing.
- ◎ Hardened threads with smooth surface finish avoid galling and help to extend the fitting service life.
- ◎ Female nut threads are silver-plated to reduce the friction against the body threads.
- ◎ Radius junction design with elbows provides smooth flow path.
- ◎ Every fitting is stamped with size, material, and heat code.
- ◎ Fittings are easy to disconnect and retighten.



Technical Data

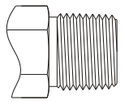
◎ Thread Ends

NPT Threads (NPT)

◎ Comply with ASME B1.20.1, SAE AS71051.

Thread Data

Thread Size	Thread/in.	Dia. at Reference Plane (mm)			Handtight Engagement	
		Max. Dia.	Pitch Dia.	Min. Dia.	(mm)	Threads
1/16	27	7.894	7.142	6.389	4.064	4.32
1/8		10.242	9.489	8.737	4.102	4.36
1/4	18	13.616	12.487	11.358	5.785	4.10
3/8		17.055	15.926	14.797	6.096	4.32
1/2	14	21.224	19.772	18.321	8.128	4.48
3/4		26.569	25.117	23.666	8.618	4.75
1	11.5	33.228	31.461	29.694	10.160	4.60
1 1/4		41.985	40.218	38.451	10.668	4.83
1 1/2		48.054	46.287	44.520	10.668	4.83
2		60.092	58.325	56.558	11.065	5.01



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

Working Pressures of NPT Thread Ends

Thread Size	316 Stainless Steel and Carbon Steel				Brass			
	Male		Female		Male		Female	
	psig	bar	psig	bar	psig	bar	psig	bar
1/16	11000	757	6700	460	5500	378	3300	227
1/8	10000	690	6500	447	5000	344	3200	220
1/4	8000	551	6600	454	4000	275	3300	227
3/8	7800	537	5300	365	3900	268	2600	179
1/2	7700	530	4900	337	3800	261	2400	165
3/4	7300	502	4600	316	3600	248	2300	158
1	5300	365	4400	303	2600	179	2200	151
1 1/4	6000	410	5000	344	3000	200	2500	172
1 1/2	5000	344	4600	317	2500	172	2300	158
2	3900	268	3900	268	1900	130	1900	130

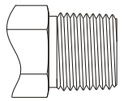
Working pressure is based on ANSI/ASME B31.3 at ambient temperature.

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

◎ Comply with ISO 7-1, EN 10226-1, BS 21, DIN 2999, JIS B0203.

Thread Data

Thread Size	Thread/ in.	Dia. at Reference Plane (mm)			Gauge Length	
		Max. Dia.	Pitch Dia.	Min. Dia.	(mm)	Threads
1/16	28	7.723	7.142	6.561	4.0	4.4
1/8		9.728	9.147	8.566	4.0	4.4
1/4	19	13.157	12.301	11.445	6.0	4.5
3/8		16.662	15.806	14.950	6.4	4.8
1/2	14	20.955	19.793	18.631	8.2	4.5
3/4		26.441	25.279	24.117	9.5	5.2
1	11	33.249	31.770	30.291	10.4	4.5
1 1/4		41.910	40.431	38.952	12.7	5.5
1 1/2		47.803	46.324	44.845	12.7	5.5
2		59.614	58.135	56.656	15.9	6.9



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

Working Pressures of ISO Tapered Thread Ends

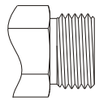
The working pressures of ISO tapered thread ends are the same as that of the NPT thread ends.

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

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

Thread Data

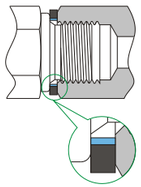
Thread Size	Thread/ in.	Basic Dia. (mm)		
		Max. Dia.	Pitch Dia.	Min. Dia.
1/16	28	7.723	7.142	6.561
1/8		9.728	9.147	8.566
1/4	19	13.157	12.301	11.445
3/8		16.662	15.806	14.950
1/2	14	20.955	19.793	18.631
5/8		22.911	21.749	20.587
3/4		26.441	25.279	24.117
7/8		30.201	29.039	27.877
1	11	33.249	31.770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



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

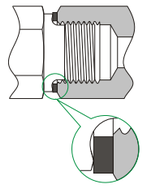
Types of Sealing for ISO Parallel Threads

1. RS Stud End, RS Gasket and RP Port



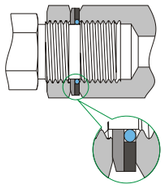
- ☐ RS stud end complies with DIN 3852-2 type A
- ☐ For RS gasket, see page A-82
- ☐ RP port complies with DIN 3852-2 type X

2. RP Stud End, RP Gasket and RP Port



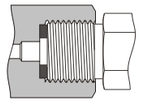
- ☐ RP studs end complies with DIN 3852-2 type B
- ☐ For RP gasket, see page A-83
- ☐ RP port complies with DIN 3852-2 type X

3. PP Stud End and RP Port



- ☐ RP port complies with DIN 3852-2 type X

4. RG Port, RG Gasket and BP Stud End



- ☐ RG port complies with EN 837-1/3
- ☐ For RG gasket, see page A-83

Working Pressures of Adjustable ISO Parallel Thread Ends (PP)

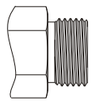
Thread Size	316 Stainless Steel and Carbon Steel	
	psig	bar
1/8	4568	315
1/4		
3/8		
1/2	2320	160
3/4		
1		

SAE/MS Straight Threads (UN, UNJ)

Comply with ASME B1.1, ISO R725.

Thread Data

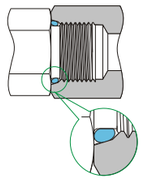
Thread Size	Thread/ in.	Basic Dia. (mm)		
		Max. Dia.	Pitch Dia.	Min. Dia.
5/16-24	24	7.938	7.249	6.792
3/8-24	24	9.525	8.837	8.380
7/16-20	20	11.113	10.287	9.738
1/2-20	20	12.700	11.875	11.326
9/16-18	18	14.288	13.325	12.761
3/4-16	16	19.050	18.019	17.330
7/8-14	14	22.225	21.046	20.262
1 1/16-12	12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



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

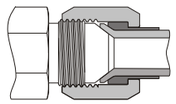
Types of Sealing for SAE/MS Threads

1. ST Stud End and ISO 11926-1 Port



- ☐ ST stud end complies with ISO 11926-3
- ☐ For O-ring, see page A-84

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



- ☐ The type of sealing complies with SAE J514

Working Pressures of SAE/MS Thread Ends

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

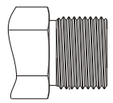
Working pressures are based on ISO 11926-3 at ambient temperature.

Metric Threads (M)

Comply with ISO 261.

Thread Data

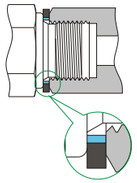
Thread Size	Pitch (mm)	Basic Dia. (mm)		
		Max. Dia.	Pitch Dia.	Min. Dia.
M6 x 1	1	6.000	5.350	4.917
M8 x 1		8.000	7.350	6.917
M10 x 1		10.000	9.350	8.917
M12 x 1.5	1.5	12.000	11.026	10.376
M14 x 1.5		14.000	13.026	12.376
M16 x 1.5		16.000	15.026	14.376
M18 x 1.5		18.000	17.026	16.376
M20 x 1.5		20.000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



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

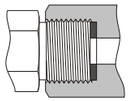
Types of Sealing for Metric Threads

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



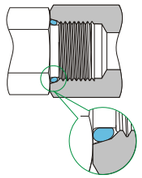
- ☐ MRS stud end complies with DIN 3852-1 type A
- ☐ For RS-M gasket, see page A-82

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



- ☐ For RG-M gasket, see page A-83

3. MST Stud End and ISO 6149-1 Port



- ☐ MST stud end complies with ISO 6149-3
- ☐ For O-ring, see page A-84

Working Pressures for MST Stud Ends

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

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

◎ Working Temperatures

Thread Ends

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

Component	Material	Minimum Temperature	Maximum Temperature
	Buna N	-13° F (-25° C)	230° F (110° C)
	Fluorocarbon FKM	5° F (-15° C)	400° F (204° C)
	Copper	-325° F (-198° C)	400° F (204° C)
	Stainless Steel	-425° F (-254° C)	1000° F (538° C)
	PTFE	-65° F (-54° C)	450° F (232° C)
	Vulcanized Fibre	-76° F (-60° C)	221° F (105° C)
O-ring	Buna N	-22° F (-30° C)	230° F (110° C)
	Fluorocarbon FKM	-4° F (-20° C)	400° F (204° C)

◎ Working Pressures

◎ The maximum working pressures of the tube ends at ambient temperature are determined by the maximum working pressure of the Tubing that is used.
◎ The maximum working pressures of the thread ends at ambient temperature are stated above.
◎ To get the maximum working pressure at elevated temperature, use the maximum working pressure at ambient temperature to multiply the factors in the form of Elevated Temperature Factors in page D-14.
◎ The maximum working pressure of the whole fitting is determined by the end connection with the lowest pressure rating.

Materials

Material	Bar Stock	Forging	Designator
316 stainless steel	ASTM A276, ASME SA479, EN 1.4401	ASTM A182, ASME SA182, EN 1.4401	SS
304 stainless steel	ASTM A276, ASME SA479, EN 1.4301	ASTM A182, ASME SA182, EN 1.4301	S4
321 stainless steel	ASTM A276, ASME SA479, EN 1.4541	ASTM A182, ASME SA182, EN 1.4541	S1
904L stainless steel	ASTM B649	ASTM A182	904L
Titanium (grade 4)	ASTM B348	ASTM B381	TI
Duplex 2205	ASTM A479	ASTM A182	D5
Duplex 2507	ASTM A479	ASTM A182	D7
Alloy 20	ASTM B473	ASTM B462	A20
Alloy 400	ASTM B164, ASME SB164	ASTM B564, ASME SB564	M
Alloy 600	ASTM B166, ASME SB166	ASTM B564, ASME SB564	INC
Alloy 625	ASTM B446	ASTM B564, ASME SB564	A65
Alloy C-276	ASTM B574	ASTM B564	HC
Carbon steel	ASTM A108	ASTM A105	CS
Aluminum	ASTM B211	ASTM B247	AL
Brass	ASTM B16/B453	ASTM B283	B
Nylon	ASTM D4066	/	PA
PTFE	ASTM D1710	/	T

Installation Instructions

◎ Tube Fittings up to 1" or 25 mm
1. Loosen the nut 1/4 turn from finger-tight position.
2. Insert tubing into the tube fitting, make sure that the tubing rests firmly on the shoulder of the port.
3. Finger-tighten the nut.
4. Tighten the nut 1 1/4 turns with wrench while holding the body of the fitting or the valve steady (Fig.1).
For small-sized fittings (1/16", 1/8" and 3/16", 2 mm, 3 mm and 4 mm), tighten the nut 3/4 turn with wrench (Fig.2).

◎ Tube Fittings over 1" or 25 mm
1. Use presetting tool to install the ferrules onto the tube, please refer to the instruction of Hydraulic Presetting Tool for details.
2. Insert the preset tubing with ferrules and nut into the body of fitting, finger tight.
3. Tighten the nut one-half turn with wrench.

◎ Reinstallation (all sizes)
1. Mark the tube at the back of the nut, mark a line along the nut and fitting body flats.
2. Insert tubing with presetted ferrules into the fitting body until the front ferrule seats.
3. Then rotate the nut with a wrench to the previous pulled-up postition as indicated by the marks on the tube and the flats.
4. Tighten the nut slightly with wrench.

◎ Plugs and Port Connectors
1. Tighten the plug or port connector 1/4 turn from the finger-tight position while holding the body of the fitting steady.
For small-sized fittings (1/16", 1/8" and 3/16", 2 mm, 3 mm and 4 mm), tighten the nut 1/8 turn with wrench.
2. Reinstallation: Tighten slightly with a wrench from the finger-tight position.
The Installation Instructions of the tube adapter end of Port Connectors are the same as the Tube Fittings.

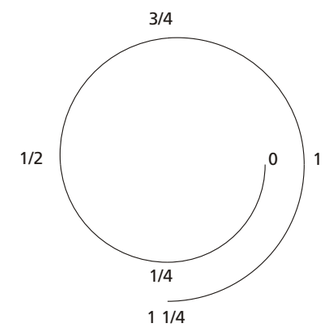


Fig.1

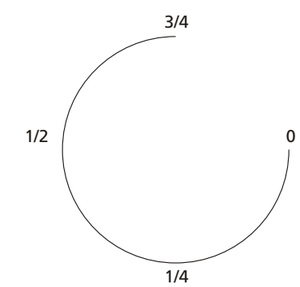


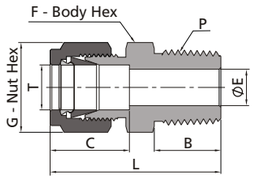
Fig.2

Cautions:

◎ Do not loosen or tighten fittings when the system is pressurized.
◎ Make sure that the tubing rests firmly on the shoulder of the port.
◎ Always leave enough straight length of the tubing for the fittings.
◎ Always use an insert for extremely soft plastic tubing.
◎ Material of the metal tubing should be softer than that of the fitting. For example, stainless steel tubing should not be used with brass fittings. When tubing and fittings are made of the same material, the tubing must be fully annealed.
◎ The allowable working pressure of the tube fitting is rated to the maximum working pressure of the corresponding tubing, which can be found in tubing data sheet.

◎ Keep the tubing end and surface clean and smooth.
◎ Always use proper thread sealants on tapered pipe threads. Make sure that its working temperature does not exceed that of the sealants.
◎ When assembling the tube fitting, hold the body with a wrench and turn the nut instead of holding the nut.
◎ When installing a valve with tube fitting end, hold the valve body with a wrench and turn the nut.
◎ When assembling the fitting to a valve with thread, hold the valve body with a wrench and turn the body of the fitting.

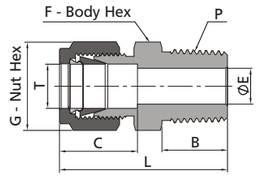
Male Connectors



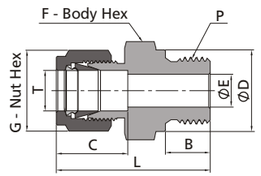
Fractional Tube									NPT Thread
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						
			L	B	C	E	G	F	
1/16	1/16	-CM-FL1-NS1	0.94(23.9)	0.38(9.7)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.31(7.9)	
1/16	1/8	-CM-FL1-NS2	1.03(26.2)	0.38(9.7)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.44(11.1)	
1/16	1/4	-CM-FL1-NS4	1.22(31.0)	0.56(14.2)	0.34 8.6)	0.05(1.3)	0.31(7.9)	0.56(14.3)	
1/8	1/16	-CM-FL2-NS1	1.17(29.7)	0.38(9.7)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.44(11.1)	
1/8	1/8	-CM-FL2-NS2	1.20(30.5)	0.38(9.7)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.44(11.1)	
1/8	1/4	-CM-FL2-NS4	1.40(35.6)	0.56(14.2)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.56(14.3)	
1/8	3/8	-CM-FL2-NS6	1.41(35.8)	0.56(14.2)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.69(17.5)	
1/8	1/2	-CM-FL2-NS8	1.66(42.2)	0.75(19.1)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.87(22.2)	
3/16	1/16	-CM-FL3-NS1	1.23(31.2)	0.38(9.7)	0.54(13.7)	0.09(2.3)	0.50(12.7)	0.44(11.1)	
3/16	1/8	-CM-FL3-NS2	1.23(31.2)	0.38(9.7)	0.54(13.7)	0.12(3.0)	0.50(12.7)	0.44(11.1)	
3/16	1/4	-CM-FL3-NS4	1.43(36.3)	0.56(14.2)	0.54(13.7)	0.12(3.0)	0.50(12.7)	0.56(14.3)	
1/4	1/16	-CM-FL4-NS1	1.29(32.8)	0.38(9.7)	0.60(15.2)	0.12(3.0)	0.56(14.3)	0.50(12.7)	
1/4	1/8	-CM-FL4-NS2	1.29(32.8)	0.38(9.7)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.50(12.7)	
1/4	1/4	-CM-FL4-NS4	1.49(37.8)	0.56(14.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.56(14.3)	
1/4	3/8	-CM-FL4-NS6	1.51(38.4)	0.56(14.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.69(17.5)	
1/4	1/2	-CM-FL4-NS8	1.76(44.7)	0.75(19.1)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.87(22.2)	
1/4	3/4	-CM-FL4-NS12	1.82(46.2)	0.75(19.1)	0.60(15.2)	0.19(4.8)	0.56(14.3)	1.06(27.0)	
5/16	1/8	-CM-FL5-NS2	1.34(34.0)	0.38(9.7)	0.64(16.3)	0.19(4.8)	0.63(15.9)	0.56(14.3)	
5/16	1/4	-CM-FL5-NS4	1.52(38.6)	0.38(9.7)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.56(14.3)	
5/16	3/8	-CM-FL5-NS6	1.54(39.1)	0.56(14.2)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.69(17.5)	
5/16	1/2	-CM-FL5-NS8	1.79(45.5)	0.75(19.1)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.87(22.2)	
3/8	1/8	-CM-FL6-NS2	1.39(35.3)	0.38(9.7)	0.66(16.8)	0.19(4.8)	0.69(17.5)	0.63(15.9)	
3/8	1/4	-CM-FL6-NS4	1.57(39.9)	0.56(14.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.63(15.9)	
3/8	3/8	-CM-FL6-NS6	1.57(39.9)	0.56(14.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.69(17.5)	
3/8	1/2	-CM-FL6-NS8	1.82(46.2)	0.75(19.1)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.87(22.2)	
3/8	3/4	-CM-FL6-NS12	1.88(47.8)	0.75(19.1)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.06(27.0)	
3/8	1	-CM-FL6-NS16	1.85(47.0)	0.94(23.9)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.37(34.9)	
1/2	1/8	-CM-FL8-NS2	1.53(38.9)	0.38(9.7)	0.90(22.9)	0.19(4.8)	0.87(22.2)	0.81(20.6)	
1/2	1/4	-CM-FL8-NS4	1.71(43.4)	0.56(14.2)	0.90(22.9)	0.28(7.1)	0.87(22.2)	0.81(20.6)	
1/2	3/8	-CM-FL8-NS6	1.71(43.4)	0.56(14.2)	0.90(22.9)	0.38(9.7)	0.87(22.2)	0.81(20.6)	
1/2	1/2	-CM-FL8-NS8	1.93(49.0)	0.75(19.1)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.87(22.2)	
1/2	3/4	-CM-FL8-NS12	1.99(50.5)	0.75(19.1)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.06(27.0)	
1/2	1	-CM-FL8-NS16	2.25(57.2)	0.94(23.9)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.37(34.9)	
5/8	1/4	-CM-FL10-NS4	1.74(44.2)	0.56(14.2)	0.96(24.4)	0.28(7.1)	1.00(25.4)	0.94(23.8)	
5/8	3/8	-CM-FL10-NS6	1.74(44.2)	0.56(14.2)	0.96(24.4)	0.38(9.7)	1.00(25.4)	0.94(23.8)	
5/8	1/2	-CM-FL10-NS8	1.93(49.0)	0.75(19.1)	0.96(24.4)	0.47(11.9)	1.00(25.4)	0.94(23.8)	
5/8	3/4	-CM-FL10-NS12	1.99(50.5)	0.75(19.1)	0.96 (24.4)	0.50(12.7)	1.00(25.4)	1.06(27.0)	
3/4	3/8	-CM-FL12-NS6	1.80(45.7)	0.56(14.2)	0.96(24.4)	0.41(10.4)	1.13(28.6)	1.06(27.0)	
3/4	1/2	-CM-FL12-NS8	1.99(50.5)	0.75(19.1)	0.96(24.4)	0.47(11.9)	1.13(28.6)	1.06(27.0)	
3/4	3/4	-CM-FL12-NS12	1.99(50.5)	0.75(19.1)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.06(27.0)	
3/4	1	-CM-FL12-NS16	2.25(57.2)	0.94(23.9)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.37(34.9)	
7/8	1/2	-CM-FL14-NS8	1.99(50.5)	0.75(19.1)	1.02(25.9)	0.47(11.9)	1.25(31.8)	1.19(30.2)	
7/8	3/4	-CM-FL14-NS12	1.99(50.5)	0.75(19.1)	1.02(25.9)	0.62(15.7)	1.25(31.8)	1.19(30.2)	
7/8	1	-CM-FL14-NS16	2.25(57.2)	0.94(23.9)	1.02(25.9)	0.72(18.3)	1.25(31.8)	1.37(34.9)	
1	1/2	-CM-FL16-NS8	2.26(57.4)	0.75(19.1)	1.23(31.2)	0.47(11.9)	1.50(38.1)	1.37(34.9)	
1	3/4	-CM-FL16-NS12	2.26(57.4)	0.75(19.1)	1.23(31.2)	0.62(15.7)	1.50(38.1)	1.37(34.9)	
1	1	-CM-FL16-NS16	2.45(62.2)	0.94(23.9)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.37(34.9)	
1 1/8	1	-CM-FL18-NS16	2.45(62.2)	0.94(23.9)	1.23(31.2)	0.88(22.4)	1.81(46.0)	1.63(41.3)	
1 1/4	1	-CM-FL20-NS16	3.04(77.2)	0.94(23.9)	1.62(41.1)	0.88(22.4)	1.87(47.6)	1.75(44.5)	
1 1/4	1 1/4	-CM-FL20-NS20	3.04(77.2)	0.94(23.9)	1.62(41.1)	1.09(27.7)	1.87(47.6)	1.75(44.5)	
1 1/2	1 1/2	-CM-FL24-NS24	3.50(88.9)	1.03(26.2)	1.97(50.0)	1.34(34.0)	2.25(57.2)	2.13(54.0)	

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

Male Connectors

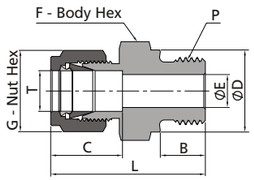


Fractional Tube									ISO Tapered Thread (RT)
T-Tube O.D. (in.)	P-RT Size	Basic Ordering Number	Dimension, in. (mm)						
			L	B	C	E	G	F	
1/8	1/8	-CM-FL2-RT2	1.20(30.5)	0.38(9.7)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.44(11.1)	
1/8	1/4	-CM-FL2-RT4	1.40(35.6)	0.56(14.2)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.56(14.3)	
1/4	1/8	-CM-FL4-RT2	1.29(32.8)	0.38(9.7)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.50(12.7)	
1/4	1/4	-CM-FL4-RT4	1.49(37.8)	0.56(14.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.56(14.3)	
1/4	3/8	-CM-FL4-RT6	1.51(38.4)	0.56(14.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.69(17.5)	
1/4	1/2	-CM-FL4-RT8	1.76(44.7)	0.75(19.1)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.87(22.2)	
5/16	1/8	-CM-FL5-RT2	1.34(34.0)	0.38(9.7)	0.64(16.3)	0.19(4.8)	0.63(15.9)	0.56(14.3)	
5/16	1/4	-CM-FL5-RT4	1.52(38.6)	0.56(14.2)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.56(14.3)	
3/8	1/8	-CM-FL6-RT2	1.39(35.3)	0.38(9.7)	0.66(16.8)	0.19(4.8)	0.69(17.5)	0.63(15.9)	
3/8	1/4	-CM-FL6-RT4	1.57(39.9)	0.56(14.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.63(15.9)	
3/8	3/8	-CM-FL6-RT6	1.57(39.9)	0.56(14.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.69(17.5)	
3/8	1/2	-CM-FL6-RT8	1.82(46.2)	0.75(19.1)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.87(22.2)	
3/8	3/4	-CM-FL6-RT12	1.88(47.8)	0.75(19.1)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.06(27.0)	
1/2	1/4	-CM-FL8-RT4	1.71(43.4)	0.56(14.2)	0.90(22.9)	0.28(7.1)	0.87(22.2)	0.81(20.6)	
1/2	3/8	-CM-FL8-RT6	1.71(43.4)	0.56(14.2)	0.90(22.9)	0.38(9.7)	0.87(22.2)	0.81(20.6)	
1/2	1/2	-CM-FL8-RT8	1.93(49.0)	0.75(19.1)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.87(22.2)	
1/2	3/4	-CM-FL8-RT12	1.99(50.5)	0.75(19.1)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.06(27.0)	
5/8	1/2	-CM-FL10-RT8	1.93(49.0)	0.75(19.1)	0.96(24.4)	0.47(11.9)	1.00(25.4)	0.94(23.8)	
3/4	3/4	-CM-FL12-RT12	1.99(50.5)	0.75(19.1)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.06(27.0)	
3/4	1	-CM-FL12-RT16	2.25(57.2)	0.94(23.9)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.37(34.9)	
1	3/4	-CM-FL16-RT12	2.26(57.4)	0.75(19.1)	1.23(31.2)	0.62(15.7)	1.50(38.1)	1.37(34.9)	
1	1	-CM-FL16-RT16	2.45(62.2)	0.94(23.9)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.37(34.9)	



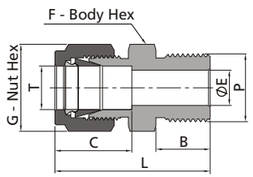
Fractional Tube									ISO Parallel Thread (RS)
T-Tube O.D. (in.)	P-RS Size	Basic Ordering Number	Dimension, in. (mm)						
			L	B	C	E	G	F	D
1/8	1/8	-CM-FL2-RS2	1.18(30.0)	0.28(7.1)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.56(14.3)	0.54(13.7)
1/8	1/4	-CM-FL2-RS4	1.39(35.3)	0.44(11.2)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.75(19.1)	0.71(18.0)
1/8	3/8	-CM-FL2-RS6	1.43(36.3)	0.44(11.2)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.87(22.2)	0.86(21.8)
1/4	1/8	-CM-FL4-RS2	1.27(32.3)	0.28(7.1)	0.60(15.2)	0.16(4.0)	0.56(14.3)	0.56(14.3)	0.54(13.7)
1/4	1/4	-CM-FL4-RS4	1.48(37.6)	0.44(11.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.75(19.1)	0.71(18.0)
1/4	3/8	-CM-FL4-RS6	1.53(38.9)	0.44(11.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.87(22.2)	0.86(21.8)
1/4	1/2	-CM-FL4-RS8	1.76(44.7)	0.56(14.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	1.06(27.0)	1.02(25.9)
3/8	1/8	-CM-FL6-RS2	1.49(37.8)	0.28(7.1)	0.66(16.8)	0.16(4.0)	0.69(17.5)	0.63(15.9)	0.54(13.7)
3/8	1/4	-CM-FL6-RS4	1.54(39.1)	0.44(11.2)	0.66(16.8)	0.23(5.9)	0.69(17.5)	0.75(19.1)	0.71(18.0)
3/8	3/8	-CM-FL6-RS6	1.59(40.4)	0.44(11.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.87(22.2)	0.86(21.8)
3/8	1/2	-CM-FL6-RS8	1.82(46.2)	0.56(14.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.06(27.0)	1.02(25.9)
1/2	1/4	-CM-FL8-RS4	1.68(42.7)	0.44(11.2)	0.90(22.9)	0.23(5.9)	0.87(22.2)	0.81(20.6)	0.71(18.0)
1/2	3/8	-CM-FL8-RS6	1.70(43.2)	0.44(11.2)	0.90(22.9)	0.31(7.9)	0.87(22.2)	0.87(22.2)	0.86(21.8)
1/2	1/2	-CM-FL8-RS8	1.93(49.0)	0.56(14.2)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.06(27.0)	1.02(25.9)
3/4	1/2	-CM-FL12-RS8	1.93(49.0)	0.56(14.2)	0.96(24.4)	0.47(11.9)	1.13(28.6)	1.06(27.0)	1.02(25.9)
3/4	3/4	-CM-FL12-RS12	2.08(52.9)	0.62(15.7)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.31(33.3)	1.26(32.0)
1	1/2	-CM-FL16-RS8	2.19(55.5)	0.56(14.2)	1.23(31.2)	0.47(11.9)	1.50(38.1)	1.37(34.9)	1.02(25.9)
1	3/4	-CM-FL16-RS12	2.27(57.7)	0.62(15.7)	1.23(31.2)	0.63(16.0)	1.50(38.1)	1.37(34.9)	1.26(32.0)
1	1	-CM-FL16-RS16	2.36(59.9)	0.72(18.3)	1.23(31.2)	0.78(19.8)	1.50(38.1)	1.63(41.3)	1.54(39.1)

Male Connectors



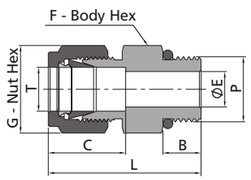
Fractional Tube — ISO Parallel Thread (RP)

T-Tube O.D. (in.)	P-RP Size	Basic Ordering Number	Dimension, in. (mm)						
			L	B	C	E	G	F	D
1/8	1/8	-CM-FL2-RP2	1.18(30.0)	0.28(7.1)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.56(14.3)	0.54(13.8)
1/8	1/4	-CM-FL2-RP4	1.39(35.3)	0.44(11.2)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.75(19.1)	0.70(17.8)
1/4	1/8	-CM-FL4-RP2	1.27(32.3)	0.28(7.1)	0.60(15.2)	0.16(4.1)	0.56(14.3)	0.56(14.3)	0.54(13.8)
1/4	1/4	-CM-FL4-RP4	1.48(37.6)	0.44(11.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.75(19.1)	0.70(17.8)
1/2	3/8	-CM-FL8-RP6	1.79(45.5)	0.44(11.2)	0.90(22.9)	0.31(7.9)	0.87(22.2)	0.87(22.2)	0.86(21.8)
1/2	1/2	-CM-FL8-RP8	1.93(49.0)	0.56(14.2)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.06(27.0)	1.02(25.9)
3/4	1/2	-CM-FL12-RP8	1.93(49.0)	0.56(14.2)	0.96(24.4)	0.47(11.9)	1.13(28.6)	1.06(27.0)	1.02(25.9)
3/4	3/4	-CM-FL12-RP12	2.08(52.9)	0.62(15.7)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.31(33.3)	1.26(32.0)
1	1	-CM-FL16-RP16	2.36(59.9)	0.72(18.3)	1.23(31.2)	0.78(19.8)	1.50(38.1)	1.63(41.3)	1.53(38.8)



Fractional Tube — ISO Parallel Thread (BP)

T-Tube O.D. (in.)	P-BP Size	Basic Ordering Number	Dimension, in. (mm)					
			L	B	C	E	G	F
1/4	3/8	-CM-FL4-BP6	1.51(38.4)	0.56(14.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.69(17.5)
3/8	3/8	-CM-FL6-BP6	1.57(39.9)	0.56(14.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.69(17.5)

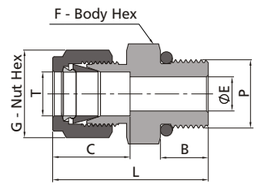


Adapt to straight thread boss of SAE J1926-1, ISO 11926-1 and MS 16142.

Fractional Tube — SAE/MS Straight Thread

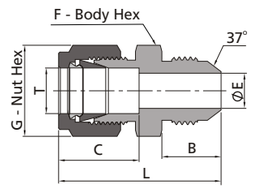
T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)					
			L	B	C	E	G	F
1/16	5/16-24	-CM-FL1-ST5	0.92(23.4)	0.30(7.6)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.44(11.1)
1/8	5/16-24	-CM-FL2-ST5	1.18(30.0)	0.30(7.6)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.44(11.1)
1/8	7/16-20	-CM-FL2-ST7	1.24(31.5)	0.36(9.1)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.56(14.3)
1/8	9/16-18	-CM-FL2-ST9	1.31(33.3)	0.39(9.9)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.69(17.5)
3/16	3/8-24	-CM-FL3-ST6	1.20(30.5)	0.30(7.6)	0.54(13.7)	0.12(3.0)	0.50(12.7)	0.50(12.7)
1/4	5/16-24	-CM-FL4-ST5	1.27(32.3)	0.30(7.6)	0.60(15.2)	0.09(2.3)	0.56(14.3)	0.50(12.7)
1/4	7/16-20	-CM-FL4-ST7	1.34(34.0)	0.36(9.1)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.56(14.3)
1/4	9/16-18	-CM-FL4-ST9	1.40(35.6)	0.39(9.9)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.69(17.5)
1/4	3/4-16	-CM-FL4-ST12	1.48(37.6)	0.44(11.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.87(22.2)
1/4	7/8-14	-CM-FL4-ST14	1.60(40.6)	0.50(12.7)	0.60(15.2)	0.19(4.8)	0.56(14.3)	1.00(25.4)
5/16	1/2-20	-CM-FL5-ST8	1.37(34.8)	0.36(9.1)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.63(15.9)
3/8	7/16-20	-CM-FL6-ST7	1.40(35.6)	0.36(9.1)	0.66(16.8)	0.20(5.1)	0.69(17.5)	0.63(15.9)
3/8	9/16-18	-CM-FL6-ST9	1.46(37.1)	0.39(9.9)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.69(17.5)
3/8	3/4-16	-CM-FL6-ST12	1.54(39.1)	0.44(11.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.87(22.2)
3/8	7/8-14	-CM-FL6-ST14	1.66(42.2)	0.50(12.7)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.00(25.4)
1/2	9/16-18	-CM-FL8-ST9	1.54(39.1)	0.39(9.9)	0.90(22.9)	0.28(7.1)	0.87(22.2)	0.81(20.6)
1/2	3/4-16	-CM-FL8-ST12	1.65(41.9)	0.44(11.2)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.87(22.2)
1/2	7/8-14	-CM-FL8-ST14	1.77(45.0)	0.50(12.7)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.00(25.4)
1/2	1 1/16-12	-CM-FL8-ST17	1.93(49.0)	0.59(15.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.25(31.8)
5/8	3/4-16	-CM-FL10-ST12	1.65(41.9)	0.44(11.2)	0.96(24.4)	0.42(10.7)	1.00(25.4)	0.94(23.8)
5/8	7/8-14	-CM-FL10-ST14	1.78(45.2)	0.50(12.7)	0.96(24.4)	0.50(12.7)	1.00(25.4)	1.00(25.4)
3/4	3/4-16	-CM-FL12-ST12	1.81(46.0)	0.44(11.2)	0.96(24.4)	0.42(10.7)	1.13(28.6)	1.06(27.0)
3/4	1 1/16-12	-CM-FL12-ST17	1.93(49.0)	0.59(15.0)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.25(31.8)
3/4	1 5/16-12	-CM-FL12-ST21	1.96(49.8)	0.59(15.0)	0.96(24.4)	0.63(16.0)	1.13(28.6)	1.50(38.1)
7/8	1 3/16-12	-CM-FL14-ST19	1.93(49.0)	0.59(15.0)	1.02(25.9)	0.72(18.3)	1.25(31.8)	1.37(34.9)
1	1 1/16-12	-CM-FL16-ST17	2.10(53.3)	0.59(15.0)	1.23(31.2)	0.54(13.8)	1.50(38.1)	1.37(34.9)
1	1 5/16-12	-CM-FL16-ST21	2.14(54.4)	0.59(15.0)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.50(38.1)
1 1/4	1 5/8-12	-CM-FL20-ST26	2.69(68.3)	0.59(15.0)	1.62(41.1)	1.09(27.7)	1.87(47.6)	1.87(47.6)
1 1/2	1 7/8-12	-CM-FL24-ST30	3.06(77.7)	0.59(15.0)	1.97(50.0)	1.34(34.0)	2.25(57.2)	2.13(54.0)

Male Connectors



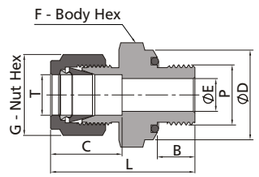
Fractional Tube — SAE/MS Straight Thread

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)					
			L	B	C	E	G	F
1/4	7/16-20	-CML-FL4-ST7	2.26(57.4)	0.36(9.1)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.56(14.3)
1/2	3/4-16	-CML-FL8-ST12	3.01(76.5)	0.44(11.2)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.87(22.2)



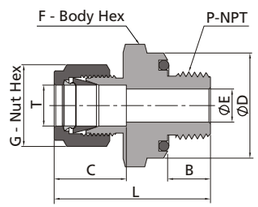
Fractional Tube — 37° Flare (AN)

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	-CM-FL1-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	-CM-FL2-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	-CM-FL2-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	-CM-FL3-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	-CM-FL4-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	-CM-FL5-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	-CM-FL6-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	-CM-FL6-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	-CM-FL8-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	-CM-FL10-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	-CM-FL12-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	-CM-FL16-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)



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

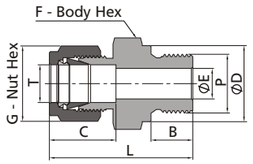
T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)						
			L	B	C	E	G	F	D
1/16	5/16-24	-CM-FL1-OST5	1.05(26.7)	0.34(8.6)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.56(14.3)	0.55(14.0)
1/8	5/16-24	-CM-FL2-OST5	1.29(32.8)	0.34(8.6)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.56(14.3)	0.55(14.0)
3/16	3/8-24	-CM-FL3-OST6	1.35(34.3)	0.38(9.7)	0.54(13.7)	0.12(3.0)	0.50(12.7)	0.63(15.9)	0.62(15.7)
1/4	7/16-20	-CM-FL4-OST7	1.51(38.4)	0.41(10.4)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.75(19.1)	0.74(18.8)
5/16	1/2-20	-CM-FL5-OST8	1.60(40.6)	0.44(11.2)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.87(22.2)	0.86(21.8)
3/8	9/16-18	-CM-FL6-OST9	1.67(42.4)	0.47(11.9)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.94(23.8)	0.93(23.6)
1/2	3/4-16	-CM-FL8-OST12	1.81(46.0)	0.47(11.9)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.13(28.6)	1.12(28.4)
3/4	1 1/16-12	-CM-FL12-OST17	2.06(52.3)	0.56(14.2)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.50(38.1)	1.49(37.8)
1	1 5/16-12	-CM-FL16-OST21	2.29(58.2)	0.56(14.2)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.75(44.5)	1.74(44.2)



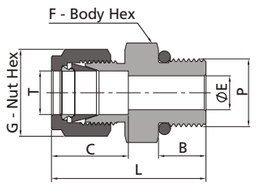
Fractional Tube — O-Seal with NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						
			L	B	C	E	G	F	D
1/8	1/8	-CM-FL2-ONS2	1.29(32.8)	0.28(7.1)	0.34(8.6)	0.09(2.3)	0.47(11.9)	0.75(19.1)	0.74(18.8)
1/4	1/8	-CM-FL4-ONS2	1.38(35.1)	0.28(7.1)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.75(19.1)	0.74(18.8)
1/4	1/4	-CM-FL4-ONS4	1.51(38.4)	0.38(9.7)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.94(23.8)	0.93(23.6)
3/8	1/4	-CM-FL6-ONS4	1.57(39.9)	0.38(9.7)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.94(23.8)	0.93(23.6)
3/8	3/8	-CM-FL6-ONS6	1.63(41.4)	0.41(10.4)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.13(28.6)	1.12(28.4)
3/8	1/2	-CM-FL6-ONS8	1.85(47.0)	0.53(13.5)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.31(33.3)	1.30(33.0)
1/2	1/2	-CM-FL8-ONS8	1.96(49.8)	0.53(13.5)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.31(33.3)	1.30(33.0)

Male Connectors

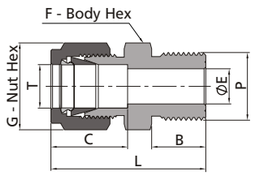


Fractional Tube										Metric Thread (MRS)
T-Tube O.D. (in.)	P-Metric Thread Size	Basic Ordering Number	Dimension, in. (mm)							
			L	B	C	E	G	F	D	
1/8	M14 x 1.5	-CM-FL2-MRS14	1.44(36.7)	0.47(12.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.75(19.1)	0.75(19.0)	
1/8	M16 x 1.5	-CM-FL2-MRS16	1.48(37.5)	0.47(12.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.87(22.2)	0.83(21.0)	
1/8	M18 x 1.5	-CM-FL2-MRS18	1.52(38.5)	0.47(12.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.94(23.8)	0.91(23.0)	
1/8	M20 x 1.5	-CM-FL2-MRS20	1.62(41.1)	0.55(14.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	1.00(25.4)	0.98(25.0)	
1/4	M14 x 1.5	-CM-FL4-MRS14	1.50(38.0)	0.47(12.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.75(19.1)	0.75(19.0)	
1/4	M16 x 1.5	-CM-FL4-MRS16	1.57(39.9)	0.47(12.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.87(22.2)	0.83(21.0)	
1/4	M18 x 1.5	-CM-FL4-MRS18	1.61(40.8)	0.47(12.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.94(23.8)	0.91(23.0)	
1/4	M20 x 1.5	-CM-FL4-MRS20	1.72(43.6)	0.55(14.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	1.00(25.4)	0.98(25.0)	
3/8	M14 x 1.5	-CM-FL6-MRS14	1.63(41.3)	0.47(12.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.75(19.1)	0.75(19.0)	
3/8	M16 x 1.5	-CM-FL6-MRS16	1.63(41.3)	0.47(12.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.87(22.2)	0.83(21.0)	
3/8	M18 x 1.5	-CM-FL6-MRS18	1.65(41.8)	0.47(12.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.94(23.8)	0.91(23.0)	
3/8	M20 x 1.5	-CM-FL6-MRS20	1.78(45.1)	0.55(14.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.00(25.4)	0.98(25.0)	
1/2	M16 x 1.5	-CM-FL8-MRS16	1.73(44.0)	0.47(12.0)	0.90(22.8)	0.35(9.0)	0.87(22.2)	0.87(22.2)	0.83(21.0)	
1/2	M18 x 1.5	-CM-FL8-MRS18	1.73(44.0)	0.47(12.0)	0.90(22.9)	0.39(10.0)	0.87(22.2)	0.94(23.8)	0.91(23.0)	
1/2	M20 x 1.5	-CM-FL8-MRS20	1.89(47.9)	0.55(14.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.00(25.4)	0.98(25.0)	
1/2	M22 x 1.5	-CM-FL8-MRS22	1.91(48.5)	0.55(14.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.06(27.0)	1.06(27.0)	



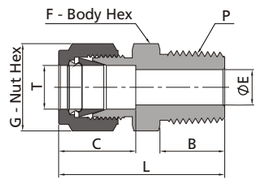
Adapt to straight thread boss of ISO 6149-1.

Fractional Tube									Metric Thread (MST)
T-Tube O.D. (in.)	P-Metric Thread Size	Basic Ordering Number	Dimension, in. (mm)						
			L	B	C	E	G	F	
1/4	M14X1.5	-CM-FL4-MST14	1.39(35.2)	0.43(11.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.75(19.1)	
3/8	M14X1.5	-CM-FL6-MST14	1.44(36.7)	0.43(11.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.75(19.1)	
3/8	M20X1.5	-CM-FL6-MST20	1.62(41.2)	0.55(14.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.06(27.0)	
1/2	M14X1.5	-CM-FL8-MST14	1.58(40.2)	0.43(11.0)	0.90(22.9)	0.30(7.5)	0.87(22.2)	0.81(20.6)	
1/2	M20X1.5	-CM-FL8-MST20	1.73(44.0)	0.55(14.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.06(27.0)	



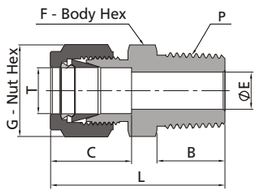
Fractional Tube									Metric Thread (MS)
T-Tube O.D. (in.)	P-Metric Thread Size	Basic Ordering Number	Dimension, in. (mm)						
			L	B	C	E	G	F	
1/16	M5 x 0.8	-CM-FL1-MS5	0.86(21.8)	0.31(8.0)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.31(7.9)	
1/8	M14 x 1.5	-CM-FL2-MS14	1.37(34.8)	0.51(13.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.63(15.9)	
1/8	M16 x 1.5	-CM-FL2-MS16	1.41(35.8)	0.55(14.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.69(17.5)	
1/8	M18 x 1.5	-CM-FL2-MS18	1.46(37.2)	0.59(15.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.75(19.1)	
1/8	M20 x 1.5	-CM-FL2-MS20	1.50(38.1)	0.63(16.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.87(22.2)	
1/4	M14 x 1.5	-CM-FL4-MS14	1.45(36.9)	0.51(13.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.63(15.9)	
1/4	M16 x 1.5	-CM-FL4-MS16	1.50(38.1)	0.55(14.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.69(17.5)	
1/4	M18 x 1.5	-CM-FL4-MS18	1.56(39.5)	0.59(15.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.75(19.1)	
1/4	M20 x 1.5	-CM-FL4-MS20	1.60(40.7)	0.63(16.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.87(22.2)	
3/8	M10 x 1.0	-CM-FL6-MS10	1.43(36.4)	0.43(11.0)	0.66(16.8)	0.19(4.8)	0.69(17.5)	0.63(15.9)	
3/8	M14 x 1.5	-CM-FL6-MS14	1.55(39.3)	0.51(13.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.63(15.9)	
3/8	M16 x 1.5	-CM-FL6-MS16	1.56(39.7)	0.55(14.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.69(17.5)	
3/8	M18 x 1.5	-CM-FL6-MS18	1.63(41.5)	0.59(15.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.75(19.1)	
3/8	M20 x 1.5	-CM-FL6-MS20	1.67(42.3)	0.63(16.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.87(22.2)	
1/2	M16 x 1.5	-CM-FL8-MS16	1.70(43.2)	0.55(14.0)	0.90(22.9)	0.33(8.4)	0.87(22.2)	0.81(20.6)	
1/2	M18 x 1.5	-CM-FL8-MS18	1.72(43.7)	0.59(15.0)	0.90(22.9)	0.38(9.6)	0.87(22.2)	0.81(20.6)	
1/2	M20 x 1.5	-CM-FL8-MS20	1.77(44.9)	0.63(16.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.87(22.2)	
1/2	M22 x 1.5	-CM-FL8-MS22	1.85(47.0)	0.67(17.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.94(23.8)	

Male Connectors



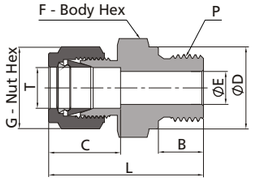
Metric Tube									NPT Thread
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	E	G	F	
2	1/8	-CM-ML2-NS2	30.5(1.20)	9.7(0.38)	12.9(0.51)	1.7(0.07)	12.0(0.47)	12.0(0.47)	
3	1/8	-CM-ML3-NS2	30.5(1.20)	9.7(0.38)	12.9(0.51)	2.4(0.09)	12.0(0.47)	12.0(0.47)	
3	1/4	-CM-ML3-NS4	35.6(1.40)	14.2(0.56)	12.9(0.51)	2.4(0.09)	12.0(0.47)	14.0(0.55)	
4	1/8	-CM-ML4-NS2	31.2(1.23)	9.7(0.38)	13.7(0.54)	2.4(0.09)	12.0(0.47)	12.0(0.47)	
4	1/4	-CM-ML4-NS4	36.3(1.43)	14.2(0.56)	13.7(0.54)	2.4(0.09)	12.0(0.47)	14.0(0.55)	
6	1/8	-CM-ML6-NS2	32.8(1.29)	9.7(0.38)	15.3(0.60)	4.8(0.19)	14.0(0.55)	14.0(0.55)	
6	1/4	-CM-ML6-NS4	37.9(1.49)	14.2(0.56)	15.3(0.60)	4.8(0.19)	14.0(0.55)	14.0(0.55)	
6	3/8	-CM-ML6-NS6	38.4(1.51)	14.2(0.56)	15.3(0.60)	4.8(0.19)	14.0(0.55)	18.0(0.71)	
6	1/2	-CM-ML6-NS8	44.7(1.76)	19.1(0.75)	15.3(0.60)	4.8(0.19)	14.0(0.55)	22.0(0.87)	
8	1/8	-CM-ML8-NS2	34.2(1.35)	9.7(0.38)	16.2(0.64)	4.8(0.19)	16.0(0.63)	15.0(0.59)	
8	1/4	-CM-ML8-NS4	38.7(1.52)	14.2(0.56)	16.2(0.64)	6.4(0.25)	16.0(0.63)	15.0(0.59)	
8	3/8	-CM-ML8-NS6	39.3(1.55)	14.2(0.56)	16.2(0.64)	6.4(0.25)	16.0(0.63)	18.0(0.71)	
8	1/2	-CM-ML8-NS8	45.6(1.80)	19.1(0.75)	16.2(0.64)	6.4(0.25)	16.0(0.63)	22.0(0.87)	
10	1/8	-CM-ML10-NS2	36.3(1.43)	9.7(0.38)	17.2(0.68)	4.8(0.19)	19.0(0.75)	18.0(0.71)	
10	1/4	-CM-ML10-NS4	40.9(1.61)	14.2(0.56)	17.2(0.68)	7.1(0.28)	19.0(0.75)	18.0(0.71)	
10	3/8	-CM-ML10-NS6	40.9(1.61)	14.2(0.56)	17.2(0.68)	7.9(0.31)	19.0(0.75)	18.0(0.71)	
10	1/2	-CM-ML10-NS8	46.5(1.83)	19.1(0.75)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	
10	3/4	-CM-ML10-NS12	48.0(1.89)	19.1(0.75)	17.2(0.68)	7.9(0.31)	19.0(0.75)	27.0(1.06)	
10	1	-CM-ML10-NS16	54.6(2.15)	23.9(0.94)	17.2(0.68)	7.9(0.31)	19.0(0.75)	35.0(1.38)	
12	1/8	-CM-ML12-NS2	38.8(1.53)	9.7(0.38)	22.8(0.90)	4.8(0.19)	22.0(0.87)	22.0(0.87)	
12	1/4	-CM-ML12-NS4	43.4(1.71)	14.2(0.56)	22.8(0.90)	7.1(0.28)	22.0(0.87)	22.0(0.87)	
12	3/8	-CM-ML12-NS6	43.4(1.71)	14.2(0.56)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)	
12	1/2	-CM-ML12-NS8	49.0(1.93)	19.1(0.75)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)	
12	3/4	-CM-ML12-NS12	50.5(1.99)	19.1(0.75)	22.8(0.90)	9.5(0.37)	22.0(0.87)	27.0(1.06)	
14	1/8	-CM-ML14-NS2	38.8(1.53)	9.7(0.38)	24.4(0.96)	4.8(0.19)	25.0(0.98)	24.0(0.94)	
14	1/4	-CM-ML14-NS4	44.1(1.74)	14.2(0.56)	24.4(0.96)	7.1(0.28)	25.0(0.98)	24.0(0.94)	
14	3/8	-CM-ML14-NS6	44.1(1.74)	14.2(0.56)	24.4(0.96)	9.5(0.37)	25.0(0.98)	24.0(0.94)	
14	1/2	-CM-ML14-NS8	49.0(1.93)	19.1(0.75)	24.4(0.96)	11.1(0.44)	25.0(0.98)	24.0(0.94)	
14	3/4	-CM-ML14-NS12	50.5(1.99)	19.1(0.75)	24.4(0.96)	11.1(0.44)	25.0(0.98)	27.0(1.06)	
15	1/2	-CM-ML15-NS8	49.0(1.93)	19.1(0.75)	24.4(0.96)	11.9(0.47)	25.0(0.98)	24.0(0.94)	
15	3/4	-CM-ML15-NS12	50.5(1.99)	19.1(0.75)	24.4(0.96)	11.9(0.47)	25.0(0.98)	27.0(1.06)	
15	1	-CM-ML15-NS16	57.1(2.25)	23.9(0.94)	24.4(0.96)	11.9(0.47)	25.0(0.98)	35.0(1.38)	
16	1/4	-CM-ML16-NS4	44.1(1.74)	14.2(0.56)	24.4(0.96)	7.1(0.28)	25.0(0.98)	24.0(0.94)	
16	3/8	-CM-ML16-NS6	44.1(1.74)	14.2(0.56)	24.4(0.96)	9.5(0.37)	25.0(0.98)	24.0(0.94)	
16	1/2	-CM-ML16-NS8	49.0(1.93)	19.1(0.75)	24.4(0.96)	11.9(0.47)	25.0(0.98)	24.0(0.94)	
16	3/4	-CM-ML16-NS12	50.5(1.99)	19.1(0.75)	24.4(0.96)	12.7(0.5)	25.0(0.98)	27.0(1.06)	
18	3/8	-CM-ML18-NS6	45.6(1.80)	14.2(0.56)	24.4(0.96)	9.5(0.37)	30.0(1.18)	27.0(1.06)	
18	1/2	-CM-ML18-NS8	50.5(1.99)	19.1(0.75)	24.4(0.96)	11.9(0.47)	30.0(1.18)	27.0(1.06)	
18	3/4	-CM-ML18-NS12	50.5(1.99)	19.1(0.75)	24.4(0.96)	15.1(0.59)	30.0(1.18)	27.0(1.06)	
20	1/2	-CM-ML20-NS8	52.3(2.06)	19.1(0.75)	26.0(1.02)	11.9(0.47)	32.0(1.26)	30.0(1.18)	
20	3/4	-CM-ML20-NS12	52.3(2.06)	19.1(0.75)	26.0(1.02)	15.9(0.63)	32.0(1.26)	30.0(1.18)	
20	1	-CM-ML20-NS16	57.1(2.25)	23.9(0.94)	26.0(1.02)	15.9(0.63)	32.0(1.26)	35.0(1.38)	
22	1/2	-CM-ML22-NS8	52.3(2.06)	19.1(0.75)	26.0(1.02)	11.9(0.47)	32.0(1.26)	30.0(1.18)	
22	3/4	-CM-ML22-NS12	52.3(2.06)	19.1(0.75)	26.0(1.02)	15.9(0.63)	32.0(1.26)	30.0(1.18)	
22	1	-CM-ML22-NS16	57.1(2.25)	23.9(0.94)	26.0(1.02)	18.3(0.72)	32.0(1.26)	35.0(1.38)	
25	1/2	-CM-ML25-NS8	57.5(2.26)	19.1(0.75)	31.3(1.23)	11.9(0.47)	38.0(1.50)	35.0(1.38)	
25	3/4	-CM-ML25-NS12	57.5(2.26)	19.1(0.75)	31.3(1.23)	15.9(0.63)	38.0(1.50)	35.0(1.38)	
25	1	-CM-ML25-NS16	62.3(2.45)	23.9(0.94)	31.3(1.23)	21.8(0.86)	38.0(1.50)	35.0(1.38)	
28	1	-CM-ML28-NS16	72.4(2.85)	23.9(0.94)	36.6(1.44)	21.8(0.86)	46.0(1.81)	41.0(1.61)	
28	1 1/4	-CM-ML28-NS20	73.1(2.88)	23.9(0.94)	36.6(1.44)	21.8(0.86)	46.0(1.81)	46.0(1.81)	
30	1 1/4	-CM-ML30-NS20	77.2(3.04)	23.9(0.94)	39.6(1.56)	26.2(1.03)	50.0(1.97)	46.0(1.81)	
32	1 1/4	-CM-ML32-NS20	79.6(3.13)	23.9(0.94)	42.0(1.65)	28.6(1.13)	50.0(1.97)	46.0(1.81)	
38	1 1/2	-CM-ML38-NS24	91.6(3.61)	26.2(1.03)	49.4(1.94)	33.7(1.33)	60.0(2.36)	55.0(2.17)	

Male Connectors



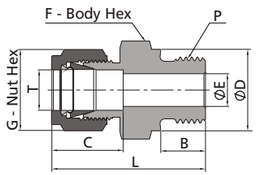
Metric Tube									ISO Tapered Thread (RT)
T-Tube O.D. (mm)	P-RT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	E	G	F	
2	1/8	-CM-ML2-RT2	30.5(1.20)	9.7(0.38)	12.9(0.51)	1.7(0.07)	12.0(0.47)	12.0(0.47)	
3	1/8	-CM-ML3-RT2	30.5(1.20)	9.7(0.38)	12.9(0.51)	2.4(0.09)	12.0(0.47)	12.0(0.47)	
3	1/4	-CM-ML3-RT4	35.6(1.40)	14.2(0.56)	12.9(0.51)	2.4(0.09)	12.0(0.47)	14.0(0.55)	
4	1/8	-CM-ML4-RT2	31.2(1.23)	9.7(0.38)	13.7(0.54)	2.4(0.09)	12.0(0.47)	12.0(0.47)	
4	1/4	-CM-ML4-RT4	36.3(1.43)	14.2(0.56)	13.7(0.54)	2.4(0.09)	12.0(0.47)	14.0(0.55)	
6	1/8	-CM-ML6-RT2	32.8(1.29)	9.7(0.38)	15.3(0.60)	4.8(0.19)	14.0(0.55)	14.0(0.55)	
6	1/4	-CM-ML6-RT4	37.9(1.49)	14.2(0.56)	15.3(0.60)	4.8(0.19)	14.0(0.55)	14.0(0.55)	
6	3/8	-CM-ML6-RT6	38.4(1.51)	14.2(0.56)	15.3(0.60)	4.8(0.19)	14.0(0.55)	18.0(0.71)	
6	1/2	-CM-ML6-RT8	44.7(1.76)	19.1(0.75)	15.3(0.60)	4.8(0.19)	14.0(0.55)	22.0(0.87)	
8	1/8	-CM-ML8-RT2	34.2(1.35)	9.7(0.38)	16.2(0.64)	4.8(0.19)	16.0(0.63)	15.0(0.59)	
8	1/4	-CM-ML8-RT4	38.7(1.52)	14.2(0.56)	16.2(0.64)	6.4(0.25)	16.0(0.63)	15.0(0.59)	
8	3/8	-CM-ML8-RT6	39.2(1.54)	14.2(0.56)	16.2(0.64)	6.4(0.25)	16.0(0.63)	18.0(0.71)	
8	1/2	-CM-ML8-RT8	45.6(1.80)	19.1(0.75)	16.2(0.64)	6.4(0.25)	16.0(0.63)	22.0(0.87)	
10	1/8	-CM-ML10-RT2	36.3(1.43)	9.7(0.38)	17.2(0.68)	4.8(0.19)	19.0(0.75)	18.0(0.71)	
10	1/4	-CM-ML10-RT4	40.9(1.61)	14.2(0.56)	17.2(0.68)	7.1(0.28)	19.0(0.75)	18.0(0.71)	
10	3/8	-CM-ML10-RT6	40.9(1.61)	14.2(0.56)	17.2(0.68)	7.9(0.31)	19.0(0.75)	18.0(0.71)	
10	1/2	-CM-ML10-RT8	46.5(1.83)	19.1(0.75)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	
10	3/4	-CM-ML10-RT12	48.0(1.89)	19.1(0.75)	17.2(0.68)	7.9(0.31)	19.0(0.75)	27.0(1.06)	
12	1/8	-CM-ML12-RT2	38.3(1.51)	9.7(0.38)	22.8(0.90)	4.8(0.19)	22.0(0.87)	22.0(0.87)	
12	1/4	-CM-ML12-RT4	43.4(1.71)	14.2(0.56)	22.8(0.90)	7.1(0.28)	22.0(0.87)	22.0(0.87)	
12	3/8	-CM-ML12-RT6	43.4(1.71)	14.2(0.56)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)	
12	1/2	-CM-ML12-RT8	49.0(1.93)	19.1(0.75)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)	
12	3/4	-CM-ML12-RT12	50.5(1.99)	19.1(0.75)	22.8(0.90)	9.5(0.37)	22.0(0.87)	27.0(1.06)	
14	1/8	-CM-ML14-RT2	38.8(1.53)	9.7(0.38)	22.4(0.88)	4.8(0.19)	25.0(0.98)	24.0(0.94)	
14	1/4	-CM-ML14-RT4	44.1(1.74)	14.2(0.56)	22.4(0.88)	7.1(0.28)	25.0(0.98)	24.0(0.94)	
14	3/8	-CM-ML14-RT6	44.1(1.74)	14.2(0.56)	22.4(0.88)	7.9(0.31)	25.0(0.98)	24.0(0.94)	
14	1/2	-CM-ML14-RT8	49.0(1.93)	19.1(0.75)	22.4(0.88)	11.1(0.44)	25.0(0.98)	24.0(0.94)	
14	3/4	-CM-ML14-RT12	50.5(1.99)	19.1(0.75)	22.4(0.88)	11.1(0.44)	25.0(0.98)	27.0(1.06)	
15	1/2	-CM-ML15-RT8	49.0(1.93)	19.1(0.75)	22.4(0.88)	11.9(0.47)	25.0(0.98)	24.0(0.94)	
16	1/4	-CM-ML16-RT4	44.1(1.74)	14.2(0.56)	22.4(0.88)	7.1(0.28)	25.0(0.98)	24.0(0.94)	
16	3/8	-CM-ML16-RT6	44.1(1.74)	14.2(0.56)	22.4(0.88)	9.5(0.37)	25.0(0.98)	24.0(0.94)	
16	1/2	-CM-ML16-RT8	49.0(1.93)	19.1(0.75)	22.4(0.88)	11.9(0.47)	25.0(0.98)	24.0(0.94)	
16	3/4	-CM-ML16-RT12	50.5(1.99)	19.1(0.75)	22.4(0.88)	12.7(0.5)	25.0(0.98)	27.0(1.06)	
18	1/2	-CM-ML18-RT8	50.5(1.99)	19.1(0.75)	22.4(0.88)	11.9(0.47)	30.0(1.18)	27.0(1.06)	
18	3/4	-CM-ML18-RT12	50.5(1.99)	19.1(0.75)	22.4(0.88)	15.1(0.59)	30.0(1.18)	27.0(1.06)	
20	1/2	-CM-ML20-RT8	52.3(2.06)	19.1(0.75)	26.0(1.02)	11.9(0.47)	32.0(1.26)	30.0(1.18)	
20	3/4	-CM-ML20-RT12	52.3(2.06)	19.1(0.75)	26.0(1.02)	15.9(0.63)	32.0(1.26)	30.0(1.18)	
22	3/4	-CM-ML22-RT12	52.3(2.06)	19.1(0.75)	26.0(1.02)	15.9(0.63)	32.0(1.26)	30.0(1.18)	
22	1	-CM-ML22-RT16	57.1(2.25)	23.9(0.94)	26.0(1.02)	18.3(0.72)	32.0(1.26)	35.0(1.38)	
25	1/2	-CM-ML25-RT8	57.5(2.26)	19.1(0.75)	31.3(1.23)	11.9(0.47)	38.0(1.50)	35.0(1.38)	
25	3/4	-CM-ML25-RT12	57.5(2.26)	19.1(0.75)	31.3(1.23)	15.9(0.63)	38.0(1.50)	35.0(1.38)	
25	1	-CM-ML25-RT16	62.3(2.45)	23.9(0.94)	31.3(1.23)	21.8(0.86)	38.0(1.50)	35.0(1.38)	
28	1	-CM-ML28-RT16	72.4(2.85)	23.9(0.94)	36.6(1.44)	21.8(0.86)	46.0(1.81)	41.0(1.61)	
28	1 1/4	-CM-ML28-RT20	73.1(2.88)	23.9(0.94)	36.6(1.44)	21.8(0.86)	46.0(1.81)	46.0(1.81)	
30	1 1/4	-CM-ML30-RT20	77.2(3.04)	23.9(0.94)	39.6(1.56)	26.2(1.03)	50.0(1.97)	46.0(1.81)	
32	1 1/4	-CM-ML32-RT20	79.6(3.13)	23.9(0.94)	42.0(1.65)	28.6(1.13)	50.0(1.97)	46.0(1.81)	
38	1 1/2	-CM-ML38-RT24	91.6(3.61)	26.2(1.03)	49.4(1.94)	33.7(1.33)	60.0(2.36)	55.0(2.17)	

Male Connectors

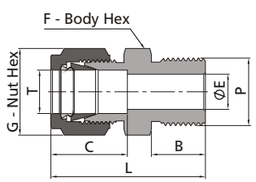


Metric Tube									ISO Parallel Thread (RS)
T-Tube O.D. (mm)	P-RS Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	E	G	F	D
2	1/8	-CM-ML2-RS2	30.0(1.18)	7.1(0.28)	12.9(0.51)	1.7(0.07)	12.0(0.47)	14.0(0.55)	13.7(0.54)
3	1/8	-CM-ML3-RS2	30.0(1.18)	7.1(0.28)	12.9(0.51)	2.4(0.09)	12.0(0.47)	14.0(0.55)	13.7(0.54)
3	1/4	-CM-ML3-RS4	35.3(1.39)	11.2(0.44)	12.9(0.51)	2.4(0.09)	12.0(0.47)	19.0(0.75)	18.0(0.71)
4	1/8	-CM-ML4-RS2	30.7(1.21)	7.1(0.28)	13.7(0.54)	2.4(0.09)	12.0(0.47)	14.0(0.55)	13.7(0.54)
4	1/4	-CM-ML4-RS4	36.0(1.42)	11.2(0.44)	13.7(0.54)	2.4(0.09)	12.0(0.47)	19.0(0.75)	18.0(0.71)
6	1/8	-CM-ML6-RS2	32.3(1.27)	7.1(0.28)	15.3(0.60)	4.0(0.16)	14.0(0.55)	14.0(0.55)	13.7(0.54)
6	1/4	-CM-ML6-RS4	37.6(1.48)	11.2(0.44)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)	18.0(0.71)
6	3/8	-CM-ML6-RS6	38.9(1.53)	11.2(0.44)	15.3(0.60)	4.8(0.19)	14.0(0.55)	22.0(0.87)	21.6(0.85)
6	1/2	-CM-ML6-RS8	44.7(1.76)	14.2(0.56)	15.3(0.60)	4.8(0.19)	14.0(0.55)	27.0(1.06)	25.9(1.02)
8	1/8	-CM-ML8-RS2	33.2(1.31)	7.1(0.28)	16.2(0.64)	4.0(0.16)	16.0(0.63)	15.0(0.59)	14.5(0.57)
8	1/4	-CM-ML8-RS4	38.5(1.52)	11.2(0.44)	16.2(0.64)	6.4(0.25)	16.0(0.63)	19.0(0.75)	18.0(0.71)
8	3/8	-CM-ML8-RS6	39.8(1.57)	11.2(0.44)	16.2(0.64)	6.4(0.25)	16.0(0.63)	22.0(0.87)	21.6(0.85)
8	1/2	-CM-ML8-RS8	45.6(1.80)	14.2(0.56)	16.2(0.64)	6.4(0.25)	16.0(0.63)	27.0(1.06)	25.9(1.02)
8	3/4	-CM-ML8-RS12	49.5(1.95)	15.7(0.62)	16.2(0.64)	6.4(0.25)	16.0(0.63)	35.0(1.38)	32.0(1.26)
10	1/4	-CM-ML10-RS4	39.4(1.55)	11.2(0.44)	17.2(0.68)	5.9(0.23)	19.0(0.75)	19.0(0.75)	18.0(0.71)
10	3/8	-CM-ML10-RS6	40.6(1.60)	11.2(0.44)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	21.6(0.85)
10	1/2	-CM-ML10-RS8	46.5(1.83)	14.2(0.56)	17.2(0.68)	7.9(0.31)	19.0(0.75)	27.0(1.06)	25.9(1.02)
12	1/4	-CM-ML12-RS4	42.6(1.68)	11.2(0.44)	22.8(0.90)	5.9(0.23)	22.0(0.87)	22.0(0.87)	21.6(0.85)
12	3/8	-CM-ML12-RS6	43.1(1.70)	11.2(0.44)	22.8(0.90)	7.9(0.31)	22.0(0.87)	22.0(0.87)	21.6(0.85)
12	1/2	-CM-ML12-RS8	49.0(1.93)	14.2(0.56)	22.8(0.90)	9.5(0.37)	22.0(0.87)	27.0(1.06)	25.9(1.02)
12	3/4	-CM-ML12-RS12	52.8(2.08)	15.7(0.62)	22.8(0.90)	9.5(0.37)	22.0(0.87)	35.0(1.38)	32.0(1.26)
14	1/4	-CM-ML14-RS4	42.9(1.69)	11.2(0.44)	24.4(0.96)	7.1(0.28)	25.0(0.98)	24.0(0.94)	18.0(0.71)
14	3/8	-CM-ML14-RS6	43.9(1.73)	11.2(0.44)	24.4(0.96)	7.9(0.31)	25.0(0.98)	24.0(0.94)	21.6(0.85)
14	1/2	-CM-ML14-RS8	49.0(1.93)	14.2(0.56)	24.4(0.96)	11.1(0.44)	25.0(0.98)	27.0(1.06)	25.9(1.02)
14	3/4	-CM-ML14-RS12	52.8(2.08)	15.7(0.62)	24.4(0.96)	11.1(0.44)	25.0(0.98)	35.0(1.38)	32.0(1.26)
15	3/8	-CM-ML15-RS6	43.9(1.73)	11.2(0.44)	24.4(0.96)	7.9(0.31)	25.0(0.98)	24.0(0.94)	21.6(0.85)
15	1/2	-CM-ML15-RS8	49.0(1.93)	14.2(0.56)	24.4(0.96)	11.9(0.47)	25.0(0.98)	27.0(1.06)	25.9(1.02)
15	3/4	-CM-ML15-RS12	52.8(2.08)	15.7(0.62)	24.4(0.96)	11.9(0.47)	25.0(0.98)	35.0(1.38)	32.0(1.26)
16	3/8	-CM-ML16-RS6	43.9(1.73)	11.2(0.44)	24.4(0.96)	7.9(0.31)	25.0(0.98)	24.0(0.94)	21.6(0.85)
16	1/2	-CM-ML16-RS8	49.0(1.93)	14.2(0.56)	24.4(0.96)	11.9(0.47)	25.0(0.98)	27.0(1.06)	25.9(1.02)
16	3/4	-CM-ML16-RS12	52.8(2.08)	15.7(0.62)	24.4(0.96)	12.7(0.5)	25.0(0.98)	35.0(1.38)	32.0(1.26)
18	1/2	-CM-ML18-RS8	49.0(1.93)	14.2(0.56)	24.4(0.96)	11.9(0.47)	30.0(1.18)	27.0(1.06)	25.9(1.02)
18	3/4	-CM-ML18-RS12	52.8(2.08)	15.7(0.62)	24.4(0.96)	15.1(0.59)	30.0(1.18)	35.0(1.38)	32.0(1.26)
20	1/2	-CM-ML20-RS8	50.5(1.99)	14.2(0.56)	26.0(1.02)	11.9(0.47)	32.0(1.26)	30.0(1.18)	25.9(1.02)
20	3/4	-CM-ML20-RS12	52.8(2.08)	15.7(0.62)	26.0(1.02)	15.9(0.63)	32.0(1.26)	35.0(1.38)	32.0(1.26)
22	3/4	-CM-ML22-RS12	52.8(2.08)	15.7(0.62)	26.0(1.02)	15.9(0.63)	32.0(1.26)	35.0(1.38)	32.0(1.26)
22	1	-CM-ML22-RS16	55.3(2.18)	18.3(0.72)	26.0(1.02)	18.3(0.72)	32.0(1.26)	41.0(1.61)	39.1(1.54)
25	3/4	-CM-ML25-RS12	57.5(2.26)	15.7(0.62)	31.3(1.23)	15.9(0.63)	38.0(1.50)	35.0(1.38)	32.0(1.26)
25	1	-CM-ML25-RS16	60.1(2.37)	18.3(0.72)	31.3(1.23)	19.8(0.78)	38.0(1.50)	41.0(1.61)	39.1(1.54)
28	1	-CM-ML28-RS16	70.1(2.76)	18.3(0.72)	36.6(1.44)	19.8(0.78)	46.0(1.81)	41.0(1.61)	39.1(1.54)
28	1 1/4	-CM-ML28-RS20	73.9(2.91)	19.8(0.78)	36.6(1.44)	21.8(0.86)	46.0(1.81)	50.0(1.97)	49.0(1.93)
30	1 1/4	-CM-ML30-RS20	76.5(3.01)	19.8(0.78)	39.6(1.56)	25.0(0.98)	50.0(1.97)	50.0(1.97)	49.0(1.93)
32	1 1/4	-CM-ML32-RS20	78.9(3.11)	19.8(0.78)	42.0(1.65)	25.0(0.98)	50.0(1.97)	50.0(1.97)	49.0(1.93)
38	1 1/2	-CM-ML38-RS24	90.8(3.57)	22.1(0.87)	49.4(1.94)	31.8(1.25)	60.0(2.36)	55.0(2.17)	54.7(2.15)

Male Connectors

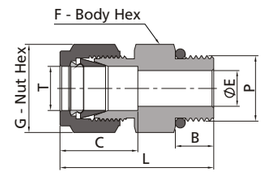


Metric Tube									ISO Parallel Thread (RP)
T-Tube O.D. (mm)	P-RP Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	E	G	F	D
3	1/8	-CM-ML3-RP2	30.0(1.18)	7.1(0.28)	12.9(0.51)	2.4(0.09)	12.0(0.47)	14.0(0.55)	13.8(0.54)
3	1/4	-CM-ML3-RP4	35.3(1.39)	11.2(0.44)	12.9(0.51)	2.4(0.09)	12.0(0.47)	19.0(0.75)	18.0(0.71)
4	1/8	-CM-ML4-RP2	30.7(1.21)	7.1(0.28)	13.7(0.54)	2.4(0.09)	12.0(0.47)	14.0(0.55)	13.8(0.54)
6	1/8	-CM-ML6-RP2	32.3(1.27)	7.1(0.28)	15.3(0.60)	4.0(0.16)	14.0(0.55)	14.0(0.55)	13.8(0.54)
6	1/4	-CM-ML6-RP4	37.6(1.48)	11.2(0.44)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)	18.0(0.71)
6	3/8	-CM-ML6-RP6	38.9(1.53)	11.2(0.44)	15.3(0.60)	4.8(0.19)	14.0(0.55)	22.0(0.87)	21.8(0.86)
6	1/2	-CM-ML6-RP8	44.7(1.76)	14.2(0.56)	15.3(0.60)	4.8(0.19)	14.0(0.55)	27.0(1.06)	26.0(1.02)
8	1/8	-CM-ML8-RP2	33.3(1.31)	7.1(0.28)	16.2(0.64)	4.0(0.16)	16.0(0.63)	15.0(0.59)	13.8(0.54)
8	1/4	-CM-ML8-RP4	38.5(1.52)	11.2(0.44)	16.2(0.64)	5.9(0.23)	16.0(0.63)	19.0(0.75)	18.0(0.71)
8	3/8	-CM-ML8-RP6	39.8(1.57)	11.2(0.44)	16.2(0.64)	6.4(0.25)	16.0(0.63)	22.0(0.87)	21.8(0.86)
8	1/2	-CM-ML8-RP8	45.6(1.80)	14.2(0.56)	16.2(0.64)	6.4(0.25)	16.0(0.63)	27.0(1.06)	26.0(1.02)
10	1/4	-CM-ML10-RP4	39.4(1.55)	11.2(0.44)	17.2(0.68)	5.9(0.23)	19.0(0.75)	19.0(0.75)	18.0(0.71)
10	3/8	-CM-ML10-RP6	40.6(1.60)	11.2(0.44)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	21.8(0.86)
10	1/2	-CM-ML10-RP8	46.5(1.83)	14.2(0.56)	17.2(0.68)	7.9(0.31)	19.0(0.75)	27.0(1.06)	26.0(1.02)
12	1/4	-CM-ML12-RP4	42.6(1.68)	11.2(0.44)	22.8(0.90)	5.9(0.23)	22.0(0.87)	22.0(0.87)	18.0(0.71)
12	3/8	-CM-ML12-RP6	43.1(1.70)	11.2(0.44)	22.8(0.90)	7.9(0.31)	22.0(0.87)	22.0(0.87)	21.8(0.86)
12	1/2	-CM-ML12-RP8	49.0(1.93)	14.2(0.56)	22.8(0.90)	9.5(0.37)	22.0(0.87)	27.0(1.06)	26.0(1.02)
12	3/4	-CM-ML12-RP12	52.8(2.08)	15.7(0.62)	22.8(0.90)	9.5(0.37)	22.0(0.87)	35.0(1.38)	32.0(1.26)
15	1/2	-CM-ML15-RP8	49.0(1.93)	14.2(0.56)	24.4(0.96)	11.9(0.47)	25.0(0.98)	27.0(1.06)	26.0(1.02)
16	3/8	-CM-ML16-RP6	43.9(1.73)	11.2(0.44)	24.4(0.96)	7.9(0.31)	25.0(0.98)	24.0(0.94)	21.8(0.86)
16	1/2	-CM-ML16-RP8	49.0(1.93)	14.2(0.56)	24.4(0.96)	11.9(0.47)	25.0(0.98)	27.0(1.06)	26.0(1.02)
18	1/2	-CM-ML18-RP8	49.0(1.93)	14.2(0.56)	24.4(0.96)	11.9(0.47)	30.0(1.18)	27.0(1.06)	26.0(1.02)
18	3/4	-CM-ML18-RP12	52.8(2.08)	15.7(0.62)	24.4(0.96)	15.1(0.59)	30.0(1.18)	35.0(1.38)	32.0(1.26)
20	1/2	-CM-ML20-RP8	50.5(1.99)	14.2(0.56)	26.0(1.02)	11.9(0.47)	32.0(1.26)	30.0(1.18)	26.0(1.02)
20	3/4	-CM-ML20-RP12	52.8(2.08)	15.7(0.62)	26.0(1.02)	15.9(0.63)	32.0(1.26)	35.0(1.38)	32.0(1.26)
22	3/4	-CM-ML22-RP12	52.8(2.08)	15.7(0.62)	26.0(1.02)	15.9(0.63)	32.0(1.26)	35.0(1.38)	32.0(1.26)
22	1	-CM-ML22-RP16	55.3(2.18)	18.3(0.72)	26.0(1.02)	18.3(0.72)	32.0(1.26)	41.0(1.61)	39.0(1.54)
25	3/4	-CM-ML25-RP12	57.5(2.26)	15.7(0.62)	31.3(1.23)	15.9(0.63)	38.0(1.50)	35.0(1.38)	32.0(1.26)
25	1	-CM-ML25-RP16	60.1(2.37)	18.3(0.72)	31.3(1.23)	19.8(0.78)	38.0(1.50)	41.0(1.61)	39.0(1.54)
28	1	-CM-ML28-RP16	70.1(2.76)	18.3(0.72)	36.6(1.44)	19.8(0.78)	46.0(1.81)	41.0(1.61)	39.0(1.54)
28	1 1/4	-CM-ML28-RP20	73.9(2.91)	19.8(0.78)	36.6(1.44)	21.8(0.86)	46.0(1.81)	50.0(1.97)	49.0(1.93)
30	1 1/4	-CM-ML30-RP20	76.5(3.01)	19.8(0.78)	39.6(1.56)	26.2(1.03)	50.0(1.97)	50.0(1.97)	49.0(1.93)
32	1 1/4	-CM-ML32-RP20	78.9(3.11)	19.8(0.78)	42.0(1.65)	28.6(1.13)	50.0(1.97)	50.0(1.97)	49.0(1.93)
38	1 1/2	-CM-ML38-RP24	89.3(3.52)	20.6(0.81)	49.4(1.94)	31.8(1.25)	60.0(2.36)	55.0(2.17)	54.7(2.15)

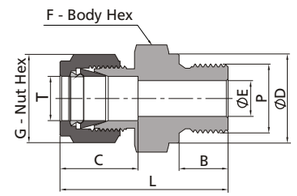


Metric Tube									ISO Parallel Thread (BP)
T-Tube O.D. (mm)	P-BP Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	E	G	F	
6	1/4	-CM-ML6-BP4	36.9(1.45)	12.9(0.51)	15.3(0.60)	4.8(0.19)	14.0(0.55)	14.0(0.55)	
6	3/8	-CM-ML6-BP6	39.5(1.56)	14.2(0.56)	15.3(0.60)	4.8(0.19)	14.0(0.55)	18.0(0.71)	
8	1/8	-CM-ML8-BP2	33.9(1.33)	9.8(0.39)	16.2(0.64)	4.0(0.16)	16.0(0.63)	14.0(0.55)	
8	1/4	-CM-ML8-BP4	37.0(1.46)	12.9(0.51)	16.2(0.64)	6.4(0.25)	16.0(0.63)	14.0(0.55)	
8	3/8	-CM-ML8-BP6	39.3(1.55)	14.2(0.56)	16.2(0.64)	6.4(0.25)	16.0(0.63)	18.0(0.71)	
8	1/2	-CM-ML8-BP8	45.4(1.79)	18.8(0.74)	16.2(0.64)	6.4(0.25)	16.0(0.63)	22.0(0.87)	
10	1/4	-CM-ML10-BP4	39.5(1.56)	12.9(0.51)	17.2(0.68)	5.9(0.23)	19.0(0.75)	18.0(0.71)	
10	1/2	-CM-ML10-BP8	46.3(1.82)	18.8(0.74)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	
12	3/8	-CM-ML12-BP6	44.2(1.74)	14.2(0.56)	22.8(0.90)	7.9(0.31)	22.0(0.87)	22.0(0.87)	
12	1/2	-CM-ML12-BP8	49.0(1.93)	18.8(0.74)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)	
14	1/4	-CM-ML14-BP4	42.9(1.69)	12.9(0.51)	24.4(0.96)	5.9(0.23)	25.0(0.98)	24.0(0.94)	
16	3/8	-CM-ML16-BP6	43.4(1.71)	14.2(0.56)	24.4(0.96)	7.9(0.31)	25.0(0.98)	24.0(0.94)	
16	1/2	-CM-ML16-BP8	47.9(1.89)	18.8(0.74)	24.4(0.96)	9.5(0.37)	25.0(0.98)	24.0(0.94)	
18	1/2	-CM-ML18-BP8	49.8(1.96)	18.8(0.74)	24.4(0.96)	9.5(0.37)	30.0(1.18)	27.0(1.06)	

Male Connectors

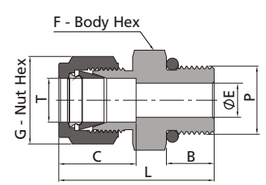


Adapt to straight thread boss of SAE J1926-1, ISO 11926-1 and MS 16142.



Metric Tube									SAE/MS Straight Thread
T-Tube O.D. (mm)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	E	G	F	
6	9/16-18	-CM-ML6-ST9	35.6(1.40)	9.9(0.39)	15.3(0.60)	4.8(0.19)	14.0(0.55)	18.0(0.71)	
10	9/16-18	-CM-ML10-ST9	37.3(1.47)	9.9(0.39)	17.2(0.68)	7.1(0.28)	19.0(0.75)	22.0(0.87)	
10	3/4-16	-CM-ML10-ST12	39.4(1.55)	11.2(0.44)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	
12	7/16-20	-CM-ML12-ST7	40.6(1.60)	9.1(0.36)	22.8(0.90)	5.2(0.20)	22.0(0.87)	22.0(0.87)	
12	9/16-18	-CM-ML12-ST9	39.9(1.57)	9.9(0.39)	22.8(0.90)	7.1(0.28)	22.0(0.87)	22.0(0.87)	

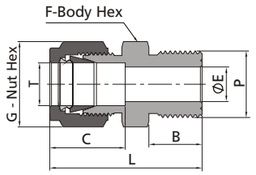
Metric Tube									Metric Thread (MRS)
T-Tube O.D. (mm)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	E	G	F	D
6	M8 x 1	-CM-ML6-MRS8	33.3(1.31)	8.0(0.31)	15.3(0.60)	3.0(0.12)	14.0(0.55)	14.0(0.55)	12.0(0.47)
6	M10 x 1	-CM-ML6-MRS10	33.3(1.31)	8.0(0.31)	15.3(0.60)	4.0(0.16)	14.0(0.55)	14.0(0.55)	14.0(0.55)
6	M12 x 1.5	-CM-ML6-MRS12	38.2(1.50)	12.0(0.47)	15.3(0.60)	4.8(0.19)	14.0(0.55)	18.0(0.71)	17.0(0.67)
6	M14 x 1.5	-CM-ML6-MRS14	39.7(1.56)	12.0(0.47)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)	19.0(0.75)
8	M8 x 1	-CM-ML8-MRS8	34.1(1.34)	8.0(0.31)	16.2(0.64)	3.0(0.12)	16.0(0.63)	14.0(0.55)	12.0(0.47)
8	M10 x 1	-CM-ML8-MRS10	34.1(1.34)	8.0(0.31)	16.2(0.64)	5.0(0.20)	16.0(0.63)	15.0(0.59)	14.0(0.55)
8	M12 x 1.5	-CM-ML8-MRS12	40.4(1.59)	12.0(0.47)	16.2(0.64)	6.0(0.24)	16.0(0.63)	18.0(0.71)	17.0(0.67)
8	M14 x 1.5	-CM-ML8-MRS14	40.4(1.59)	12.0(0.47)	16.2(0.64)	6.4(0.25)	16.0(0.63)	19.0(0.75)	19.0(0.75)
10	M12 x 1.5	-CM-ML10-MRS12	40.7(1.60)	12.0(0.47)	17.2(0.68)	6.0(0.24)	19.0(0.75)	18.0(0.71)	17.0(0.67)
10	M14 x 1.5	-CM-ML10-MRS14	41.5(1.63)	12.0(0.47)	17.2(0.68)	7.9(0.31)	19.0(0.75)	19.0(0.75)	19.0(0.75)
12	M16 x 1.5	-CM-ML12-MRS16	45.5(1.79)	12.0(0.47)	22.8(0.90)	9.0(0.35)	22.0(0.87)	22.0(0.87)	21.0(0.83)
12	M20 x 1.5	-CM-ML12-MRS20	48.0(1.89)	14.0(0.55)	22.8(0.90)	9.5(0.37)	22.0(0.87)	25.0(0.98)	25.0(0.98)
12	M22 x 1.5	-CM-ML12-MRS22	49.5(1.95)	14.0(0.55)	22.8(0.90)	9.5(0.37)	22.0(0.87)	27.0(1.06)	27.0(1.06)
14	M14 x 1.5	-CM-ML14-MRS14	44.9(1.77)	12.0(0.47)	24.4(0.96)	8.0(0.31)	25.0(0.98)	24.0(0.94)	19.0(0.75)
14	M20 x 1.5	-CM-ML14-MRS20	48.0(1.89)	14.0(0.55)	24.4(0.96)	11.1(0.44)	25.0(0.98)	25.0(0.98)	25.0(0.98)
16	M20 x 1.5	-CM-ML16-MRS20	48.0(1.89)	14.0(0.55)	24.4(0.96)	12.0(0.47)	25.0(0.98)	25.0(0.98)	25.0(0.98)
18	M20 x 1.5	-CM-ML18-MRS20	48.5(1.91)	14.0(0.55)	24.4(0.96)	12.0(0.47)	30.0(1.18)	27.0(1.06)	25.0(0.98)
20	M20 x 1.5	-CM-ML20-MRS20	50.0(1.97)	14.0(0.55)	26.0(1.02)	12.0(0.47)	32.0(1.26)	30.0(1.18)	25.0(0.98)
22	M24 x 1.5	-CM-ML22-MRS24	50.5(1.99)	14.0(0.55)	26.0(1.02)	15.0(0.59)	32.0(1.26)	30.0(1.18)	32.0(1.26)
25	M27 x 2	-CM-ML25-MRS27	57.5(2.26)	16.0(0.63)	31.3(1.23)	16.8(0.66)	38.0(1.50)	35.0(1.38)	32.0(1.26)



Adapt to straight thread boss of ISO 6149-1.

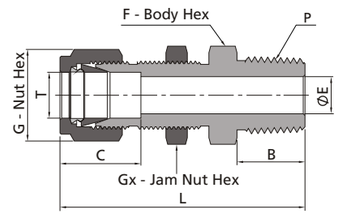
Metric Tube									Metric Thread (MST)
T-Tube O.D. (mm)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	E	G	F	
6	M14 x 1.5	-CM-ML6-MST14	35.2(1.39)	11.0(0.43)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)	
10	M14 x 1.5	-CM-ML10-MST14	36.7(1.44)	11.0(0.43)	17.2(0.68)	7.5(0.30)	19.0(0.75)	19.0(0.75)	
10	M20 x 1.5	-CM-ML10-MST20	41.2(1.62)	14.0(0.55)	17.2(0.68)	7.9(0.31)	19.0(0.75)	27.0(1.06)	
12	M14 x 1.5	-CM-ML12-MST14	40.2(1.58)	11.0(0.43)	22.8(0.90)	7.5(0.30)	22.0(0.87)	22.0(0.87)	
12	M20 x 1.5	-CM-ML12-MST20	44.0(1.73)	14.0(0.55)	22.8(0.90)	10.4(0.41)	22.0(0.87)	27.0(1.06)	

Male Connectors



Metric Tube								Metric Thread (MS)
T-Tube O.D. (mm)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm (in.)					
			L	B	C	E	G	F
6	M6 x 1	-CM-ML6-MS6	32.4(1.28)	8.0(0.31)	15.3(0.60)	2.0(0.08)	14.0(0.55)	14.0(0.55)
6	M8 x 1	-CM-ML6-MS8	32.4(1.28)	9.0(0.35)	15.3(0.60)	3.0(0.12)	14.0(0.55)	14.0(0.55)
6	M10 x 1	-CM-ML6-MS10	35.2(1.39)	11.0(0.43)	15.3(0.60)	4.7(0.19)	14.0(0.55)	14.0(0.55)
6	M12 x 1.5	-CM-ML6-MS12	36.4(1.43)	12.0(0.47)	15.3(0.60)	4.8(0.19)	14.0(0.55)	14.0(0.55)
6	M14 x 1.5	-CM-ML6-MS14	37.4(1.47)	13.0(0.51)	15.3(0.60)	4.8(0.19)	14.0(0.55)	16.0(0.63)
6	M16 x 1.5	-CM-ML6-MS16	38.4(1.51)	14.0(0.55)	15.3(0.60)	4.8(0.19)	14.0(0.55)	18.0(0.71)
6	M18 x 1.5	-CM-ML6-MS18	40.0(1.57)	15.0(0.59)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)
6	M20 x 1.5	-CM-ML6-MS20	41.7(1.64)	16.0(0.63)	15.3(0.60)	4.8(0.19)	14.0(0.55)	22.0(0.87)
8	M8 x 1	-CM-ML8-MS8	34.5(1.36)	9.0(0.35)	16.2(0.64)	3.0(0.12)	16.0(0.63)	14.0(0.55)
8	M10 x 1	-CM-ML8-MS10	35.6(1.40)	11.0(0.43)	16.2(0.64)	4.7(0.19)	16.0(0.63)	14.0(0.55)
8	M12 x 1.5	-CM-ML8-MS12	36.6(1.44)	12.0(0.47)	16.2(0.64)	6.0(0.24)	16.0(0.63)	14.0(0.55)
8	M14 x 1.5	-CM-ML8-MS14	37.7(1.48)	13.0(0.51)	16.2(0.64)	6.4(0.25)	16.0(0.63)	16.0(0.63)
8	M20 x 1.5	-CM-ML8-MS20	42.5(1.67)	16.0(0.63)	16.2(0.64)	6.4(0.25)	16.0(0.63)	22.0(0.87)
10	M12 x 1.5	-CM-ML10-MS12	38.7(1.52)	12.0(0.47)	17.2(0.68)	6.0(0.24)	19.0(0.75)	18.0(0.71)
10	M14 x 1.5	-CM-ML10-MS14	39.7(1.56)	13.0(0.51)	17.2(0.68)	7.2(0.28)	19.0(0.75)	18.0(0.71)
10	M20 x 1.5	-CM-ML10-MS20	43.5(1.71)	16.0(0.63)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)
12	M12 x 1.5	-CM-ML12-MS12	41.2(1.62)	12.0(0.47)	22.8(0.90)	6.0(0.24)	22.0(0.87)	22.0(0.87)
12	M16 x 1.5	-CM-ML12-MS16	43.2(1.70)	14.0(0.55)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)
12	M18 x 1.5	-CM-ML12-MS18	44.2(1.74)	15.0(0.59)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)
12	M20 x 1.5	-CM-ML12-MS20	45.2(1.78)	13.0(0.51)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)
14	M14 x 1.5	-CM-ML14-MS14	42.5(1.67)	13.0(0.51)	24.4(0.96)	7.2(0.28)	25.0(0.98)	24.0(0.94)
14	M16 x 1.5	-CM-ML14-MS16	43.9(1.73)	14.0(0.55)	24.4(0.96)	8.4(0.33)	25.0(0.98)	24.0(0.94)
14	M20 x 1.5	-CM-ML14-MS20	45.1(1.78)	16.0(0.63)	24.4(0.96)	10.8(0.43)	25.0(0.98)	24.0(0.94)
16	M20 x 1.5	-CM-ML16-MS20	46.1(1.81)	16.0(0.63)	24.4(0.96)	10.8(0.43)	25.0(0.98)	24.0(0.94)
18	M20 x 1.5	-CM-ML18-MS20	47.5(1.87)	16.0(0.63)	24.4(0.96)	10.8(0.43)	30.0(1.18)	27.0(1.06)
18	M22 x 1.5	-CM-ML18-MS22	48.5(1.91)	17.0(0.67)	24.4(0.96)	12.0(0.47)	30.0(1.18)	27.0(1.06)
20	M20 x 1.5	-CM-ML20-MS20	49.5(1.95)	16.0(0.63)	26.0(1.02)	10.8(0.43)	32.0(1.26)	30.0(1.18)
22	M24 x 1.5	-CM-ML22-MS24	50.5(1.99)	17.0(0.67)	26.0(1.02)	14.4(0.57)	32.0(1.26)	30.0(1.18)
25	M27 x 2	-CM-ML25-MS27	57.0(2.24)	18.0(0.71)	31.3(1.23)	16.1(0.63)	38.0(1.50)	35.0(1.38)

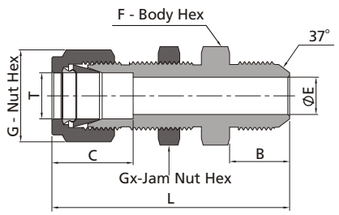
Bulkhead Male Connectors



Fractional Tube											NPT Thread
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)							Panel Hole Size in. (mm)	Max. Panel Thickness in. (mm)
			L	B	C	E	G	F	Gx		
1/16	1/16	-BCM-FL1-NS1	1.19(30.2)	0.38(9.7)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.31(7.9)	0.31(7.9)	0.20(5.2)	0.25(6.4)
1/16	1/8	-BCM-FL1-NS2	1.27(32.3)	0.38(9.7)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.44(11.1)	0.31(7.9)	0.20(5.2)	0.25(6.4)
1/8	1/8	-BCM-FL2-NS2	1.83(46.5)	0.38(9.7)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.50(12.7)	0.50(12.7)	0.33(8.3)	0.50(12.7)
3/16	1/8	-BCM-FL3-NS2	1.89(48.0)	0.38(9.7)	0.54(13.7)	0.12(3.0)	0.50(12.7)	0.56(14.3)	0.56(14.3)	0.39(9.9)	0.50(12.7)
1/4	1/8	-BCM-FL4-NS2	1.95(49.5)	0.38(9.7)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.63(15.9)	0.63(15.9)	0.45(11.5)	0.40(10.2)
1/4	1/4	-BCM-FL4-NS4	2.13(54.1)	0.56(14.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.63(15.9)	0.63(15.9)	0.45(11.5)	0.40(10.2)
1/4	3/8	-BCM-FL4-NS6	2.16(54.9)	0.56(14.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.69(17.5)	0.69(17.5)	0.45(11.5)	0.40(10.2)
1/4	1/2	-BCM-FL4-NS8	2.37(60.3)	0.75(19.1)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.87(22.2)	0.87(22.2)	0.45(11.5)	0.40(10.2)
5/16	1/8	-BCM-FL5-NS2	2.08(52.8)	0.38(9.7)	0.64(16.3)	0.19(4.8)	0.63(15.9)	0.69(17.5)	0.69(17.5)	0.52(13.1)	0.44(11.2)
5/16	1/4	-BCM-FL5-NS4	2.27(57.7)	0.56(14.2)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.69(17.5)	0.69(17.5)	0.52(13.1)	0.44(11.2)
3/8	1/8	-BCM-FL6-NS2	2.08(52.9)	0.38(9.7)	0.66(16.8)	0.19(4.8)	0.69(17.5)	0.75(19.1)	0.75(19.1)	0.58(14.7)	0.44(11.2)
3/8	1/4	-BCM-FL6-NS4	2.26(57.4)	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)
3/8	3/8	-BCM-FL6-NS6	2.26(57.4)	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)
3/8	1/2	-BCM-FL6-NS8	2.51(63.8)	0.75(19.1)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.87(22.2)	0.87(22.2)	0.58(14.7)	0.44(11.2)
1/2	1/8	-BCM-FL8-NS2	2.31(58.7)	0.38(9.7)	0.90(22.9)	0.19(4.8)	0.87(22.2)	0.94(23.8)	0.94(23.8)	0.76(19.4)	0.50(12.7)
1/2	1/4	-BCM-FL8-NS4	2.49(63.2)	0.56(14.2)	0.90(22.9)	0.28(7.1)	0.87(22.2)	0.94(23.8)	0.94(23.8)	0.76(19.4)	0.50(12.7)
1/2	3/8	-BCM-FL8-NS6	2.49(63.2)	0.56(14.2)	0.90(22.9)	0.38(9.7)	0.87(22.0)	0.94(23.8)	0.94(23.8)	0.76(19.4)	0.50(12.7)
1/2	1/2	-BCM-FL8-NS8	2.71(68.8)	0.75(19.1)	0.90(22.9)	0.41(10.4)	0.87(22.0)	0.94(23.8)	0.94(23.8)	0.76(19.4)	0.50(12.7)
5/8	3/8	-BCM-FL10-NS6	2.63(66.7)	0.56(14.2)	0.96(24.4)	0.38(9.7)	1.00(25.4)	1.06(27.0)	1.06(27.0)	0.89(22.6)	0.59(15.1)
5/8	1/2	-BCM-FL10-NS8	2.81(71.5)	0.75(19.1)	0.96(24.4)	0.47(11.9)	1.00(25.4)	1.06(27.0)	1.06(27.0)	0.89(22.6)	0.59(15.1)
3/4	1/2	-BCM-FL12-NS8	3.00(76.2)	0.75(19.1)	0.96(24.4)	0.47(11.9)	1.13(28.6)	1.19(30.2)	1.19(30.2)	1.02(25.8)	0.66(16.8)
3/4	3/4	-BCM-FL12-NS12	3.00(76.2)	0.75(19.1)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.19(30.2)	1.19(30.2)	1.02(25.8)	0.66(16.8)
7/8	3/4	-BCM-FL14-NS12	3.31(84.1)	0.75(19.1)	1.02(25.9)	0.62(15.7)	1.25(31.8)	1.31(33.3)	1.31(33.3)	1.14(29.0)	0.75(19.1)
1	3/4	-BCM-FL16-NS12	3.48(88.4)	0.75(19.1)	1.23(31.2)	0.62(15.7)	1.50(38.1)	1.63(41.3)	1.63(41.3)	1.33(33.7)	0.75(19.1)
1	1	-BCM-FL16-NS16	3.67(93.2)	0.94(23.9)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.63(41.3)	1.63(41.3)	1.33(33.7)	0.75(19.1)

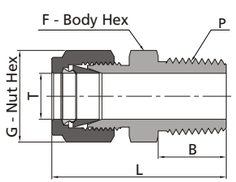
Metric Tube											NPT Thread
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)							Panel Hole Size mm (in.)	Max. Panel Thickness mm (in.)
			L	B	C	E	G	F	Gx		
6	1/8	-BCM-ML6-NS2	49.6(1.95)	9.7(0.38)	15.3(0.60)	4.8(0.19)	14.0(0.55)	16.0(0.63)	16.0(0.63)	11.5(0.45)	10.2(0.40)
6	1/4	-BCM-ML6-NS4	53.6(2.11)	14.2(0.56)	15.3(0.60)	4.8(0.19)	14.0(0.55)	16.0(0.63)	16.0(0.63)	11.5(0.45)	10.2(0.40)
8	1/8	-BCM-ML8-NS2	52.3(2.06)	9.7(0.38)	16.2(0.64)	4.8(0.19)	16.0(0.63)	18.0(0.71)	18.0(0.71)	13.1(0.52)	11.2(0.44)
8	1/4	-BCM-ML8-NS4	57.5(2.26)	14.2(0.56)	16.2(0.64)	6.4(0.25)	16.0(0.63)	18.0(0.71)	18.0(0.71)	13.1(0.52)	11.2(0.44)
10	1/4	-BCM-ML10-NS4	58.4(2.30)	14.2(0.56)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	22.0(0.87)	16.3(0.64)	11.2(0.44)
10	3/8	-BCM-ML10-NS6	58.4(2.30)	14.2(0.56)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	22.0(0.87)	16.3(0.64)	11.2(0.44)
10	1/2	-BCM-ML10-NS8	63.1(2.48)	19.1(0.75)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	22.0(0.87)	16.3(0.64)	11.2(0.44)
12	1/4	-BCM-ML12-NS4	63.9(2.52)	14.2(0.56)	22.8(0.90)	7.9(0.31)	22.0(0.87)	24.0(0.94)	24.0(0.94)	19.5(0.77)	12.7(0.50)
12	3/8	-BCM-ML12-NS6	63.9(2.52)	14.2(0.56)	22.8(0.90)	9.5(0.37)	22.0(0.87)	24.0(0.94)	24.0(0.94)	19.5(0.77)	12.7(0.50)
12	1/2	-BCM-ML12-NS8	68.8(2.71)	19.1(0.75)	22.8(0.90)	9.5(0.37)	22.0(0.87)	24.0(0.94)	24.0(0.94)	19.5(0.77)	12.7(0.50)

Bulkhead Male Connectors



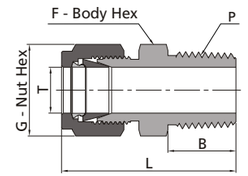
Fractional Tube											37° Flare (AN)
T-Tube O.D. (in.)	AN Tube Flare Size	Basic Ordering Number	Dimension, in. (mm)							Panel Hole Size in. (mm)	Max. Panel Thickness in. (mm)
			L	B	C	E	G	F	Gx		
1/8	1/8	-BCM-FL2-AN2	1.91(48.5)	0.45(11.4)	0.50(12.7)	0.06(1.5)	0.44(11.1)	0.50(12.7)	0.50(12.7)	0.33(8.3)	0.50(12.7)
1/8	1/4	-BCM-FL2-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	-BCM-FL3-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	-BCM-FL4-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	-BCM-FL5-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	-BCM-FL6-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	-BCM-FL6-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	-BCM-FL8-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	-BCM-FL10-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	-BCM-FL12-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	-BCM-FL16-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



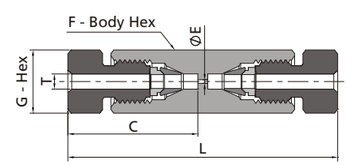
Fractional Tube						NPT Thread
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	G	F
1/16	1/16	-TCM-FL1-NS1	0.94(23.9)	0.38(9.7)	0.31(7.9)	0.31(7.9)
1/16	1/8	-TCM-FL1-NS2	1.03(26.2)	0.38(9.7)	0.31(7.9)	0.44(11.1)
1/16	1/4	-TCM-FL1-NS4	1.22(31.0)	0.56(14.2)	0.31(7.9)	0.56(14.3)
1/8	1/16	-TCM-FL2-NS1	1.17(29.7)	0.38(9.7)	0.44(11.1)	0.44(11.1)
1/8	1/8	-TCM-FL2-NS2	1.20(30.5)	0.38(9.7)	0.44(11.1)	0.44(11.1)
1/8	1/4	-TCM-FL2-NS4	1.40(35.6)	0.56(14.2)	0.44(11.1)	0.56(14.3)
3/16	1/8	-TCM-FL3-NS2	1.23(31.2)	0.38(9.7)	0.50(12.7)	0.44(11.1)
3/16	1/4	-TCM-FL3-NS4	1.43(36.3)	0.56(14.2)	0.50(12.7)	0.56(14.3)
1/4	1/8	-TCM-FL4-NS2	1.29(32.8)	0.38(9.7)	0.56(14.3)	0.50(12.7)
1/4	1/4	-TCM-FL4-NS4	1.49(37.8)	0.56(14.2)	0.56(14.3)	0.56(14.3)
1/4	3/8	-TCM-FL4-NS6	1.51(38.4)	0.56(14.2)	0.56(14.3)	0.69(17.5)
1/4	1/2	-TCM-FL4-NS8	1.76(44.7)	0.75(19.1)	0.56(14.3)	0.87(22.2)
5/16	1/4	-TCM-FL5-NS4	1.52(38.6)	0.56(14.2)	0.63(15.9)	0.56(14.3)
3/8	1/4	-TCM-FL6-NS4	1.57(39.9)	0.56(14.2)	0.69(17.5)	0.63(15.9)
3/8	3/8	-TCM-FL6-NS6	1.57(39.9)	0.56(14.2)	0.69(17.5)	0.69(17.5)
3/8	1/2	-TCM-FL6-NS8	1.82(46.2)	0.75(19.1)	0.69(17.5)	0.87(22.2)
3/8	3/4	-TCM-FL6-NS12	1.88(47.8)	0.75(19.1)	0.69(17.5)	1.06(27.0)
1/2	1/2	-TCM-FL8-NS8	1.93(49.0)	0.75(19.1)	0.87(22.2)	0.87(22.2)
1/2	3/4	-TCM-FL8-NS12	1.99(50.5)	0.75(19.1)	0.87(22.2)	1.06(27.0)
5/8	3/4	-TCM-FL10-NS12	1.99(50.5)	0.75(19.1)	1.00(25.4)	1.06(27.0)
3/4	3/4	-TCM-FL12-NS12	1.99(50.5)	0.75(19.1)	1.13(28.6)	1.06(27.0)
1	1	-TCM-FL16-NS16	2.45(62.2)	0.94(23.9)	1.50(38.1)	1.37(34.9)

Thermocouple Connectors

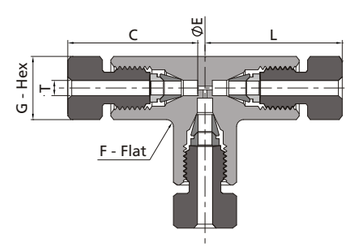


Metric Tube						NPT Thread
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	G	F
2	1/8	-TCM-ML2-NS2	30.5(1.20)	9.7(0.38)	12.0(0.47)	12.0(0.47)
3	1/8	-TCM-ML3-NS2	30.5(1.20)	9.7(0.38)	12.0(0.47)	12.0(0.47)
3	1/4	-TCM-ML3-NS4	35.6(1.40)	14.2(0.56)	12.0(0.47)	14.0(0.55)
4	1/8	-TCM-ML4-NS2	31.2(1.23)	9.7(0.38)	12.0(0.47)	12.0(0.47)
4	1/4	-TCM-ML4-NS4	36.3(1.43)	14.2(0.56)	12.0(0.47)	14.0(0.55)
6	1/8	-TCM-ML6-NS2	32.8(1.29)	9.7(0.38)	14.0(0.55)	14.0(0.55)
6	1/4	-TCM-ML6-NS4	37.9(1.49)	14.2(0.56)	14.0(0.55)	14.0(0.55)
6	3/8	-TCM-ML6-NS6	38.4(1.51)	14.2(0.56)	14.0(0.55)	18.0(0.71)
6	1/2	-TCM-ML6-NS8	44.7(1.76)	19.1(0.75)	14.0(0.55)	22.0(0.87)
8	1/4	-TCM-ML8-NS4	38.7(1.52)	14.2(0.56)	16.0(0.63)	15.0(0.59)
8	3/8	-TCM-ML8-NS6	39.3(1.55)	14.2(0.56)	16.0(0.63)	18.0(0.71)
8	1/2	-TCM-ML8-NS8	45.6(1.80)	19.1(0.75)	16.0(0.63)	22.0(0.87)
10	3/8	-TCM-ML10-NS6	40.9(1.61)	14.2(0.56)	19.0(0.75)	18.0(0.71)
10	1/2	-TCM-ML10-NS8	46.5(1.83)	19.1(0.75)	19.0(0.75)	22.0(0.87)
10	3/4	-TCM-ML10-NS12	48.0(1.89)	19.1(0.75)	19.0(0.75)	27.0(1.06)
10	1	-TCM-ML10-NS16	54.6(2.15)	23.9(0.94)	19.0(0.75)	35.0(1.38)
12	3/8	-TCM-ML12-NS6	43.4(1.71)	14.2(0.56)	22.0(0.87)	22.0(0.87)
12	1/2	-TCM-ML12-NS8	49.0(1.93)	19.1(0.75)	22.0(0.87)	22.0(0.87)
12	3/4	-TCM-ML12-NS12	50.5(1.99)	19.1(0.75)	22.0(0.87)	27.0(1.06)
14	1/2	-TCM-ML14-NS8	49.0(1.93)	19.1(0.75)	25.0(0.98)	24.0(0.94)
14	3/4	-TCM-ML14-NS12	50.5(1.99)	19.1(0.75)	25.0(0.98)	27.0(1.06)
15	1/2	-TCM-ML15-NS8	49.0(1.93)	19.1(0.75)	25.0(0.98)	24.0(0.94)
15	3/4	-TCM-ML15-NS12	50.5(1.99)	19.1(0.75)	25.0(0.98)	27.0(1.06)
15	1	-TCM-ML15-NS16	57.1(2.25)	23.9(0.94)	25.0(0.98)	35.0(1.38)
16	3/4	-TCM-ML16-NS12	50.5(1.99)	19.1(0.75)	25.0(0.98)	27.0(1.06)
18	3/4	-TCM-ML18-NS12	50.5(1.99)	19.1(0.75)	30.0(1.18)	27.0(1.06)
20	1	-TCM-ML20-NS16	57.1(2.25)	23.9(0.94)	32.0(1.26)	35.0(1.38)
22	1	-TCM-ML22-NS16	57.1(2.25)	23.9(0.94)	32.0(1.26)	35.0(1.38)
25	1	-TCM-ML25-NS16	62.3(2.45)	23.9(0.94)	38.0(1.50)	35.0(1.38)

Chromatograph Fittings

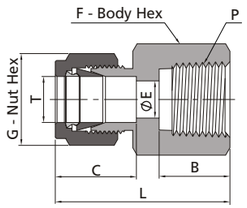


Fractional Tube							
T-Tube O.D (in.)	Basic Ordering Number	Dimension, in. (mm)					Dead Volume
		L	C	E	G	F	
1/16	-U-NFL1	1.26(32.0)	0.61(15.5)	0.01(0.3)	0.25(6.4)	0.25(6.4)	6.6×10^{-5} cm^3



Fractional Tube							
T-Tube O.D (in.)	Basic Ordering Number	Dimension, in. (mm)					Dead Volume
		L	C	E	G	F	
1/16	-TTT-NFL1	0.66(16.8)	0.61(15.5)	0.01(0.3)	0.25(6.4)	0.37(9.5)	2.8×10^{-4} cm^3

Female Connectors



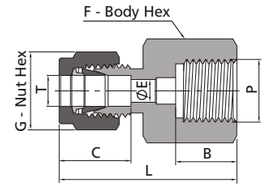
Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	B	C	E	G	F
1/16	1/16	-CF-FL1-NS1	0.93(23.6)	0.39(9.9)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.44(11.1)
1/16	1/8	-CF-FL1-NS2	0.96(24.4)	0.41(10.4)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.56(14.3)
1/8	1/8	-CF-FL2-NS2	1.13(28.7)	0.41(10.4)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.56(14.3)
1/8	1/4	-CF-FL2-NS4	1.32(33.5)	0.59(15.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.75(19.1)
3/16	1/8	-CF-FL3-NS2	1.17(29.7)	0.41(10.4)	0.54(13.7)	0.12(3.0)	0.50(12.7)	0.56(14.3)
1/4	1/8	-CF-FL4-NS2	1.23(31.2)	0.41(10.4)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.56(14.3)
1/4	1/4	-CF-FL4-NS4	1.41(35.8)	0.59(15.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.75(19.1)
1/4	3/8	-CF-FL4-NS6	1.48(37.6)	0.59(15.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.87(22.2)
1/4	1/2	-CF-FL4-NS8	1.67(42.4)	0.78(19.8)	0.60(15.2)	16.3(4.8)	0.56(14.3)	1.06(27.0)
5/16	1/8	-CF-FL5-NS2	1.26(32.0)	0.41(10.4)	0.64(16.3)	16.3(6.4)	0.63(15.9)	0.56(14.3)
5/16	1/4	-CF-FL5-NS4	1.45(36.8)	0.59(15.0)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.75(19.1)
3/8	1/8	-CF-FL6-NS2	1.29(32.8)	0.41(10.4)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.63(15.9)
3/8	1/4	-CF-FL6-NS4	1.48(37.6)	0.59(15.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.75(19.1)
3/8	3/8	-CF-FL6-NS6	1.54(39.1)	0.59(15.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.87(22.0)
3/8	1/2	-CF-FL6-NS8	1.73(43.9)	0.78(19.8)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.06(27.0)
3/8	3/4	-CF-FL6-NS12	1.88(47.8)	0.81(20.6)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.31(33.3)
1/2	1/4	-CF-FL8-NS4	1.59(40.4)	0.59(15.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.81(20.6)
1/2	3/8	-CF-FL8-NS6	1.65(41.9)	0.59(15.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.87(22.2)
1/2	1/2	-CF-FL8-NS8	1.84(46.7)	0.78(19.8)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.06(27.0)
1/2	3/4	-CF-FL8-NS12	1.90(48.3)	0.81(20.6)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.31(33.3)
5/8	3/8	-CF-FL10-NS6	1.65(41.9)	0.59(15.0)	0.96(24.4)	0.50(12.7)	1.00(25.4)	0.94(23.8)
5/8	1/2	-CF-FL10-NS8	1.84(46.7)	0.78(19.8)	0.96(24.4)	0.50(12.7)	1.00(25.4)	1.06(27.0)
3/4	1/2	-CF-FL12-NS8	1.84(46.7)	0.78(19.8)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.06(27.0)
3/4	3/4	-CF-FL12-NS12	1.90(48.3)	0.81(20.6)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.31(33.3)
7/8	3/4	-CF-FL14-NS12	1.96(49.8)	0.81(20.6)	1.02(25.9)	0.72(18.3)	1.25(31.8)	1.31(33.3)
1	3/4	-CF-FL16-NS12	2.10(53.3)	0.81(20.6)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.37(34.9)
1	1	-CF-FL16-NS16	2.45(62.2)	1.00(25.4)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.63(41.3)
1 1/4	1 1/4	-CF-FL20-NS20	2.94(74.7)	1.00(25.4)	1.62(41.1)	1.09(27.7)	1.87(47.6)	2.13(54.0)
1 1/2	1 1/2	-CF-FL24-NS24	3.30(83.8)	1.09(27.7)	1.97(50.0)	1.43(36.3)	2.25(57.2)	2.37(60.3)

Fractional Tube — ISO Tapered Thread (RT)

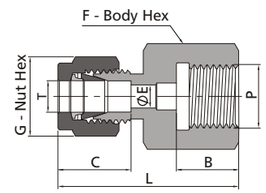
T-Tube O.D. (in.)	P-RT Size	Basic Ordering Number	Dimension, in. (mm) L	B	C	E	G	F
1/4	1/8	-CF-FL4-RT2	1.23(31.2)	0.41(10.4)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.56(14.3)
1/4	1/4	-CF-FL4-RT4	1.41(35.8)	0.59(15.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.75(19.1)
1/4	3/8	-CF-FL4-RT6	1.48(37.6)	0.59(15.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.87(22.2)
1/4	1/2	-CF-FL4-RT8	1.67(42.4)	0.78(19.8)	0.60(15.2)	0.19(4.8)	0.56(14.3)	1.06(27.0)
3/8	1/4	-CF-FL6-RT4	1.48(37.6)	0.59(15.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.75(19.1)
3/8	3/8	-CF-FL6-RT6	1.54(39.1)	0.59(15.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.87(22.2)
3/8	1/2	-CF-FL6-RT8	1.73(43.9)	0.78(19.8)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.06(27.0)
1/2	1/4	-CF-FL8-RT4	1.59(40.4)	0.59(15.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.81(20.6)
1/2	3/8	-CF-FL8-RT6	1.65(41.9)	0.59(15.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.87(22.2)
1/2	1/2	-CF-FL8-RT8	1.84(46.7)	0.78(19.8)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.06(27.0)

Female Connectors



Fractional Tube — ISO Parallel Thread (RG)

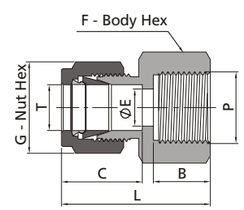
T-Tube O.D. (in.)	P-RG Size	Basic Ordering Number	Dimension, in. (mm) L	B	C	E	G	F
1/8	1/4	-CF-FL2-RG4	1.39(35.3)	0.51(12.9)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.75(19.1)
1/8	3/8	-CF-FL2-RG6	1.52(38.7)	0.56(14.2)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.94(23.8)
1/4	1/4	-CF-FL4-RG4	1.48(37.6)	0.51(12.9)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.75(19.1)
1/4	3/8	-CF-FL4-RG6	1.48(37.6)	0.56(14.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.94(23.8)
1/4	1/2	-CF-FL4-RG8	1.71(43.4)	0.74(18.8)	0.60(15.2)	0.19(4.8)	0.56(14.3)	1.06(27.0)
5/16	1/4	-CF-FL5-RG4	1.51(38.4)	0.51(12.9)	0.64(16.3)	0.22(5.6)	0.63(15.9)	0.75(19.1)
5/16	3/8	-CF-FL5-RG6	1.54(39.2)	0.56(14.2)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.94(23.8)
5/16	1/2	-CF-FL5-RG8	1.61(40.9)	0.74(18.8)	0.64(16.3)	0.28(7.1)	0.63(15.9)	1.06(27.0)
3/8	1/4	-CF-FL6-RG4	1.54(39.1)	0.51(12.9)	0.66(16.8)	0.22(5.6)	0.69(17.5)	0.75(19.1)
3/8	3/8	-CF-FL6-RG6	1.52(38.6)	0.56(14.2)	0.66(16.8)	0.21(5.4)	0.69(17.5)	0.94(23.8)
3/8	1/2	-CF-FL6-RG8	1.65(41.9)	0.74(18.8)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.06(27.0)
1/2	1/4	-CF-FL8-RG4	1.65(41.9)	0.51(12.9)	0.90(22.9)	0.22(5.6)	0.87(22.2)	0.87(22.2)
1/2	3/8	-CF-FL8-RG6	1.75(44.5)	0.56(14.2)	0.90(22.9)	0.25(6.4)	0.87(22.2)	0.94(23.8)
1/2	1/2	-CF-FL8-RG8	1.90(48.3)	0.74(18.8)	0.90(22.9)	0.28(7.1)	0.87(22.2)	1.06(27.0)



Adapt to Japanese gauge stud (JIS B7505)

Fractional Tube — ISO Parallel Thread (RJ)

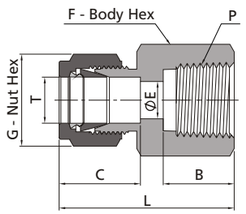
T-Tube O.D. (in.)	P-RJ Size	Basic Ordering Number	Dimension, in. (mm) L	B	C	E	G	F
1/4	1/4	-CF-FL4-RJ4	1.48(37.6)	0.51(12.9)	0.60(15.2)	0.18(4.6)	0.56(14.3)	0.75(19.1)
1/4	3/8	-CF-FL4-RJ6	1.48(37.6)	0.62(15.8)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.94(23.8)
1/4	1/2	-CF-FL4-RJ8	1.71(43.4)	0.74(18.8)	0.60(15.2)	0.19(4.8)	0.56(14.3)	1.06(27.0)
5/16	1/4	-CF-FL5-RJ4	1.51(38.4)	0.51(12.9)	0.64(16.3)	0.22(5.6)	0.63(15.9)	0.75(19.1)
5/16	1/2	-CF-FL5-RJ8	1.61(40.9)	0.74(18.8)	0.64(16.3)	0.28(7.1)	0.63(15.9)	1.06(27.0)
3/8	1/4	-CF-FL6-RJ4	1.54(39.1)	0.51(12.9)	0.66(16.8)	0.22(5.6)	0.69(17.5)	0.75(19.1)
3/8	3/8	-CF-FL6-RJ6	1.52(38.6)	0.62(15.8)	0.66(16.8)	0.25(6.4)	0.69(17.5)	0.94(23.8)
3/8	1/2	-CF-FL6-RJ8	1.65(41.9)	0.74(18.8)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.06(27.0)
1/2	1/4	-CF-FL8-RJ4	1.65(41.9)	0.51(12.9)	0.90(22.9)	0.22(5.6)	0.87(22.2)	0.81(20.6)
1/2	3/8	-CF-FL8-RJ6	1.75(44.5)	0.62(15.8)	0.90(22.9)	0.25(6.4)	0.87(22.2)	0.94(23.8)
1/2	1/2	-CF-FL8-RJ8	1.90(48.3)	0.74(18.8)	0.90(22.9)	0.28(7.1)	0.87(22.2)	1.06(27.0)



Fractional Tube — Metric Thread

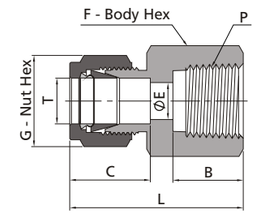
T-Tube O.D. (in.)	P-Metric Thread Size	Basic Ordering Number	Dimension, in. (mm) L	B	C	E	G	F
1/8	M14 x 1.5	-CF-FL2-MS14	1.27(32.3)	0.51(13.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.75(19.1)
1/8	M16 x 1.5	-CF-FL2-MS16	1.31(33.3)	0.55(14.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.87(22.2)
1/8	M18 x 1.5	-CF-FL2-MS18	1.35(34.3)	0.59(15.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	1.00(25.4)
1/8	M20 x 1.5	-CF-FL2-MS20	1.39(35.3)	0.63(16.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	1.06(27.0)
1/4	M16 x 1.5	-CF-FL4-MS16	1.41(35.8)	0.55(14.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.87(22.2)
1/4	M18 x 1.5	-CF-FL4-MS18	1.45(36.8)	0.59(15.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	1.00(25.4)
1/4	M20 x 1.5	-CF-FL4-MS20	1.49(37.8)	0.63(16.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	1.06(27.0)
3/8	M14 x 1.5	-CF-FL6-MS14	1.46(37.1)	0.51(13.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.75(19.1)
3/8	M16 x 1.5	-CF-FL6-MS16	1.48(37.5)	0.55(14.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.87(22.2)
3/8	M18 x 1.5	-CF-FL6-MS18	1.52(38.5)	0.59(15.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.00(25.4)
3/8	M20 x 1.5	-CF-FL6-MS20	1.56(39.5)	0.63(16.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.06(27.0)
1/2	M16 x 1.5	-CF-FL8-MS16	1.63(41.4)	0.55(14.0)	0.90(22.9)	0.33(8.4)	0.87(22.2)	0.87(22.2)
1/2	M18 x 1.5	-CF-FL8-MS18	1.67(42.4)	0.59(15.0)	0.90(22.9)	0.38(9.6)	0.87(22.2)	1.00(25.4)
1/2	M20 x 1.5	-CF-FL8-MS20	1.71(43.4)	0.63(16.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.06(27.0)
1/2	M22 x 1.5	-CF-FL8-MS22	1.75(44.4)	0.67(17.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.06(27.0)

Female Connectors

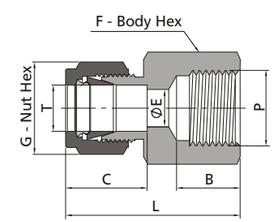


Metric Tube									NPT Thread
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	E	G	F	
3	1/8	-CF-ML3-NS2	28.7(1.13)	10.4(0.41)	12.9(0.51)	2.4(0.09)	12.0(0.47)	14.0(0.55)	
3	1/4	-CF-ML3-NS4	33.5(1.32)	15.0(0.59)	12.9(0.51)	2.4(0.09)	12.0(0.47)	19.0(0.75)	
4	1/8	-CF-ML4-NS2	29.7(1.17)	10.4(0.41)	13.7(0.54)	2.4(0.09)	12.0(0.47)	14.0(0.55)	
6	1/8	-CF-ML6-NS2	31.3(1.23)	10.4(0.41)	15.3(0.60)	4.8(0.19)	14.0(0.55)	14.0(0.55)	
6	1/4	-CF-ML6-NS4	35.8(1.41)	15.0(0.59)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)	
6	3/8	-CF-ML6-NS6	37.7(1.48)	15.0(0.59)	15.3(0.60)	4.8(0.19)	14.0(0.55)	22.0(0.87)	
6	1/2	-CF-ML6-NS8	42.5(1.67)	19.8(0.78)	15.3(0.60)	4.8(0.19)	14.0(0.55)	27.0(1.06)	
8	1/8	-CF-ML8-NS2	32.1(1.26)	10.4(0.41)	16.2(0.64)	6.4(0.25)	16.0(0.63)	15.0(0.59)	
8	1/4	-CF-ML8-NS4	37.0(1.46)	15.0(0.59)	16.2(0.64)	6.4(0.25)	16.0(0.63)	19.0(0.75)	
8	3/8	-CF-ML8-NS6	38.5(1.52)	15.0(0.59)	16.2(0.64)	6.4(0.25)	16.0(0.63)	22.0(0.87)	
8	1/2	-CF-ML8-NS8	43.3(1.70)	19.8(0.78)	16.2(0.64)	6.4(0.25)	16.0(0.63)	27.0(1.06)	
10	1/8	-CF-ML10-NS2	33.0(1.30)	10.4(0.41)	17.2(0.68)	7.9(0.31)	19.0(0.75)	15.0(0.59)	
10	1/4	-CF-ML10-NS4	37.8(1.49)	15.0(0.59)	17.2(0.68)	7.9(0.31)	19.0(0.75)	19.0(0.75)	
10	3/8	-CF-ML10-NS6	39.4(1.55)	15.0(0.59)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	
10	1/2	-CF-ML10-NS8	44.2(1.74)	19.8(0.78)	17.2(0.68)	7.9(0.31)	19.0(0.75)	27.0(1.06)	
12	1/4	-CF-ML12-NS4	40.3(1.59)	15.0(0.59)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)	
12	3/8	-CF-ML12-NS6	41.9(1.65)	15.0(0.59)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)	
12	1/2	-CF-ML12-NS8	46.7(1.84)	19.8(0.78)	22.8(0.90)	9.5(0.37)	22.0(0.87)	27.0(1.06)	
12	3/4	-CF-ML12-NS12	49.7(1.96)	20.6(0.81)	22.8(0.90)	9.5(0.37)	22.0(0.87)	35.0(1.38)	
14	3/4	-CF-ML14-NS12	49.7(1.96)	20.6(0.81)	24.4(0.96)	11.1(0.44)	25.0(0.98)	35.0(1.38)	
15	1/2	-CF-ML15-NS8	46.7(1.84)	19.8(0.78)	24.4(0.96)	11.9(0.47)	25.0(0.98)	27.0(1.06)	
16	3/8	-CF-ML16-NS6	41.9(1.65)	15.0(0.59)	24.4(0.96)	12.7(0.50)	25.0(0.98)	27.0(1.06)	
16	1/2	-CF-ML16-NS8	46.9(1.85)	19.8(0.78)	24.4(0.96)	12.7(0.50)	25.0(0.98)	27.0(1.06)	
20	1/2	-CF-ML20-NS8	47.9(1.89)	19.8(0.78)	26.0(1.02)	15.9(0.63)	32.0(1.26)	30.0(1.18)	
20	3/4	-CF-ML20-NS12	49.7(1.96)	20.6(0.81)	26.0(1.02)	15.9(0.63)	32.0(1.26)	35.0(1.38)	
22	3/4	-CF-ML22-NS12	49.7(1.96)	20.6(0.81)	26.0(1.02)	18.3(0.72)	32.0(1.26)	35.0(1.38)	
22	1	-CF-ML22-NS16	57.9(2.28)	25.4(1.00)	26.0(1.02)	18.3(0.72)	32.0(1.26)	41.0(1.61)	
25	3/4	-CF-ML25-NS12	53.4(2.10)	20.6(0.81)	31.3(1.23)	21.8(0.86)	38.0(1.50)	35.0(1.38)	
25	1	-CF-ML25-NS16	62.3(2.45)	25.4(1.00)	31.3(1.23)	21.8(0.86)	38.0(1.50)	41.0(1.61)	

Female Connectors

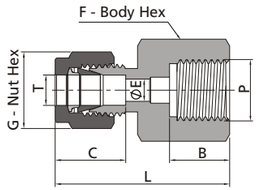


Metric Tube									ISO Tapered Thread (RT)
T-Tube O.D. (mm)	P-RT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	E	G	F	
3	1/8	-CF-ML3-RT2	28.7(1.13)	10.4(0.41)	12.9(0.51)	2.4(0.09)	12.0(0.47)	14.0(0.55)	
6	1/8	-CF-ML6-RT2	31.3(1.23)	10.4(0.41)	15.3(0.60)	4.8(0.19)	14.0(0.55)	14.0(0.55)	
6	1/4	-CF-ML6-RT4	35.8(1.41)	15.0(0.59)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)	
6	3/8	-CF-ML6-RT6	36.9(1.45)	15.0(0.59)	15.3(0.60)	4.8(0.19)	14.0(0.55)	22.0(0.87)	
6	1/2	-CF-ML6-RT8	42.5(1.67)	19.8(0.78)	15.3(0.60)	4.8(0.19)	14.0(0.55)	27.0(1.06)	
8	1/8	-CF-ML8-RT2	32.1(1.26)	10.4(0.41)	16.2(0.64)	6.4(0.25)	16.0(0.63)	15.0(0.59)	
8	1/4	-CF-ML8-RT4	37.0(1.46)	15.0(0.59)	16.2(0.64)	6.4(0.25)	16.0(0.63)	19.0(0.75)	
8	3/8	-CF-ML8-RT6	38.5(1.52)	15.0(0.59)	16.2(0.64)	6.4(0.25)	16.0(0.63)	22.0(0.87)	
8	1/2	-CF-ML8-RT8	43.3(1.70)	19.8(0.78)	16.2(0.64)	6.4(0.25)	16.0(0.63)	27.0(1.06)	
10	1/8	-CF-ML10-RT2	33.0(1.30)	10.4(0.41)	17.2(0.68)	7.9(0.31)	19.0(0.75)	18.0(0.71)	
10	1/4	-CF-ML10-RT4	37.8(1.49)	15.0(0.59)	17.2(0.68)	7.9(0.31)	19.0(0.75)	19.0(0.75)	
10	3/8	-CF-ML10-RT6	39.4(1.55)	15.0(0.59)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	
10	1/2	-CF-ML10-RT8	44.2(1.74)	19.8(0.78)	17.2(0.68)	7.9(0.31)	19.0(0.75)	27.0(1.06)	
12	1/8	-CF-ML12-RT2	35.5(1.40)	10.4(0.41)	22.8(0.90)	8.3(0.33)	22.0(0.87)	22.0(0.87)	
12	1/4	-CF-ML12-RT4	40.3(1.59)	15.0(0.59)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)	
12	3/8	-CF-ML12-RT6	41.9(1.65)	15.0(0.59)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)	
12	1/2	-CF-ML12-RT8	46.7(1.84)	19.8(0.78)	22.8(0.90)	9.5(0.37)	22.0(0.87)	27.0(1.06)	
12	3/4	-CF-ML12-RT12	49.0(1.93)	20.6(0.81)	22.8(0.90)	9.5(0.37)	22.0(0.87)	35.0(1.38)	
15	1/2	-CF-ML15-RT8	46.7(1.84)	19.8(0.78)	24.4(0.96)	11.9(0.47)	25.0(0.98)	27.0(1.06)	
16	1/2	-CF-ML16-RT8	48.4(1.91)	19.8(0.78)	24.4(0.96)	12.7(0.50)	25.0(0.98)	27.0(1.06)	
16	3/4	-CF-ML16-RT12	49.7(1.96)	20.6(0.81)	24.4(0.96)	12.7(0.50)	25.0(0.98)	35.0(1.38)	
20	1/2	-CF-ML20-RT8	47.9(1.89)	19.8(0.78)	26.0(1.02)	15.9(0.63)	32.0(1.26)	30.0(1.18)	
20	3/4	-CF-ML20-RT12	49.7(1.96)	20.6(0.81)	26.0(1.02)	15.9(0.63)	32.0(1.26)	35.0(1.38)	
22	3/4	-CF-ML22-RT12	49.7(1.96)	20.6(0.81)	26.0(1.02)	18.3(0.72)	32.0(1.26)	35.0(1.38)	
22	1	-CF-ML22-RT16	57.9(2.28)	25.4(1.00)	26.0(1.02)	18.3(0.72)	32.0(1.26)	41.0(1.61)	
25	3/4	-CF-ML25-RT12	53.4(2.10)	20.6(0.81)	31.3(1.23)	21.8(0.86)	38.0(1.50)	35.0(1.38)	
25	1	-CF-ML25-RT16	62.3(2.45)	25.4(1.00)	31.3(1.23)	21.8(0.86)	38.0(1.50)	41.0(1.61)	

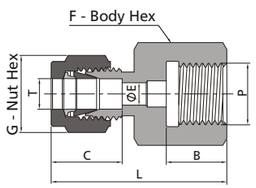


Metric Tube									ISO Parallel Thread (RP)
T-Tube O.D. (mm)	P-RP Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	E	G	F	
6	1/8	-CF-ML6-RP2	33.5(1.32)	13.0(0.51)	15.3(0.60)	4.8(0.19)	14.0(0.55)	14.0(0.55)	
6	1/4	-CF-ML6-RP4	39.4(1.55)	18.5(0.73)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)	
22	3/4	-CF-ML22-RP12	53.3(2.10)	25.9(1.02)	26.0(1.02)	18.3(0.72)	32.0(1.26)	35.0(1.38)	
25	1	-CF-ML25-RP16	63.9(2.52)	28.2(1.11)	31.3(1.23)	21.8(0.86)	38.0(1.50)	40.0(1.57)	

Female Connectors

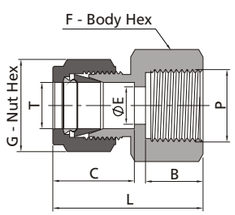


Metric Tube								ISO Parallel Thread (RG)
T-Tube O.D. (mm)	P-RG Size	Basic Ordering Number	Dimension, mm (in.)					
			L	B	C	E	G	F
3	1/4	-CF-ML3-RG4	35.3(1.39)	12.9(0.51)	12.9(0.51)	2.4(0.09)	12.0(0.47)	19.0(0.75)
6	1/4	-CF-ML6-RG4	37.6(1.48)	12.9(0.51)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)
6	3/8	-CF-ML6-RG6	37.6(1.48)	14.2(0.56)	15.3(0.60)	4.8(0.19)	14.0(0.55)	24.0(0.94)
6	1/2	-CF-ML6-RG8	43.5(1.71)	18.8(0.74)	15.3(0.60)	4.8(0.19)	14.0(0.55)	27.0(1.06)
8	1/4	-CF-ML8-RG4	38.5(1.52)	12.9(0.51)	16.2(0.64)	6.4(0.25)	16.0(0.63)	19.0(0.75)
8	3/8	-CF-ML8-RG6	36.2(1.43)	14.2(0.56)	16.2(0.64)	6.4(0.25)	16.0(0.63)	24.0(0.94)
8	1/2	-CF-ML8-RG8	41.0(1.61)	18.8(0.74)	16.2(0.64)	6.4(0.25)	16.0(0.63)	27.0(1.06)
10	1/4	-CF-ML10-RG4	39.4(1.55)	12.9(0.51)	17.2(0.68)	5.9(0.23)	19.0(0.75)	19.0(0.75)
10	3/8	-CF-ML10-RG6	38.8(1.53)	14.2(0.56)	17.2(0.68)	7.9(0.31)	19.0(0.75)	24.0(0.94)
10	1/2	-CF-ML10-RG8	42.1(1.66)	18.8(0.74)	17.2(0.68)	7.9(0.31)	19.0(0.75)	27.0(1.06)
12	1/4	-CF-ML12-RG4	41.9(1.65)	12.9(0.51)	22.8(0.90)	5.9(0.23)	22.0(0.87)	22.0(0.87)
12	3/8	-CF-ML12-RG6	44.4(1.75)	14.2(0.56)	22.8(0.90)	7.9(0.31)	22.0(0.87)	24.0(0.94)
12	1/2	-CF-ML12-RG8	48.2(1.90)	18.8(0.74)	22.8(0.90)	9.5(0.37)	22.0(0.87)	27.0(1.06)
20	1/2	-CF-ML20-RG8	54.3(2.14)	18.8(0.74)	26.0(1.02)	11.9(0.47)	32.0(1.26)	30.0(1.18)
22	1/2	-CF-ML22-RG8	54.3(2.14)	18.8(0.74)	26.0(1.02)	11.9(0.47)	32.0(1.26)	30.0(1.18)



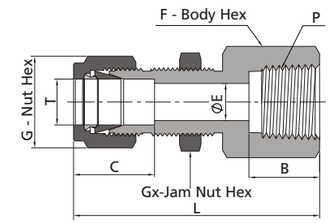
Adapt to Japanese Gauge stud (JIS B7505)

Metric Tube								ISO Parallel Thread (RJ)
T-Tube O.D. (mm)	P-RJ Size	Basic Ordering Number	Dimension, mm (in.)					
			L	B	C	E	G	F
6	1/4	-CF-ML6-RJ4	37.6(1.48)	12.9(0.51)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)
6	3/8	-CF-ML6-RJ6	37.6(1.48)	15.8(0.62)	15.3(0.60)	4.8(0.19)	14.0(0.55)	24.0(0.94)
6	1/2	-CF-ML6-RJ8	43.5(1.71)	18.8(0.74)	15.3(0.60)	4.8(0.19)	14.0(0.55)	27.0(1.06)
8	1/4	-CF-ML8-RJ4	38.5(1.52)	12.9(0.51)	16.2(0.64)	5.5(0.22)	16.0(0.63)	19.0(0.75)
8	3/8	-CF-ML8-RJ6	36.2(1.43)	15.8(0.62)	16.2(0.64)	6.5(0.26)	16.0(0.63)	24.0(0.94)
8	1/2	-CF-ML8-RJ8	41.0(1.61)	18.8(0.74)	16.2(0.64)	7.0(0.28)	16.0(0.63)	27.0(1.06)
10	1/4	-CF-ML10-RJ4	39.4(1.55)	12.9(0.51)	17.2(0.68)	5.5(0.22)	19.0(0.75)	19.0(0.75)
10	3/8	-CF-ML10-RJ6	38.8(1.53)	15.8(0.62)	17.2(0.68)	6.5(0.26)	19.0(0.75)	24.0(0.94)
10	1/2	-CF-ML10-RJ8	42.1(1.66)	18.8(0.74)	17.2(0.68)	7.0(0.28)	19.0(0.75)	27.0(1.06)
12	1/4	-CF-ML12-RJ4	41.9(1.65)	12.9(0.51)	22.8(0.90)	5.5(0.22)	22.0(0.87)	22.0(0.87)
12	3/8	-CF-ML12-RJ6	44.4(1.75)	15.8(0.62)	22.8(0.90)	6.5(0.26)	22.0(0.87)	24.0(0.94)
12	1/2	-CF-ML12-RJ8	48.2(1.90)	18.8(0.74)	22.8(0.90)	7.0(0.28)	22.0(0.87)	27.0(1.06)



Metric Tube								Metric Thread
T-Tube O.D. (mm)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm (in.)					
			L	B	C	E	G	F
6	M10 x 1	-CF-ML6-MS10	32.7(1.29)	11.0(0.43)	15.3(0.60)	4.0(0.16)	14.0(0.55)	16.0(0.63)
6	M14 x 1.5	-CF-ML6-MS14	34.2(1.35)	13.0(0.51)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)
6	M20 x 1.5	-CF-ML6-MS20	37.7(1.48)	16.0(0.63)	15.3(0.60)	4.8(0.19)	14.0(0.55)	27.0(1.06)
8	M8 x 1	-CF-ML8-MS8	31.6(1.24)	9.0(0.35)	16.2(0.64)	3.2(0.13)	16.0(0.63)	14.0(0.55)
8	M10 x 1	-CF-ML8-MS10	33.6(1.32)	11.0(0.43)	16.2(0.64)	4.0(0.16)	16.0(0.63)	16.0(0.63)
8	M14 x 1.5	-CF-ML8-MS14	35.6(1.40)	13.0(0.51)	16.2(0.64)	6.0(0.24)	16.0(0.63)	19.0(0.75)
8	M20 x 1.5	-CF-ML8-MS20	38.6(1.52)	16.0(0.63)	16.2(0.64)	6.4(0.25)	16.0(0.63)	27.0(1.06)
10	M16 x 1.5	-CF-ML10-MS16	38.1(1.50)	14.0(0.55)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)
12	M20 x 1.5	-CF-ML12-MS20	44.9(1.77)	16.0(0.63)	22.8(0.90)	9.5(0.37)	22.0(0.87)	27.0(1.06)
14	M10 x 1	-CF-ML14-MS10	42.5(1.67)	11.0(0.43)	24.4(0.96)	4.0(0.16)	25.0(0.98)	24.0(0.94)
14	M20 x 1.5	-CF-ML14-MS20	44.9(1.77)	16.0(0.63)	24.4(0.96)	10.8(0.43)	25.0(0.98)	27.0(1.06)
14	M22 x 1.5	-CF-ML14-MS22	45.9(1.81)	17.0(0.67)	24.4(0.96)	11.1(0.44)	25.0(0.98)	27.0(1.06)
16	M20 x 1.5	-CF-ML16-MS20	44.9(1.77)	16.0(0.63)	24.4(0.96)	10.8(0.43)	26.0(1.02)	27.0(1.06)
20	M20 x 1.5	-CF-ML20-MS20	46.5(1.83)	16.0(0.63)	26.0(1.02)	10.8(0.43)	32.0(1.26)	30.0(1.18)
25	M27 x 2	-CF-ML25-MS27	54.4(2.14)	18.0(0.71)	31.3(1.23)	16.1(0.63)	38.0(1.50)	35.0(1.38)

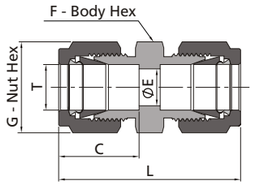
Bulkhead Female Connectors



Fractional Tube											NPT Thread
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)							Panel Hole Size in. (mm)	Max. Panel Thickness in. (mm)
			L	B	C	E	G	F	Gx		
1/16	1/16	-BCF-FL1-NS1	1.03(26.2)	0.39(9.9)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.44(11.1)	0.31(7.9)	0.20(5.2)	0.13(3.2)
1/16	1/8	-BCF-FL1-NS2	1.06(26.9)	0.41(10.4)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.56(14.3)	0.31(7.9)	0.20(5.2)	0.13(3.2)
1/8	1/8	-BCF-FL2-NS2	1.76(44.7)	0.41(10.4)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.56(14.3)	0.50(12.7)	0.33(8.3)	0.50(12.7)
1/8	1/4	-BCF-FL2-NS4	1.95(49.6)	0.59(15.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.75(19.1)	0.50(12.7)	0.33(8.3)	0.50(12.7)
3/16	1/8	-BCF-FL3-NS2	1.79(45.5)	0.41(10.4)	0.54(13.7)	0.12(3.0)	0.50(12.7)	0.56(14.3)	0.56(14.3)	0.39(9.9)	0.50(12.7)
1/4	1/8	-BCF-FL4-NS2	1.85(47.0)	0.41(10.4)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.63(15.9)	0.63(15.9)	0.45(11.5)	0.40(10.2)
1/4	1/4	-BCF-FL4-NS4	2.04(51.8)	0.59(15.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.75(19.1)	0.63(15.9)	0.45(11.5)	0.40(10.2)
1/4	3/8	-BCF-FL4-NS6	2.10(53.3)	0.59(15.0)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.87(22.2)	0.63(15.9)	0.45(11.5)	0.40(10.2)
1/4	1/2	-BCF-FL4-NS8	2.29(58.2)	0.78(19.8)	0.60(15.2)	0.19(4.8)	0.56(14.3)	1.06(27.0)	0.63(15.9)	0.45(11.5)	0.40(10.2)
5/16	1/8	-BCF-FL5-NS2	1.96(49.8)	0.41(10.4)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.56(14.3)	0.69(17.5)	0.52(13.1)	0.44(11.2)
5/16	1/4	-BCF-FL5-NS4	2.38(60.5)	0.59(15.0)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.75(19.1)	0.69(17.5)	0.52(13.1)	0.44(11.2)
3/8	1/8	-BCF-FL6-NS2	1.98(50.3)	0.41(10.4)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.63(15.9)	0.75(19.1)	0.58(14.7)	0.44(11.2)
3/8	1/4	-BCF-FL6-NS4	2.17(55.1)	0.59(15.0)	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)
3/8	3/8	-BCF-FL6-NS6	2.23(56.6)	0.59(15.0)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.87(22.2)	0.75(19.1)	0.58(14.7)	0.44(11.2)
3/8	1/2	-BCF-FL6-NS8	2.42(61.5)	0.78(19.8)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.06(27.0)	0.75(19.1)	0.58(14.7)	0.44(11.2)
3/8	3/4	-BCF-FL6-NS12	2.57(65.3)	0.81(20.6)	0.66(16.8)	0.28(7.1)	0.69(17.5)	1.31(33.3)	0.75(19.1)	0.58(14.7)	0.44(11.2)
1/2	1/4	-BCF-FL8-NS4	2.37(60.2)	0.59(15.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.94(23.8)	0.94(23.8)	0.76(19.4)	0.50(12.7)
1/2	3/8	-BCF-FL8-NS6	2.43(61.7)	0.59(15.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.94(23.8)	0.94(23.8)	0.76(19.4)	0.50(12.7)
1/2	1/2	-BCF-FL8-NS8	2.62(66.5)	0.78(19.8)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.06(27.0)	0.94(23.8)	0.76(19.4)	0.50(12.7)
1/2	3/4	-BCF-FL8-NS12	2.68(68.1)	0.81(20.6)	0.90(22.9)	0.41(10.4)	0.87(22.2)	1.31(33.3)	0.94(23.8)	0.76(19.4)	0.50(12.7)
5/8	3/8	-BCF-FL10-NS6	2.46(62.5)	0.59(15.0)	0.96(24.4)	0.50(12.7)	1.00(25.4)	0.94(23.8)	1.06(27.0)	0.89(22.6)	0.59(15.1)
5/8	1/2	-BCF-FL10-NS8	2.65(67.3)	0.78(19.8)	0.96(24.4)	0.50(12.7)	1.00(25.4)	1.06(27.0)	1.06(27.0)	0.89(22.6)	0.59(15.1)
3/4	1/2	-BCF-FL12-NS8	2.84(72.2)	0.78(19.8)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.06(27.0)	1.19(30.2)	1.02(25.8)	0.78(19.8)
3/4	3/4	-BCF-FL12-NS12	2.90(73.7)	0.81(20.6)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.31(33.3)	1.19(30.2)	1.02(25.8)	0.78(19.8)
7/8	3/4	-BCF-FL14-NS12	3.18(80.8)	0.81(20.6)	1.02(25.9)	0.72(18.3)	1.25(31.8)	1.31(33.3)	1.31(33.3)	1.14(29.0)	0.94(23.8)
1	3/4	-BCF-FL16-NS12	3.33(84.7)	0.81(20.6)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.63(41.3)	1.63(41.3)	1.33(33.7)	0.94(23.8)
1	1	-BCF-FL16-NS16	3.68(93.5)	1.00(25.4)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.63(41.3)	1.63(41.3)	1.33(33.7)	0.94(23.8)

Metric Tube											NPT Thread
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)							Panel Hole Size mm (in.)	Max. Panel Thickness mm (in.)
			L	B	C	E	G	F	Gx		
6	1/8	-BCF-ML6-NS2	47.2(1.86)	10.4(0.41)	15.3(0.60)	4.8(0.19)	14.0(0.55)	16.0(0.63)	16.0(0.63)	11.5(0.45)	10.2(0.40)
6	1/4	-BCF-ML6-NS4	51.8(2.04)	15.0(0.59)	15.3(0.60)	4.8(0.19)	14.0(0.55)	19.0(0.75)	16.0(0.63)	11.5(0.45)	10.2(0.40)
8	1/8	-BCF-ML8-NS2	49.6(1.95)	10.4(0.41)	16.2(0.64)	4.8(0.19)	16.0(0.63)	18.0(0.71)	18.0(0.71)	13.1(0.52)	11.2(0.44)
10	1/4	-BCF-ML10-NS4	55.2(2.17)	15.0(0.59)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	22.0(0.87)	16.3(0.64)	11.2(0.44)
12	3/8	-BCF-ML12-NS6	60.9(2.40)	15.0(0.59)	22.8(0.90)	9.5(0.37)	22.0(0.87)	24.0(0.94)	24.0(0.94)	19.5(0.77)	12.7(0.50)
12	1/2	-BCF-ML12-NS8	66.5(2.62)	19.8(0.78)	22.8(0.90)	9.5(0.37)	22.0(0.87)	24.0(0.94)	24.0(0.94)	19.5(0.77)	12.7(0.50)

Unions



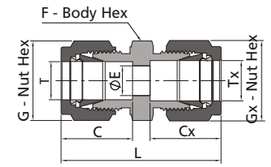
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)				
		L	C	G	F	E
1/16	-U-FL1	0.99(25.1)	0.34(8.6)	0.31(7.9)	0.44(11.1)	0.05(1.3)
1/8	-U-FL2	1.40(35.6)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.3)
3/16	-U-FL3	1.47(37.3)	0.54(13.7)	0.50(12.7)	0.50(12.7)	0.12(3.0)
1/4	-U-FL4	1.61(40.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)
5/16	-U-FL5	1.69(42.9)	0.64(16.2)	0.63(15.9)	0.56(14.3)	0.25(6.4)
3/8	-U-FL6	1.77(45.0)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)
1/2	-U-FL8	2.02(51.3)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)
5/8	-U-FL10	2.05(52.1)	0.96(24.4)	1.00(25.4)	0.94(23.9)	0.50(12.7)
3/4	-U-FL12	2.11(53.6)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.62(15.7)
7/8	-U-FL14	2.17(55.1)	1.02(25.9)	1.25(31.8)	1.37(34.9)	0.72(18.3)
1	-U-FL16	2.55(64.8)	1.23(31.2)	1.5(38.1)	1.37(34.9)	0.88(22.4)
1 1/8	-U-FL18	2.55(64.8)	1.23(31.2)	1.75(44.5)	1.63(41.3)	0.97(24.6)
1 1/4	-U-FL20	3.63(92.2)	1.62(41.1)	1.87(47.6)	1.75(44.5)	1.09(27.7)
1 1/2	-U-FL24	4.25(108.0)	1.97(50.0)	2.25(57.2)	2.13(54.0)	1.34(34.0)

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)				
		L	C	G	F	E
2	-U-ML2	35.6(1.40)	12.9(0.51)	12.0(0.47)	12.0(0.47)	1.7(0.07)
3	-U-ML3	35.3(1.39)	12.9(0.51)	12.0(0.47)	12.0(0.47)	2.4(0.09)
4	-U-ML4	37.3(1.47)	13.7(0.54)	12.0(0.47)	12.0(0.47)	2.4(0.09)
6	-U-ML6	41.0(1.61)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)
8	-U-ML8	43.2(1.70)	16.2(0.64)	16.0(0.63)	15.0(0.59)	6.4(0.25)
10	-U-ML10	46.2(1.82)	17.2(0.68)	19.0(0.75)	18.0(0.71)	7.9(0.31)
12	-U-ML12	51.2(2.02)	22.8(0.90)	22.0(0.87)	22.0(0.87)	9.5(0.37)
14	-U-ML14	52.0(2.05)	24.4(0.96)	25.0(0.98)	24.0(0.94)	11.1(0.44)
15	-U-ML15	52.0(2.05)	24.4(0.96)	25.0(0.98)	24.0(0.94)	11.9(0.47)
16	-U-ML16	52.0(2.05)	24.4(0.96)	25.0(0.98)	24.0(0.94)	12.7(0.50)
18	-U-ML18	53.5(2.11)	24.4(0.96)	30.0(1.18)	27.0(1.06)	15.1(0.59)
20	-U-ML20	55.0(2.17)	26.0(1.02)	32.0(1.26)	30.0(1.18)	15.9(0.63)
22	-U-ML22	55.0(2.17)	26.0(1.02)	32.0(1.26)	30.0(1.18)	18.3(0.72)
25	-U-ML25	65.0(2.56)	31.3(1.23)	38.0(1.50)	35.0(1.38)	21.8(0.86)
28	-U-ML28	85.0(3.35)	36.6(1.44)	46.0(1.81)	41.0(1.61)	21.8(0.86)
30	-U-ML30	92.7(3.65)	39.6(1.56)	50.0(1.97)	46.0(1.81)	26.2(1.03)
32	-U-ML32	97.3(3.83)	42.0(1.65)	50.0(1.97)	46.0(1.81)	28.6(1.13)
38	-U-ML38	113.6(4.47)	49.4(1.94)	60.0(2.36)	55.0(2.17)	33.7(1.33)

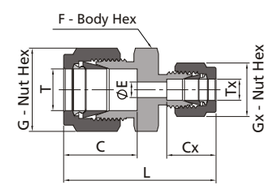
Conversion Unions



Metric Tube — Fractional Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm (in.)						
			L	C	G	F	E	Cx	Gx
3	1/8	-U-ML3-FL2	35.2(1.39)	12.9(0.51)	12.0(0.47)	12.0(0.47)	2.4(0.09)	12.7(0.50)	11.1(0.44)
4	1/8	-U-ML4-FL2	36.5(1.44)	13.7(0.54)	12.0(0.47)	12.0(0.47)	2.4(0.09)	12.7(0.50)	11.1(0.44)
4	1/4	-U-ML4-FL4	39.4(1.55)	13.7(0.54)	12.0(0.47)	14.0(0.55)	2.4(0.09)	15.2(0.60)	14.3(0.56)
6	1/8	-U-ML6-FL2	38.5(1.52)	15.3(0.60)	14.0(0.55)	14.0(0.55)	2.4(0.09)	12.7(0.50)	11.1(0.44)
6	1/4	-U-ML6-FL4	41.0(1.61)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)	15.2(0.60)	14.3(0.56)
6	5/16	-U-ML6-FL5	42.3(1.67)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)	16.2(0.64)	15.9(0.63)
8	1/4	-U-ML8-FL4	42.3(1.67)	16.2(0.64)	16.0(0.63)	15.0(0.59)	4.8(0.19)	15.2(0.60)	14.3(0.56)
8	3/8	-U-ML8-FL6	44.3(1.74)	16.2(0.64)	16.0(0.63)	16.0(0.63)	6.4(0.25)	16.8(0.66)	17.5(0.69)
10	1/8	-U-ML10-FL2	41.8(1.65)	17.2(0.68)	19.0(0.75)	18.0(0.71)	2.4(0.09)	12.7(0.50)	11.1(0.44)
10	1/4	-U-ML10-FL4	44.5(1.75)	17.2(0.68)	19.0(0.75)	18.0(0.71)	4.8(0.19)	15.2(0.60)	14.3(0.56)
10	5/16	-U-ML10-FL5	45.1(1.78)	17.2(0.68)	19.0(0.75)	18.0(0.71)	6.4(0.25)	16.2(0.64)	15.9(0.63)
10	3/8	-U-ML10-FL6	45.9(1.81)	17.2(0.68)	19.0(0.75)	18.0(0.71)	7.1(0.28)	16.8(0.66)	17.5(0.69)
12	5/16	-U-ML12-FL5	47.8(1.88)	22.8(0.90)	22.0(0.87)	22.0(0.87)	6.4(0.25)	16.2(0.64)	15.9(0.63)
12	3/8	-U-ML12-FL6	48.4(1.91)	22.8(0.90)	22.0(0.87)	22.0(0.87)	7.1(0.28)	16.8(0.66)	17.5(0.69)
12	1/2	-U-ML12-FL8	51.2(2.02)	22.8(0.90)	22.0(0.87)	22.0(0.87)	9.5(0.37)	22.9(0.90)	22.2(0.87)
15	1/2	-U-ML15-FL8	52.0(2.05)	24.4(0.96)	25.0(0.98)	24.0(0.94)	10.4(0.41)	22.9(0.90)	22.2(0.87)
16	5/8	-U-ML16-FL10	52.0(2.05)	24.4(0.96)	25.0(0.98)	24.0(0.94)	12.7(0.50)	24.4(0.96)	25.4(1.00)
18	3/4	-U-ML18-FL12	53.5(2.11)	24.4(0.96)	30.0(1.18)	27.0(1.06)	15.1(0.59)	24.4(0.96)	28.6(1.13)
20	1/2	-U-ML20-FL8	55.0(2.17)	26.0(1.02)	32.0(1.26)	30.0(1.18)	10.4(0.41)	22.9(0.90)	22.2(0.87)
20	1	-U-ML20-FL16	62.8(2.47)	26.0(1.02)	32.0(1.26)	35.0(1.38)	15.9(0.63)	31.2(1.23)	38.1(1.50)
25	1	-U-ML25-FL16	65.0(2.56)	31.3(1.23)	38.0(1.50)	35.0(1.38)	21.8(0.86)	31.2(1.23)	38.1(1.50)

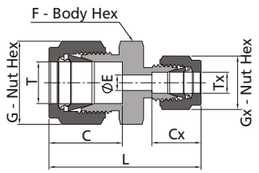
Reducing Unions



Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)						
			L	C	G	F	E	Cx	Gx
1/8	1/16	-U-FL2-FL1	1.22(31.0)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.05(1.3)	0.34(8.6)	0.31(7.9)
3/16	1/16	-U-FL3-FL1	1.27(32.3)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.05(1.3)	0.34(8.6)	0.31(7.9)
3/16	1/8	-U-FL3-FL2	1.44(36.6)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.09(2.3)	0.50(12.7)	0.44(11.1)
1/4	1/16	-U-FL4-FL1	1.35(34.3)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.05(1.3)	0.34(8.6)	0.31(7.9)
1/4	1/8	-U-FL4-FL2	1.52(38.6)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.09(2.3)	0.50(12.7)	0.44(11.1)
1/4	3/16	-U-FL4-FL3	1.55(39.4)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.12(3.0)	0.54(13.7)	0.50(12.7)
5/16	1/8	-U-FL5-FL2	1.56(39.6)	0.64(16.2)	0.63(15.9)	0.56(14.3)	0.09(2.3)	0.50(12.7)	0.44(11.1)
5/16	1/4	-U-FL5-FL4	1.66(42.2)	0.64(16.2)	0.63(15.9)	0.56(14.3)	0.19(4.8)	0.60(15.2)	0.56(14.3)
3/8	1/16	-U-FL6-FL1	1.44(36.6)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.05(1.3)	0.34(8.6)	0.31(7.9)
3/8	1/8	-U-FL6-FL2	1.61(40.9)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.09(2.3)	0.50(12.7)	0.44(11.1)
3/8	1/4	-U-FL6-FL4	1.70(43.2)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.19(4.8)	0.60(15.2)	0.56(14.3)
3/8	5/16	-U-FL6-FL5	1.74(44.2)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.25(6.4)	0.64(16.2)	0.63(15.9)
1/2	1/8	-U-FL8-FL2	1.78(45.2)	0.90(22.8)	0.87(22.2)	0.81(20.6)	0.09(2.3)	0.50(12.7)	0.44(11.1)
1/2	1/4	-U-FL8-FL4	1.85(47.0)	0.90(22.8)	0.87(22.2)	0.81(20.6)	0.19(4.8)	0.60(15.2)	0.56(14.3)
1/2	3/8	-U-FL8-FL6	1.91(48.5)	0.90(22.8)	0.87(22.2)	0.81(20.6)	0.28(7.1)	0.66(16.8)	0.69(17.5)
5/8	3/8	-U-FL10-FL6	1.94(49.3)	0.96(24.4)	1.00(25.4)	0.94(23.9)	0.28(7.1)	0.66(16.8)	0.69(17.5)
5/8	1/2	-U-FL10-FL8	2.05(52.1)	0.96(24.4)	1.00(25.4)	0.94(23.9)	0.41(10.4)	0.90(22.8)	0.87(22.2)
3/4	1/4	-U-FL12-FL4	1.94(49.3)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.19(4.8)	0.60(15.2)	0.56(14.3)
3/4	3/8	-U-FL12-FL6	2.00(50.8)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.28(7.1)	0.66(16.8)	0.69(17.5)
3/4	1/2	-U-FL12-FL8	2.11(53.6)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.41(10.4)	0.90(22.8)	0.87(22.2)
3/4	5/8	-U-FL12-FL10	2.11(53.6)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.50(12.7)	0.96(24.4)	1.00(25.4)
1	1/2	-U-FL16-FL8	2.38(60.5)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.41(10.4)	0.90(22.8)	0.87(22.2)
1	3/4	-U-FL16-FL12	2.38(60.5)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.62(15.7)	0.96(24.4)	1.13(28.6)

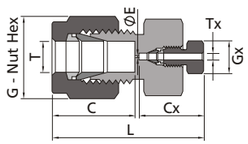
Reducing Unions



Metric Tube

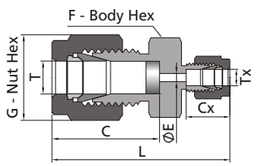
T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)						
			L	C	G	F	E	Cx	Gx
3	2	-U-ML3-ML2	35.3(1.39)	12.9(0.51)	12.0(0.47)	12.0(0.47)	1.7(0.07)	12.9(0.51)	12.0(0.47)
6	2	-U-ML6-ML2	38.6(1.52)	15.3(0.60)	14.0(0.55)	14.0(0.55)	1.7(0.07)	12.9(0.51)	12.0(0.47)
6	3	-U-ML6-ML3	38.6(1.52)	15.3(0.60)	14.0(0.55)	14.0(0.55)	2.4(0.09)	12.9(0.51)	12.0(0.47)
6	4	-U-ML6-ML4	39.4(1.55)	15.3(0.60)	14.0(0.55)	14.0(0.55)	2.4(0.09)	13.7(0.54)	12.0(0.47)
8	6	-U-ML8-ML6	42.3(1.67)	16.3(0.64)	16.0(0.63)	15.0(0.59)	4.8(0.19)	15.3(0.60)	14.0(0.55)
10	6	-U-ML10-ML6	44.5(1.75)	17.2(0.68)	19.0(0.75)	18.0(0.71)	4.8(0.19)	15.3(0.60)	14.0(0.55)
10	8	-U-ML10-ML8	45.1(1.78)	17.2(0.68)	19.0(0.75)	18.0(0.71)	6.4(0.25)	16.3(0.64)	16.0(0.63)
12	6	-U-ML12-ML6	47.0(1.85)	22.8(0.90)	22.0(0.87)	22.0(0.87)	4.8(0.19)	15.3(0.60)	14.0(0.55)
12	8	-U-ML12-ML8	47.8(1.88)	22.8(0.90)	22.0(0.87)	22.0(0.87)	6.4(0.25)	16.3(0.64)	16.0(0.63)
12	10	-U-ML12-ML10	48.7(1.92)	22.8(0.90)	22.0(0.87)	22.0(0.87)	7.9(0.31)	17.2(0.68)	19.0(0.75)
16	10	-U-ML16-ML10	49.5(1.95)	24.4(0.96)	25.0(0.98)	24.0(0.94)	7.9(0.31)	17.2(0.68)	19.0(0.75)
16	12	-U-ML16-ML12	52.0(2.05)	24.4(0.96)	25.0(0.98)	24.0(0.94)	9.5(0.37)	22.8(0.90)	22.0(0.87)
18	12	-U-ML18-ML12	53.5(2.11)	24.4(0.96)	30.0(1.18)	27.0(1.06)	9.5(0.37)	22.8(0.90)	22.0(0.87)
25	18	-U-ML25-ML18	61.0(2.40)	31.3(1.23)	38.0(1.50)	35.0(1.38)	15.1(0.59)	24.4(0.96)	30.0(1.18)
25	20	-U-ML25-ML20	62.3(2.45)	31.3(1.23)	38.0(1.50)	35.0(1.38)	15.9(0.63)	26.0(1.02)	32.0(1.26)
30	18	-U-ML30-ML18	75.4(2.97)	39.6(1.56)	50.0(1.97)	46.0(1.81)	15.1(0.59)	24.4(0.96)	30.0(0.47)
30	20	-U-ML30-ML20	75.4(2.97)	39.6(1.56)	50.0(1.97)	46.0(1.81)	15.9(0.63)	26.0(1.02)	32.0(1.26)
30	25	-U-ML30-ML25	80.1(3.15)	39.6(1.56)	50.0(1.97)	46.0(1.81)	21.8(0.86)	31.3(1.23)	38.0(1.50)
32	18	-U-ML32-ML18	77.8(3.06)	42.0(1.65)	50.0(1.97)	46.0(1.81)	15.1(0.59)	24.4(0.96)	30.0(1.18)
32	20	-U-ML32-ML20	77.8(3.06)	42.0(1.65)	50.0(1.97)	46.0(1.81)	15.9(0.63)	26.0(1.02)	32.0(1.26)
32	25	-U-ML32-ML25	82.3(3.24)	42.0(1.65)	50.0(1.97)	46.0(1.81)	21.8(0.86)	31.3(1.23)	38.0(1.50)
38	20	-U-ML38-ML20	87.5(3.44)	49.4(1.94)	60.0(2.36)	55.0(2.17)	15.9(0.63)	26.0(1.02)	32.0(1.26)
38	25	-U-ML38-ML25	92.0(3.62)	49.4(1.94)	60.0(2.36)	55.0(2.17)	21.8(0.86)	31.3(1.23)	38.0(1.50)
38	30	-U-ML38-ML30	104.6(4.12)	49.4(1.94)	60.0(2.36)	55.0(2.17)	26.2(1.03)	39.6(1.56)	50.0(1.97)

Column End Fittings



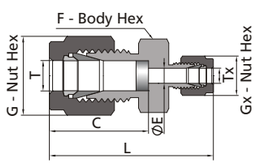
Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)						Dead Volume
			L	C	Cx	E	G	Gx	
1/4	1/16	-U-FL4-NFL1	1.24(31.5)	0.60(15.2)	0.61(15.5)	0.01(0.3)	0.56(14.3)	0.25(6.4)	6.8×10^{-5} cm³
3/8	1/16	-U-FL6-NFL1	1.30(33.0)	0.66(16.8)	0.61(15.5)	0.01(0.3)	0.69(17.5)	0.25(6.4)	6.8×10^{-5} cm³



Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)						Dead Volume
			L	C	Cx	G	F	E	
1/8	1/16	-U-TFL2SN7-FL1	1.22(31.0)	0.72(18.3)	0.34(8.6)	0.44(11.1)	0.44(11.1)	0.05(1.3)	5.4×10^{-3} cm³
1/4	1/16	-U-TFL4SN7-FL1	1.35(34.3)	0.82(20.8)	0.34(8.6)	0.56(14.3)	0.50(12.7)	0.05(1.3)	6.7×10^{-3} cm³
3/8	1/16	-U-TFL6SN7-FL1	1.44(36.6)	0.91(23.1)	0.34(8.6)	0.69(17.5)	0.63(15.9)	0.05(1.3)	6.5×10^{-3} cm³

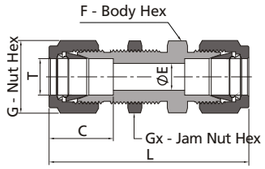


Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)						Dead Volume
			L	C	G	Gx	F	E	
1/8	1/16	-U-TFL2SN7-TFL1	1.22(31.0)	0.72(18.3)	0.44(11.1)	0.31(7.9)	0.44(11.1)	0.07(1.7)	0
1/4	1/16	-U-TFL4SN7-TFL1	1.35(34.3)	0.82(20.8)	0.56(14.3)	0.31(7.9)	0.50(12.7)	0.07(1.7)	0
3/8	1/16	-U-TFL6SN7-TFL1	1.44(36.6)	0.91(23.1)	0.69(17.5)	0.31(7.9)	0.63(15.9)	0.07(1.7)	0
1/2	1/16	-U-TFL6SN7-TFL1	1.58(40.1)	1.04(26.4)	0.87(22.2)	0.31(7.9)	0.81(20.6)	0.07(1.7)	0

SN7 Stainless steel sinter nominal pore size of 7 um, can provide other nominal pore size, stainless steel sinters are loosely installed to facilitate removal and replacement.

Bulkhead Unions



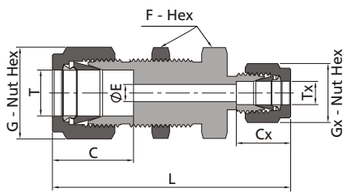
Fractional Tube

Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)						Panel Hole Size in. (mm)	Max. Panel Thickness in. (mm)
		L	C	E	G	F	Gx		
1/16	-BU-FL1	1.24(31.5)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.31(7.9)	0.31(7.9)	0.20(5.2)	0.12(3.0)
1/8	-BU-FL2	2.02(51.3)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.50(12.7)	0.50(12.7)	0.33(8.3)	0.50(12.7)
3/16	-BU-FL3	2.11(53.6)	0.54(13.7)	0.12(3.0)	0.50(12.7)	0.56(14.3)	0.56(14.3)	0.39(9.9)	0.50(12.7)
1/4	-BU-FL4	2.27(57.7)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.63(15.9)	0.63(15.9)	0.45(11.5)	0.40(10.2)
5/16	-BU-FL5	2.39(60.7)	0.64(16.3)	0.25(6.4)	0.63(15.9)	0.69(17.5)	0.69(17.5)	0.52(13.1)	0.44(11.2)
3/8	-BU-FL6	2.45(62.2)	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	-BU-FL8	2.80(71.1)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.94(23.8)	0.94(23.8)	0.76(19.4)	0.50(12.7)
5/8	-BU-FL10	2.86(72.6)	0.96(24.4)	0.50(12.7)	1.00(25.4)	1.06(27.0)	1.06(27.0)	0.89(22.6)	0.50(12.7)
3/4	-BU-FL12	3.11(79.0)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.19(30.2)	1.19(30.2)	1.02(25.8)	0.66(16.8)
7/8	-BU-FL14	3.33(84.6)	1.02(25.9)	0.72(18.3)	1.25(31.8)	1.31(33.3)	1.37(34.9)	1.14(29.0)	0.75(19.1)
1	-BU-FL16	3.77(95.8)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.63(41.3)	1.63(41.3)	1.33(33.7)	0.75(19.1)
1 1/4	-BU-FL20	4.85(123.2)	1.62(41.1)	1.09(27.8)	1.87(47.6)	1.87(47.6)	1.87(47.6)	1.64(41.7)	0.75(19.1)
1 1/2	-BU-FL24	5.48(139.2)	1.97(50.0)	1.34(34.0)	2.25(57.2)	2.25(57.2)	2.25(57.2)	1.95(49.6)	0.75(19.1)

Metric Tube

Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)						Panel Hole Size mm (in.)	Max. Panel Thickness mm (in.)
		L	C	E	G	F	Gx		
3	-BU-ML3	51.3(2.02)	12.9(0.51)	2.4(0.09)	12.0(0.47)	14.0(0.55)	14.0(0.55)	8.3(0.33)	12.7(0.50)
4	-BU-ML4	53.6(2.11)	13.7(0.54)	2.4(0.09)	12.0(0.47)	14.0(0.55)	14.0(0.55)	9.9(0.39)	12.7(0.50)
6	-BU-ML6	57.7(2.27)	15.3(0.60)	4.8(0.19)	14.0(0.55)	16.0(0.63)	16.0(0.63)	11.5(0.45)	10.2(0.40)
8	-BU-ML8	61.0(2.40)	16.2(0.64)	6.4(0.25)	16.0(0.63)	18.0(0.71)	18.0(0.71)	13.1(0.52)	11.2(0.44)
10	-BU-ML10	63.7(2.51)	17.2(0.68)	7.9(0.31)	19.0(0.75)	22.0(0.87)	22.0(0.87)	16.3(0.64)	11.2(0.44)
12	-BU-ML12	71.0(2.80)	22.8(0.90)	9.5(0.37)	22.0(0.87)	24.0(0.94)	24.0(0.94)	19.5(0.77)	12.7(0.50)
14	-BU-ML14	72.5(2.85)	24.4(0.96)	11.1(0.44)	25.0(0.98)	27.0(1.06)	27.0(1.06)	22.5(0.89)	12.7(0.50)
15	-BU-ML15	72.5(2.85)	24.4(0.96)	11.9(0.47)	25.0(0.98)	27.0(1.06)	27.0(1.06)	22.8(0.90)	12.7(0.50)
16	-BU-ML16	72.5(2.85)	24.4(0.96)	12.7(0.50)	25.0(0.98)	27.0(1.06)	27.0(1.06)	22.8(0.90)	12.7(0.50)
18	-BU-ML18	78.9(3.11)	24.4(0.96)	15.1(0.59)	30.0(1.18)	30.0(1.18)	30.0(1.18)	26.0(1.02)	16.8(0.66)
20	-BU-ML20	84.5(3.33)	26.0(1.02)	15.9(0.63)	32.0(1.26)	35.0(1.38)	35.0(1.38)	29.0(1.14)	19.0(0.75)
25	-BU-ML25	96.0(3.78)	31.3(1.23)	21.8(0.86)	38.0(1.5)	41.0(1.61)	41.0(1.61)	34.0(1.34)	19.0(0.75)
30	-BU-ML30	124.0(4.88)	39.6(1.56)	26.2(1.03)	50.0(1.97)	50.0(1.97)	50.0(1.97)	40.5(1.59)	19.0(0.75)
32	-BU-ML32	128.0(5.04)	42.0(1.65)	28.6(1.13)	50.0(1.97)	50.0(1.97)	50.0(1.97)	42.5(1.67)	19.0(0.75)
38	-BU-ML38	145.0(5.71)	49.4(1.94)	33.7(1.33)	60.0(2.36)	60.0(2.36)	60.0(2.36)	50.5(1.99)	19.0(0.75)

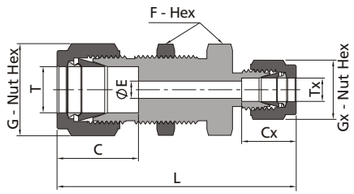
Bulkhead Reducing Unions



Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)							Panel Hole Size in. (mm)	Max. Panel Thickness in. (mm)
			L	C	E	G	F	Cx	Gx		
1/4	1/8	-BU-FL4-FL2	2.17(55.1)	0.60(15.2)	0.09(2.3)	0.56(14.3)	0.63(15.9)	0.50(12.7)	0.44(11.1)	0.45(11.5)	0.40(10.2)
3/8	1/4	-BU-FL6-FL4	2.39(60.7)	0.66(16.8)	0.19(4.8)	0.69(17.5)	0.75(19.1)	0.60(15.2)	0.56(14.3)	0.58(14.7)	0.44(11.2)
1/2	1/4	-BU-FL8-FL4	2.63(66.8)	0.90(22.9)	0.19(4.8)	0.87(22.2)	0.94(23.8)	0.60(15.2)	0.56(14.3)	0.76(19.4)	0.50(12.7)

Bulkhead Reducing Unions



Metric Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)							Panel Hole Size mm (in.)	Max. Panel Thickness mm (in.)
			L	C	E	G	F	Cx	Gx		
6	3	-BU-ML6-ML3	55.1(2.17)	15.3(0.60)	2.4(0.09)	14.0(0.55)	16.0(0.63)	12.9(0.51)	12.0(0.47)	11.5(0.45)	10.2(0.40)
8	6	-BU-ML8-ML6	60.1(2.37)	16.2(0.64)	4.8(0.19)	16.0(0.63)	18.0(0.71)	15.3(0.60)	14.0(0.55)	13.1(0.52)	11.2(0.44)
12	8	-BU-ML12-ML8	67.6(2.66)	22.8(0.90)	6.4(0.25)	22.0(0.87)	24.0(0.94)	16.2(0.64)	16.0(0.63)	19.5(0.77)	12.7(0.50)

Bulkhead Conversion Unions

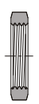
Fractional Tube — **Metric Tube**

T-Tube O.D. (in.)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, in. (mm)							Panel Hole Size in. (mm)	Max. Panel Thickness in. (mm)
			L	C	E	G	F	Cx	Gx		
1/4	6	-BU-FL4-ML6	2.27(57.7)	0.66(16.8)	0.19(4.8)	0.56(14.3)	0.63(15.9)	0.60(15.3)	0.55(14.0)	0.45(11.5)	0.40(10.2)

Metric Tube — **Fractional Tube**

T-Tube O.D. (mm)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm (in.)							Panel Hole Size mm (in.)	Max. Panel Thickness mm (in.)
			L	C	E	G	F	Cx	Gx		
6	1/8	-BU-ML6-FL2	55.1(2.17)	15.3(0.60)	2.3(0.09)	14.0(0.55)	16.0(0.63)	15.2(0.60)	11.0(0.43)	11.5(0.45)	10.2(0.40)
6	1/4	-BU-ML6-FL4	57.7(2.27)	15.3(0.60)	4.8(0.19)	14.0(0.55)	16.0(0.63)	16.8(0.66)	14.3(0.56)	11.5(0.45)	10.2(0.40)

Bulkhead Locknuts



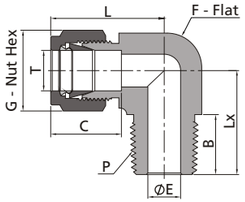
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number
1/16	-BN-FL1
1/8	-BN-FL2
3/16	-BN-FL3
1/4	-BN-FL4
5/16	-BN-FL5
3/8	-BN-FL6
1/2	-BN-FL8
5/8	-BN-FL10
3/4	-BN-FL12
7/8	-BN-FL14
1	-BN-FL16
1 1/4	-BN-FL20
1 1/2	-BN-FL24

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number
3	-BN-ML3
4	-BN-ML4
6	-BN-ML6
8	-BN-ML8
10	-BN-ML10
12	-BN-ML12
14	-BN-ML14
18	-BN-ML18
20	-BN-ML20
22	-BN-ML22
25	-BN-ML25
28	-BN-ML28
30	-BN-ML30
32	-BN-ML32
38	-BN-ML38

Male Elbows



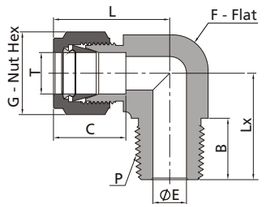
Fractional Tube — **NPT Thread**

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						
			L	C	G	F	E	B	Lx
1/16	1/16	-LM-FL1-NS1	0.75(19.1)	0.34(8.6)	0.31(7.9)	0.44(11.1)	0.05(1.3)	0.38(9.7)	0.70(17.8)
1/16	1/8	-LM-FL1-NS2	0.75(19.1)	0.34(8.6)	0.31(7.9)	0.44(11.1)	0.05(1.3)	0.38(9.7)	0.70(17.8)
1/8	1/16	-LM-FL2-NS1	0.93(23.6)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.4)	0.38(9.7)	0.70(17.8)
1/8	1/8	-LM-FL2-NS2	0.93(23.6)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.4)	0.38(9.7)	0.70(17.8)
1/8	1/4	-LM-FL2-NS4	0.97(24.6)	0.50(12.7)	0.44(11.1)	0.50(12.7)	0.09(2.4)	0.56(14.2)	0.92(23.4)
3/16	1/8	-LM-FL3-NS2	1.00(25.4)	0.54(13.7)	0.50(12.7)	0.50(12.7)	0.12(3.0)	0.38(9.7)	0.74(18.8)
3/16	1/4	-LM-FL3-NS4	1.00(25.4)	0.54(13.7)	0.50(12.7)	0.50(12.7)	0.12(3.0)	0.56(14.2)	0.92(23.4)
1/4	1/16	-LM-FL4-NS1	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.12(3.0)	0.38(9.7)	0.74(18.8)
1/4	1/8	-LM-FL4-NS2	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.38(9.7)	0.74(18.8)
1/4	1/4	-LM-FL4-NS4	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.56(14.2)	0.92(23.4)
1/4	3/8	-LM-FL4-NS6	1.17(29.7)	0.60(15.2)	0.56(14.3)	0.69(17.5)	0.19(4.8)	0.56(14.2)	1.03(26.2)
1/4	1/2	-LM-FL4-NS8	1.25(31.8)	0.60(15.2)	0.56(14.3)	0.81(20.6)	0.19(4.8)	0.75(19.1)	1.30(33.0)
5/16	1/8	-LM-FL5-NS2	1.13(28.7)	0.64(16.3)	0.63(15.9)	0.56(14.3)	0.19(4.8)	0.38(9.7)	0.78(19.8)
5/16	1/4	-LM-FL5-NS4	1.13(28.7)	0.64(16.3)	0.63(15.9)	0.56(14.3)	0.25(6.4)	0.56(14.2)	0.96(24.4)
5/16	3/8	-LM-FL5-NS6	1.20(30.5)	0.64(16.3)	0.63(15.9)	0.69(17.5)	0.25(6.4)	0.56(14.2)	1.03(26.2)
3/8	1/8	-LM-FL6-NS2	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.19(4.8)	0.38(9.7)	0.82(20.8)
3/8	1/4	-LM-FL6-NS4	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)	0.56(14.2)	1.00(25.4)
3/8	3/8	-LM-FL6-NS6	1.23(31.2)	0.66(16.8)	0.69(17.5)	0.69(17.5)	0.28(7.1)	0.56(14.2)	1.03(26.2)
3/8	1/2	-LM-FL6-NS8	1.31(33.3)	0.66(16.8)	0.69(17.5)	0.81(20.6)	0.28(7.1)	0.75(19.1)	1.30(33.0)
3/8	3/4	-LM-FL6-NS12	1.46(37.1)	0.66(16.8)	0.69(17.5)	1.06(27.0)	0.28(7.1)	0.75(19.1)	1.45(36.8)
1/2	1/4	-LM-FL8-NS4	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.28(7.1)	0.56(14.2)	1.11(28.2)
1/2	3/8	-LM-FL8-NS6	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.38(9.7)	0.56(14.2)	1.11(28.2)
1/2	1/2	-LM-FL8-NS8	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)	0.75(19.1)	1.30(33.0)
1/2	3/4	-LM-FL8-NS12	1.57(39.9)	0.90(22.9)	0.87(22.2)	1.06(27.0)	0.41(10.4)	0.75(19.1)	1.45(36.8)
5/8	3/8	-LM-FL10-NS6	1.50(38.1)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.38(9.7)	0.56(14.2)	1.19(30.2)
5/8	1/2	-LM-FL10-NS8	1.50(38.1)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.47(11.9)	0.75(19.1)	1.38(35.1)
5/8	3/4	-LM-FL10-NS12	1.57(39.9)	0.96(24.4)	1.00(25.4)	1.06(27.0)	0.50(12.7)	0.75(19.1)	1.45(36.8)
3/4	1/2	-LM-FL12-NS8	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.47(11.9)	0.75(19.1)	1.45(36.8)
3/4	3/4	-LM-FL12-NS12	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.62(15.7)	0.75(19.1)	1.45(36.8)
7/8	3/4	-LM-FL14-NS12	1.76(44.7)	1.02(25.9)	1.25(31.8)	1.37(34.9)	0.62(15.7)	0.75(19.1)	1.64(41.7)
1	3/4	-LM-FL16-NS12	1.93(49.0)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.62(15.7)	0.75(19.1)	1.64(41.7)
1	1	-LM-FL16-NS16	1.93(49.0)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)	0.94(23.9)	1.83(46.5)
1 1/4	1 1/4	-LM-FL20-NS20	2.62(66.5)	1.62(41.1)	1.87(47.6)	1.69(42.9)	1.09(27.7)	0.94(23.9)	2.06(52.4)
1 1/2	1 1/2	-LM-FL24-NS24	3.07(78.0)	1.97(50.0)	2.25(57.2)	2.00(50.8)	1.34(34.0)	1.03(26.2)	2.38(60.5)

Fractional Tube — **ISO Tapered Thread (RT)**

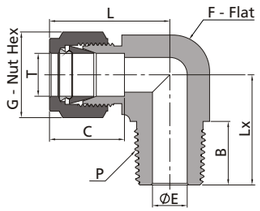
T-Tube O.D. (in.)	P-RT Size	Basic Ordering Number	Dimension, in. (mm)						
			L	C	G	F	E	B	Lx
1/8	1/8	-LM-FL2-RT2	0.93(23.6)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.4)	0.38(9.7)	0.70(17.8)
1/8	1/4	-LM-FL2-RT4	0.97(24.6)	0.50(12.7)	0.44(11.1)	0.50(12.7)	0.09(2.4)	0.56(14.2)	0.92(23.4)
1/4	1/8	-LM-FL4-RT2	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.38(9.7)	0.74(18.8)
1/4	1/4	-LM-FL4-RT4	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.56(14.2)	0.92(23.4)
1/4	3/8	-LM-FL4-RT6	1.17(29.7)	0.60(15.2)	0.56(14.3)	0.69(17.5)	0.19(4.8)	0.56(14.2)	1.03(26.2)
1/4	1/2	-LM-FL4-RT8	1.25(31.8)	0.60(15.2)	0.56(14.3)	0.81(20.6)	0.19(4.8)	0.75(19.1)	1.30(33.0)
5/16	1/4	-LM-FL5-RT4	1.13(28.7)	0.64(16.3)	0.63(15.9)	0.56(14.3)	0.25(6.4)	0.56(14.2)	0.96(24.4)
3/8	1/8	-LM-FL6-RT2	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.19(4.8)	0.38(9.7)	0.82(20.8)
3/8	1/4	-LM-FL6-RT4	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)	0.56(14.2)	1.00(25.4)
3/8	3/8	-LM-FL6-RT6	1.23(31.2)	0.66(16.8)	0.69(17.5)	0.69(17.5)	0.28(7.1)	0.56(14.2)	1.03(26.2)
1/2	3/8	-LM-FL8-RT6	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.38(9.7)	0.56(14.2)	1.10(27.9)
1/2	1/2	-LM-FL8-RT8	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)	0.75(19.1)	1.30(33.0)
3/4	1/2	-LM-FL12-RT8	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.47(11.9)	0.75(19.1)	1.45(36.8)
1	1	-LM-FL16-RT16	1.93(49.0)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)	0.94(23.9)	1.83(46.5)

Male Elbows



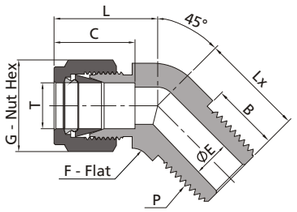
Metric Tube									NPT Thread
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	C	G	F	E	B	Lx
3	1/8	-LM-ML3-NS2	23.6(0.93)	12.9(0.51)	12.0(0.47)	11.1(0.44)	2.4(0.09)	9.7(0.38)	17.8(0.70)
3	1/4	-LM-ML3-NS4	24.6(0.97)	12.9(0.51)	12.0(0.47)	12.7(0.50)	2.4(0.09)	14.2(0.56)	23.4(0.92)
4	1/8	-LM-ML4-NS2	25.4(1.00)	13.7(0.54)	12.0(0.47)	12.7(0.50)	2.4(0.09)	9.7(0.38)	18.8(0.74)
4	1/4	-LM-ML4-NS4	25.4(1.00)	13.7(0.54)	12.0(0.47)	12.7(0.50)	2.4(0.09)	14.2(0.56)	23.4(0.92)
6	1/8	-LM-ML6-NS2	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	9.7(0.38)	18.8(0.74)
6	1/4	-LM-ML6-NS4	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	14.2(0.56)	23.4(0.92)
6	3/8	-LM-ML6-NS6	29.8(1.17)	15.3(0.60)	14.0(0.55)	17.5(0.69)	4.8(0.19)	14.2(0.56)	26.2(1.03)
6	1/2	-LM-ML6-NS8	31.8(1.25)	15.3(0.60)	14.0(0.55)	20.6(0.81)	4.8(0.19)	19.1(0.75)	33.0(1.30)
8	1/8	-LM-ML8-NS2	28.8(1.13)	16.2(0.64)	16.0(0.63)	14.3(0.56)	4.8(0.19)	9.7(0.38)	19.8(0.78)
8	1/4	-LM-ML8-NS4	28.8(1.13)	16.2(0.64)	16.0(0.63)	14.3(0.56)	6.4(0.25)	14.2(0.56)	24.4(0.96)
8	3/8	-LM-ML8-NS6	30.6(1.20)	16.2(0.64)	16.0(0.63)	17.5(0.69)	6.4(0.25)	14.2(0.56)	26.2(1.03)
8	1/2	-LM-ML8-NS8	32.6(1.28)	16.2(0.64)	16.0(0.63)	20.6(0.81)	6.4(0.25)	19.1(0.75)	33.0(1.30)
10	1/8	-LM-ML10-NS2	31.5(1.24)	17.2(0.68)	19.0(0.75)	17.5(0.69)	4.8(0.19)	9.7(0.38)	21.6(0.85)
10	1/4	-LM-ML10-NS4	31.5(1.24)	17.2(0.68)	19.0(0.75)	17.5(0.69)	7.1(0.28)	14.2(0.56)	26.2(1.03)
10	3/8	-LM-ML10-NS6	31.5(1.24)	17.2(0.68)	19.0(0.75)	17.5(0.69)	7.9(0.31)	14.2(0.56)	26.2(1.03)
10	1/2	-LM-ML10-NS8	33.5(1.32)	17.2(0.68)	19.0(0.75)	20.6(0.81)	7.9(0.31)	19.1(0.75)	33.0(1.30)
12	1/8	-LM-ML12-NS2	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	4.8(0.19)	9.7(0.38)	23.6(0.93)
12	1/4	-LM-ML12-NS4	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	7.1(0.28)	14.2(0.56)	28.2(1.11)
12	3/8	-LM-ML12-NS6	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	14.2(0.56)	28.2(1.11)
12	1/2	-LM-ML12-NS8	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	19.1(0.75)	33.0(1.30)
12	3/4	-LM-ML12-NS12	39.8(1.57)	22.8(0.90)	22.0(0.87)	27.0(1.06)	9.5(0.37)	19.1(0.75)	36.8(1.45)
15	1/2	-LM-ML15-NS8	38.0(1.50)	24.4(0.96)	25.0(0.98)	23.8(0.94)	11.9(0.47)	19.1(0.75)	35.1(1.38)
16	1/4	-LM-ML16-NS4	38.0(1.50)	24.4(0.96)	25.0(0.98)	23.8(0.94)	7.1(0.28)	14.2(0.56)	30.2(1.19)
16	3/8	-LM-ML16-NS6	38.0(1.50)	24.4(0.96)	25.0(0.98)	23.8(0.94)	9.5(0.37)	14.2(0.56)	30.2(1.19)
16	1/2	-LM-ML16-NS8	38.0(1.50)	24.4(0.96)	25.0(0.98)	23.8(0.94)	11.9(0.47)	19.1(0.75)	35.1(1.38)
16	3/4	-LM-ML16-NS12	39.8(1.57)	24.4(0.96)	25.0(0.98)	27.0(1.06)	12.7(0.50)	19.1(0.75)	36.8(1.45)
18	1/2	-LM-ML18-NS8	39.8(1.57)	24.4(0.96)	30.0(1.18)	27.0(1.06)	11.9(0.47)	19.1(0.75)	36.8(1.45)
18	3/4	-LM-ML18-NS12	39.8(1.57)	24.4(0.96)	30.0(1.18)	27.0(1.06)	15.1(0.59)	19.1(0.75)	36.8(1.45)
20	1/2	-LM-ML20-NS8	44.6(1.76)	26.0(1.02)	32.0(1.26)	34.9(1.37)	11.9(0.47)	19.1(0.75)	41.7(1.64)
20	3/4	-LM-ML20-NS12	44.6(1.76)	26.0(1.02)	32.0(1.26)	34.9(1.37)	15.9(0.63)	19.1(0.75)	41.7(1.64)
22	3/4	-LM-ML22-NS12	44.6(1.76)	26.0(1.02)	32.0(1.26)	34.9(1.37)	15.9(0.63)	19.1(0.75)	41.7(1.64)
22	1	-LM-ML22-NS16	44.6(1.76)	26.0(1.02)	32.0(1.26)	34.9(1.37)	18.3(0.72)	23.9(0.94)	46.5(1.83)
25	3/4	-LM-ML25-NS12	49.1(1.93)	31.3(1.23)	38.0(1.50)	34.9(1.37)	15.9(0.63)	19.1(0.75)	41.7(1.64)
25	1	-LM-ML25-NS16	49.1(1.93)	31.3(1.23)	38.0(1.50)	34.9(1.37)	21.8(0.86)	23.9(0.94)	46.5(1.83)
30	1 1/4	-LM-ML30-NS20	69.9(2.75)	39.6(1.56)	50.0(1.97)	42.9(1.69)	26.2(1.03)	23.9(0.94)	53.1(2.09)
32	1 1/4	-LM-ML32-NS20	72.3(2.85)	42.0(1.65)	50.0(1.97)	42.9(1.69)	27.8(1.09)	23.9(0.94)	53.1(2.09)
38	1 1/2	-LM-ML38-NS24	84.0(3.31)	49.4(1.94)	60.0(2.36)	50.8(2.00)	33.7(1.33)	26.2(1.03)	60.4(2.38)

Male Elbows



Metric Tube									ISO Tapered Thread (RT)
T-Tube O.D. (mm)	P-RT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	C	G	F	E	B	Lx
3	1/8	-LM-ML3-RT2	23.6(0.93)	12.9(0.51)	12.0(0.47)	11.1(0.44)	2.4(0.09)	9.7(0.38)	17.8(0.70)
3	1/4	-LM-ML3-RT4	24.6(0.97)	12.9(0.51)	12.0(0.47)	12.7(0.50)	2.4(0.09)	14.2(0.56)	23.4(0.92)
4	1/8	-LM-ML4-RT2	25.4(1.00)	13.7(0.54)	12.0(0.47)	12.7(0.50)	2.4(0.09)	9.7(0.38)	18.8(0.74)
4	1/4	-LM-ML4-RT4	25.4(1.00)	13.7(0.54)	12.0(0.47)	12.7(0.50)	2.4(0.09)	14.2(0.56)	23.4(0.92)
6	1/8	-LM-ML6-RT2	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	9.7(0.38)	18.8(0.74)
6	1/4	-LM-ML6-RT4	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	14.2(0.56)	23.4(0.92)
6	3/8	-LM-ML6-RT6	29.8(1.17)	15.3(0.60)	14.0(0.55)	17.5(0.69)	4.8(0.19)	14.2(0.56)	26.2(1.03)
6	1/2	-LM-ML6-RT8	31.8(1.25)	15.3(0.60)	14.0(0.55)	20.6(0.81)	4.8(0.19)	19.1(0.75)	33.0(1.30)
8	1/8	-LM-ML8-RT2	28.8(1.13)	16.2(0.64)	16.0(0.63)	14.3(0.56)	4.8(0.19)	9.7(0.38)	19.8(0.78)
8	1/4	-LM-ML8-RT4	28.8(1.13)	16.2(0.64)	16.0(0.63)	14.3(0.56)	6.4(0.25)	14.2(0.56)	24.4(0.96)
8	3/8	-LM-ML8-RT6	30.6(1.20)	16.2(0.64)	16.0(0.63)	17.5(0.69)	6.4(0.25)	14.2(0.56)	26.2(1.03)
8	1/2	-LM-ML8-RT8	32.6(1.28)	16.2(0.64)	16.0(0.63)	20.6(0.81)	6.4(0.25)	19.1(0.75)	33.0(1.30)
10	1/8	-LM-ML10-RT2	31.5(1.24)	17.2(0.68)	19.0(0.75)	17.5(0.69)	4.8(0.19)	9.7(0.38)	21.6(0.85)
10	1/4	-LM-ML10-RT4	31.5(1.24)	17.2(0.68)	19.0(0.75)	17.5(0.69)	7.1(0.28)	14.2(0.56)	26.2(1.03)
10	3/8	-LM-ML10-RT6	31.5(1.24)	17.2(0.68)	19.0(0.75)	17.5(0.69)	7.9(0.31)	14.2(0.56)	26.2(1.03)
10	1/2	-LM-ML10-RT8	33.5(1.32)	17.2(0.68)	19.0(0.75)	20.6(0.81)	7.9(0.31)	19.1(0.75)	33.0(1.30)
12	1/8	-LM-ML12-RT2	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	4.8(0.19)	9.7(0.38)	23.6(0.93)
12	1/4	-LM-ML12-RT4	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	7.1(0.28)	14.2(0.56)	28.2(1.11)
12	3/8	-LM-ML12-RT6	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	14.2(0.56)	28.2(1.11)
12	1/2	-LM-ML12-RT8	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	0.5(0.02)	19.1(0.75)	33.0(1.30)
12	3/4	-LM-ML12-RT12	39.8(1.57)	22.8(0.90)	22.0(0.87)	27.0(1.06)	9.5(0.37)	19.1(0.75)	36.8(1.45)
14	1/2	-LM-ML14-RT8	38.1(1.50)	24.4(0.90)	25.0(0.98)	23.8(0.94)	11.1(0.44)	19.1(0.75)	35.1(1.38)
15	1/2	-LM-ML15-RT8	38.1(1.50)	24.4(0.90)	25.0(0.98)	23.8(0.94)	11.9(0.47)	19.1(0.75)	35.1(1.38)
16	1/4	-LM-ML16-RT4	38.0(1.50)	24.4(0.90)	25.0(0.98)	23.8(0.94)	7.1(0.28)	14.2(0.56)	30.2(1.19)
16	3/8	-LM-ML16-RT6	38.0(1.50)	24.4(0.90)	25.0(0.98)	23.8(0.94)	9.5(0.37)	14.2(0.56)	30.2(1.19)
16	1/2	-LM-ML16-RT8	38.0(1.50)	24.4(0.90)	25.0(0.98)	23.8(0.94)	11.9(0.47)	19.1(0.75)	35.1(1.38)
16	3/4	-LM-ML16-RT12	39.8(1.57)	24.4(0.90)	25.0(0.98)	27.0(1.06)	12.7(0.50)	19.1(0.75)	36.8(1.45)
18	1/2	-LM-ML18-RT8	39.8(1.57)	24.4(0.90)	30.0(1.18)	27.0(1.06)	11.9(0.47)	19.1(0.75)	36.8(1.45)
18	3/4	-LM-ML18-RT12	39.8(1.57)	24.4(0.90)	30.0(1.18)	27.0(1.06)	15.1(0.59)	19.1(0.75)	36.8(1.45)
20	1/2	-LM-ML20-RT8	44.6(1.76)	26.0(0.90)	32.0(1.26)	34.9(1.37)	11.9(0.47)	19.1(0.75)	41.7(1.64)
20	3/4	-LM-ML20-RT12	44.6(1.76)	26.0(0.90)	32.0(1.26)	34.9(1.37)	15.9(0.63)	19.1(0.75)	41.7(1.64)
22	3/4	-LM-ML22-RT12	44.6(1.76)	26.0(0.90)	32.0(1.26)	34.9(1.37)	15.9(0.63)	19.1(0.75)	41.7(1.64)
22	1	-LM-ML22-RT16	44.6(1.76)	26.0(0.90)	32.0(1.26)	34.9(1.37)	18.3(0.72)	23.9(0.94)	46.5(1.83)
25	3/4	-LM-ML25-RT12	49.1(1.93)	31.3(0.90)	38.0(1.50)	34.9(1.37)	15.9(0.63)	19.1(0.75)	41.7(1.64)
25	1	-LM-ML25-RT16	49.1(1.93)	31.3(0.90)	38.0(1.50)	34.9(1.37)	21.8(0.86)	23.9(0.94)	46.5(1.83)
28	1	-LM-ML28-RT16	64.0(2.52)	36.6(0.90)	46.0(1.81)	42.9(1.69)	21.8(0.86)	23.9(0.94)	53.1(2.09)

45° Male Elbows



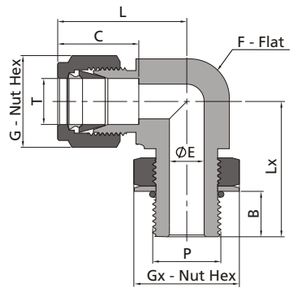
Fractional Tube									NPT Thread
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						
			L	C	G	F	E	B	Lx
1/16	1/16	-VM-FL1-NS1	0.62(15.7)	0.34(8.6)	0.31(7.9)	0.37(9.5)	0.05(1.3)	0.38(9.7)	0.57(14.5)
1/8	1/8	-VM-FL2-NS2	0.82(20.8)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.3)	0.38(9.7)	0.66(16.8)
3/16	1/8	-VM-FL3-NS2	0.85(21.6)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.12(3.0)	0.38(9.7)	0.58(14.7)
1/4	1/8	-VM-FL4-NS2	0.97(24.6)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.38(9.7)	0.65(16.5)
1/4	1/4	-VM-FL4-NS4	0.97(24.6)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.56(14.2)	0.83(21.1)
5/16	1/8	-VM-FL5-NS2	1.03(26.1)	0.64(16.3)	0.63(15.9)	0.56(14.3)	0.19(4.8)	0.38(9.7)	0.66(16.8)
3/8	1/8	-VM-FL6-NS2	1.10(27.9)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.19(4.8)	0.38(9.7)	0.72(18.3)
3/8	1/4	-VM-FL6-NS4	1.10(27.9)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)	0.56(14.2)	0.90(22.9)
3/8	3/8	-VM-FL6-NS6	1.15(29.2)	0.66(16.8)	0.69(17.5)	0.81(20.6)	0.28(7.1)	0.75(19.1)	0.95(24.1)
1/2	3/8	-VM-FL8-NS6	1.26(32.0)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.38(9.7)	0.75(19.1)	0.95(24.1)
5/8	1/2	-VM-FL10-NS8	1.21(30.7)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.47(11.9)	0.75(19.1)	1.17(29.7)
3/4	3/4	-VM-FL12-NS12	1.34(34.0)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.62(15.7)	0.75(19.1)	1.22(31.0)
7/8	3/4	-VM-FL14-NS12	1.59(40.4)	1.02(25.9)	1.25(31.8)	1.25(31.8)	0.62(15.7)	0.75(19.1)	1.27(32.3)
1	1	-VM-FL16-NS16	1.59(40.4)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)	0.94(23.9)	1.49(37.8)

Metric Tube									NPT Thread
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	C	G	F	E	B	Lx
6	1/8	-VM-ML6-NS2	23.4(0.92)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	9.7(0.38)	16.8(0.66)
6	1/4	-VM-ML6-NS4	23.4(0.92)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	14.2(0.56)	21.8(0.86)
8	1/8	-VM-ML8-NS2	24.3(0.96)	16.2(0.64)	16.0(0.63)	15.9(0.63)	4.8(0.19)	9.7(0.38)	16.8(0.66)
10	1/4	-VM-ML10-NS4	26.6(1.05)	17.2(0.68)	19.0(0.75)	17.5(0.69)	7.9(0.31)	14.2(0.56)	24.1(0.95)
12	3/8	-VM-ML12-NS6	29.1(1.15)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	19.1(0.75)	24.1(0.95)
12	1/2	-VM-ML12-NS8	30.7(1.21)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	19.1(0.75)	29.7(1.17)
16	1/2	-VM-ML16-NS8	30.7(1.21)	24.4(0.96)	25.0(0.98)	23.8(0.94)	11.9(0.47)	19.1(0.75)	29.7(1.17)

Adjustable Male Elbows

SAE/MS Straight Thread

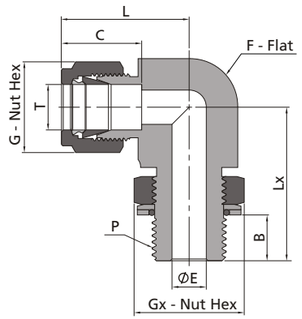
Adapt to straight thread boss of SAE J1926-1, ISO 11926-1 and MS 16142.



Fractional Tube										SAE/MS Straight Thread
T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)							
			L	B	C	G	E	F	Lx	Gx
1/4	7/16-20	-LP-FL4-ST7	1.12(28.4)	0.39(9.9)	0.60(15.2)	0.56(14.3)	0.19(4.8)	0.50(12.7)	1.12(28.4)	0.56(14.3)
1/4	9/16-18	-LP-FL4-ST9	1.20(30.5)	0.44(11.2)	0.60(15.2)	0.56(14.3)	0.19(4.8)	0.63(15.9)	1.27(32.3)	0.69(17.5)
5/16	1/2-20	-LP-FL5-ST8	1.19(30.2)	0.39(9.9)	0.64(16.3)	0.63(15.9)	0.23(5.8)	0.56(14.3)	1.16(29.5)	0.63(15.9)
3/8	7/16-20	-LP-FL6-ST7	1.31(33.3)	0.39(9.9)	0.66(16.8)	0.69(17.5)	0.20(5.1)	0.63(15.9)	1.24(31.5)	0.56(14.3)
3/8	9/16-18	-LP-FL6-ST9	1.26(32.0)	0.44(11.2)	0.66(16.8)	0.69(17.5)	0.28(7.1)	0.63(15.9)	1.27(32.3)	0.69(17.5)
3/8	3/4-16	-LP-FL6-ST12	1.37(34.8)	0.50(12.7)	0.66(16.8)	0.69(17.5)	0.28(7.1)	0.81(20.6)	1.49(37.8)	0.87(22.2)
1/2	9/16-18	-LP-FL8-ST9	1.48(37.6)	0.44(11.2)	0.90(22.9)	0.87(22.2)	0.28(7.1)	0.81(20.6)	1.48(37.5)	0.69(17.5)
1/2	3/4-16	-LP-FL8-ST12	1.48(37.6)	0.50(12.7)	0.90(22.9)	0.87(22.2)	0.41(10.4)	0.81(20.6)	1.49(37.8)	0.87(22.2)
5/8	7/8-14	-LP-FL10-ST14	1.56(39.6)	0.56(14.2)	0.96(24.4)	1.00(25.4)	0.50(12.7)	0.94(23.8)	1.71(43.4)	1.00(25.4)
3/4	1 1/16-12	-LP-FL12-ST17	1.63(41.4)	0.66(16.8)	0.96(24.4)	1.13(28.6)	0.62(15.7)	1.06(27.0)	1.92(48.8)	1.25(31.8)
7/8	1 3/16-12	-LP-FL14-ST19	1.70(43.2)	0.66(16.8)	1.02(25.9)	1.25(31.8)	0.72(18.3)	1.19(30.2)	1.99(50.5)	1.37(34.9)
1	1 5/16-12	-LP-FL16-ST21	1.99(50.5)	0.66(16.8)	1.23(31.2)	1.50(38.1)	0.88(22.4)	1.37(34.9)	2.11(53.6)	1.50(38.1)
1 1/4	1 5/8-12	-LP-FL20-ST26	2.67(67.8)	0.66(16.8)	1.62(41.1)	1.87(47.6)	1.09(27.7)	1.69(42.9)	2.29(58.2)	1.87(47.6)
1 1/2	1 7/8-12	-LP-FL24-ST30	3.07(78.0)	0.66(16.8)	1.97(50.0)	2.25(57.2)	1.34(34.0)	2.00(50.8)	2.38(60.5)	2.13(54.0)

Adjustable Male Elbows

ISO Parallel Thread



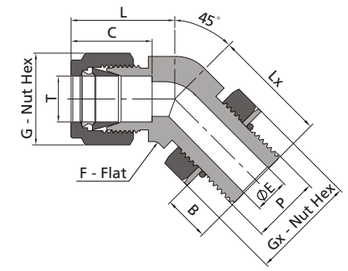
Fractional Tube										ISO Parallel Thread (PP)
T-Tube O.D. (in.)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, in. (mm)							
			L	B	C	G	E	F	Lx	Gx
1/4	1/8	-LP-FL4-PP2	1.06(26.9)	0.32(8.1)	0.60(15.2)	0.56(14.3)	0.16(4.1)	0.50(12.7)	1.04(26.4)	0.56(14.3)
1/4	1/4	-LP-FL4-PP4	1.14(29.0)	0.36(9.1)	0.60(15.2)	0.56(14.3)	0.19(4.8)	0.63(15.9)	1.27(32.3)	0.75(19.1)
3/8	1/4	-LP-FL6-PP4	1.20(30.5)	0.36(9.1)	0.66(16.8)	0.69(17.5)	0.23(5.8)	0.63(15.9)	1.27(32.3)	0.75(19.1)
3/8	3/8	-LP-FL6-PP6	1.31(33.3)	0.37(9.4)	0.66(16.8)	0.69(17.5)	0.28(7.1)	0.81(20.6)	1.46(37.1)	0.87(22.2)
1/2	1/4	-LP-FL8-PP4	1.42(36.1)	0.36(9.1)	0.90(22.9)	0.87(22.2)	0.23(5.8)	0.81(20.6)	1.38(35.1)	0.75(19.1)
1/2	3/8	-LP-FL8-PP6	1.42(36.1)	0.37(9.4)	0.90(22.9)	0.87(22.2)	0.31(7.9)	0.81(20.6)	1.46(37.1)	0.87(22.2)
1/2	1/2	-LP-FL8-PP8	1.50(38.1)	0.51(13.0)	0.90(22.9)	0.87(22.2)	0.41(10.4)	0.94(23.8)	1.71(43.4)	1.06(27.0)
5/8	1/2	-LP-FL10-PP8	1.50(38.1)	0.51(13.0)	0.96(24.4)	1.00(25.4)	0.47(11.9)	0.94(23.8)	1.71(43.4)	1.06(27.0)
3/4	1/2	-LP-FL12-PP8	1.57(39.9)	0.51(13.0)	0.96(24.4)	1.13(28.6)	0.47(11.9)	1.06(27.0)	1.78(45.2)	1.06(27.0)
3/4	3/4	-LP-FL12-PP12	1.57(39.9)	0.51(13.0)	0.96(24.4)	1.13(28.6)	0.62(15.7)	1.06(27.0)	1.92(48.8)	1.37(34.9)
1	3/4	-LP-FL16-PP12	1.93(49.0)	0.51(13.0)	1.23(31.2)	1.50(38.1)	0.62(15.7)	1.37(34.9)	2.10(53.3)	1.37(34.9)
1	1	-LP-FL16-PP16	1.93(49.0)	0.55(14.0)	1.23(31.2)	1.50(38.1)	0.78(19.8)	1.37(34.9)	2.11(53.6)	1.63(41.3)

Metric Tube										ISO Parallel Thread (PP)
T-Tube O.D. (mm)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm (in.)							
			L	B	C	G	E	F	Lx	Gx
6	1/8	-LP-ML6-PP2	27.0(1.06)	8.1(0.32)	15.3(0.60)	14.0(0.55)	4.0(0.16)	12.7(0.50)	26.4(1.04)	14.3(0.56)
6	1/4	-LP-ML6-PP4	29.0(1.14)	9.1(0.36)	15.3(0.60)	14.0(0.55)	4.8(0.19)	15.9(0.63)	32.3(1.27)	19.1(0.75)
8	1/8	-LP-ML8-PP2	28.8(1.13)	8.1(0.32)	16.2(0.64)	16.0(0.63)	4.0(0.16)	14.3(0.56)	27.4(1.08)	14.3(0.56)
8	1/4	-LP-ML8-PP4	29.9(1.18)	9.1(0.36)	16.2(0.64)	16.0(0.63)	5.9(0.23)	15.9(0.63)	32.2(1.27)	19.1(0.75)
10	1/4	-LP-ML10-PP4	33.5(1.32)	9.1(0.36)	17.2(0.68)	19.0(0.75)	5.9(0.23)	20.6(0.81)	35.0(1.38)	19.1(0.75)
10	3/8	-LP-ML10-PP6	33.5(1.32)	9.4(0.37)	17.2(0.68)	19.0(0.75)	7.9(0.31)	20.6(0.81)	37.1(1.46)	22.2(0.87)
12	1/4	-LP-ML12-PP4	36.0(1.42)	9.1(0.36)	22.8(0.90)	22.0(0.87)	5.9(0.23)	20.6(0.81)	35.0(1.38)	19.1(0.75)
12	3/8	-LP-ML12-PP6	36.0(1.42)	9.4(0.37)	22.8(0.90)	22.0(0.87)	7.9(0.31)	20.6(0.81)	37.1(1.46)	22.2(0.87)
12	1/2	-LP-ML12-PP8	38.0(1.50)	13.0(0.51)	22.8(0.90)	22.0(0.87)	9.5(0.37)	23.8(0.94)	43.4(1.71)	27.0(1.06)
12	3/4	-LP-ML12-PP12	39.8(1.57)	13.0(0.51)	22.8(0.90)	22.0(0.87)	9.5(0.37)	27.0(1.06)	48.8(1.92)	34.9(1.37)

45° Adjustable Male Elbows

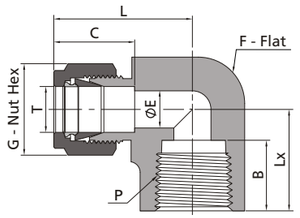
SAE/MS Straight Thread

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, in. (mm)							
			L	B	C	G	E	F	Lx	Gx
1/4	7/16-20	-VP-FL4-ST7	1.01(25.7)	0.39(9.9)	0.60(15.2)	0.56(14.3)	0.19(4.8)	0.50(12.7)	1.01(25.7)	0.56(14.3)
3/8	9/16-18	-VP-FL6-ST9	1.10(27.9)	0.44(11.2)	0.66(16.8)	0.69(17.5)	0.28(7.1)	0.63(15.9)	1.11(28.2)	0.69(17.5)
1/2	3/4-16	-VP-FL8-ST12	1.26(32.0)	0.50(12.7)	0.90(22.9)	0.87(22.2)	0.41(10.4)	0.81(20.6)	1.27(32.3)	0.87(22.2)
3/4	1 1/16-12	-VP-FL12-ST17	1.57(39.9)	0.66(16.8)	0.96(24.4)	1.13(28.6)	0.62(15.7)	1.06(27.0)	1.86(47.2)	1.25(31.8)
1	1 5/16-12	-VP-FL16-ST21	1.87(47.5)	0.66(16.8)	1.23(31.2)	1.50(38.1)	0.88(22.4)	1.37(34.9)	1.99(50.5)	1.50(38.1)

Female Elbows



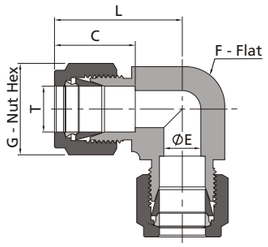
Fractional Tube — **NPT Thread**

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						
			L	B	C	G	E	F	Lx
1/16	1/16	-LF-FL1-NS1	0.71(18.0)	0.39(9.9)	0.34(8.6)	0.31(7.9)	0.05(1.3)	0.44(11.1)	0.56(14.2)
1/16	1/8	-LF-FL1-NS2	0.81(20.6)	0.41(10.4)	0.34(8.6)	0.31(7.9)	0.05(1.3)	0.56(14.3)	0.75(19.1)
1/8	1/8	-LF-FL2-NS2	0.97(24.6)	0.41(10.4)	0.50(12.7)	0.44(11.1)	0.09(2.3)	0.56(14.3)	0.75(19.1)
1/8	1/4	-LF-FL2-NS4	1.08(27.4)	0.59(15.0)	0.50(12.7)	0.44(11.1)	0.09(2.3)	0.69(17.5)	0.88(22.4)
3/16	1/8	-LF-FL3-NS2	1.00(25.4)	0.41(10.4)	0.54(13.7)	0.50(12.7)	0.12(3.0)	0.5(12.7)	0.75(19.1)
1/4	1/8	-LF-FL4-NS2	1.06(26.9)	0.41(10.4)	0.60(15.2)	0.56(14.3)	0.19(4.8)	0.56(14.3)	0.75(19.1)
1/4	1/4	-LF-FL4-NS4	1.17(29.7)	0.59(15.0)	0.60(15.2)	0.56(14.3)	0.19(4.8)	0.69(17.5)	0.88(22.4)
1/4	3/8	-LF-FL4-NS6	1.25(31.8)	0.59(15.0)	0.60(15.2)	0.56(14.3)	0.19(4.8)	0.81(20.6)	0.88(22.4)
1/4	1/2	-LF-FL4-NS8	1.36(34.5)	0.78(19.8)	0.60(15.2)	0.56(14.3)	0.19(4.8)	1.00(25.4)	1.12(28.4)
5/16	1/8	-LF-FL5-NS2	1.13(28.7)	0.41(10.4)	0.64(16.3)	0.63(15.9)	0.25(6.4)	0.56(14.3)	0.75(19.1)
5/16	1/4	-LF-FL5-NS4	1.20(30.5)	0.59(15.0)	0.64(16.3)	0.63(15.9)	0.25(6.4)	0.69(17.5)	0.88(22.4)
3/8	1/8	-LF-FL6-NS2	1.20(30.5)	0.41(10.4)	0.66(16.8)	0.69(17.5)	0.28(7.1)	0.63(15.9)	0.75(19.1)
3/8	1/4	-LF-FL6-NS4	1.23(31.2)	0.59(15.0)	0.66(16.8)	0.69(17.5)	0.28(7.1)	0.69(17.5)	0.88(22.4)
3/8	3/8	-LF-FL6-NS6	1.31(33.3)	0.59(15.0)	0.66(16.8)	0.69(17.5)	0.28(7.1)	0.81(20.6)	0.88(22.4)
3/8	1/2	-LF-FL6-NS8	1.42(36.1)	0.78(19.8)	0.66(16.8)	0.69(17.5)	0.28(7.1)	1.00(25.4)	1.12(28.4)
1/2	1/4	-LF-FL8-NS4	1.42(36.1)	0.59(15.0)	0.90(22.9)	0.87(22.2)	0.41(10.4)	0.81(20.6)	0.88(22.4)
1/2	3/8	-LF-FL8-NS6	1.42(36.1)	0.59(15.0)	0.90(22.9)	0.87(22.2)	0.41(10.4)	0.81(20.6)	0.88(22.4)
1/2	1/2	-LF-FL8-NS8	1.53(38.9)	0.78(19.8)	0.90(22.9)	0.87(22.2)	0.41(10.4)	1.00(25.4)	1.12(28.4)
5/8	3/8	-LF-FL10-NS6	1.50(38.1)	0.59(15.0)	0.96(24.4)	1.00(25.4)	0.50(12.7)	0.94(23.8)	0.88(22.4)
5/8	1/2	-LF-FL10-NS8	1.57(39.9)	0.78(19.8)	0.96(24.4)	1.00(25.4)	0.50(12.7)	1.06(27.0)	1.12(28.4)
3/4	1/2	-LF-FL12-NS8	1.57(39.9)	0.78(19.8)	0.96(24.4)	1.13(28.6)	0.62(15.7)	1.06(27.0)	1.12(28.4)
3/4	3/4	-LF-FL12-NS12	1.76(44.7)	0.81(20.6)	0.96(24.4)	1.13(28.6)	0.62(15.7)	1.37(34.9)	1.25(31.8)
7/8	3/4	-LF-FL14-NS12	1.76(44.7)	0.81(20.6)	1.02(25.9)	1.25(31.8)	0.72(18.3)	1.37(34.9)	1.25(31.8)
1	3/4	-LF-FL16-NS12	1.93(49.0)	0.81(20.6)	1.23(31.2)	1.50(38.1)	0.88(22.4)	1.37(34.9)	1.25(31.8)
1	1	-LF-FL16-NS16	2.11(53.6)	1.00(25.4)	1.23(31.2)	1.50(38.1)	0.88(22.4)	1.69(42.9)	1.50(38.1)

Metric Tube — **NPT Thread**

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	B	C	G	E	F	Lx
6	1/8	-LF-ML6-NS2	27.0(1.06)	10.4(0.41)	15.3(0.60)	14.0(0.55)	4.8(0.19)	12.7(0.50)	19.0(0.75)
6	1/4	-LF-ML6-NS4	29.8(1.17)	15.0(0.59)	15.3(0.60)	14.0(0.55)	4.8(0.19)	17.5(0.69)	22.4(0.88)
8	1/8	-LF-ML8-NS2	28.8(1.13)	10.4(0.41)	16.2(0.64)	16.0(0.63)	4.8(0.19)	14.3(0.56)	19.1(0.75)
8	1/4	-LF-ML8-NS4	30.6(1.20)	15.0(0.59)	16.2(0.64)	16.0(0.63)	6.4(0.25)	17.5(0.69)	22.4(0.88)
10	1/4	-LF-ML10-NS4	33.5(1.32)	15.0(0.59)	17.2(0.68)	19.0(0.75)	7.9(0.31)	20.6(0.81)	22.4(0.88)
10	3/8	-LF-ML10-NS6	33.5(1.32)	15.0(0.59)	17.2(0.68)	19.0(0.75)	7.9(0.31)	20.6(0.81)	22.4(0.88)
10	1/2	-LF-ML10-NS8	36.6(1.44)	19.8(0.78)	17.2(0.68)	19.0(0.75)	7.9(0.31)	25.4(1.00)	28.5(1.12)
12	1/4	-LF-ML12-NS4	36.0(1.42)	15.0(0.59)	22.8(0.90)	22.0(0.87)	7.9(0.31)	20.6(0.81)	22.4(0.88)
12	3/8	-LF-ML12-NS6	36.0(1.42)	15.0(0.59)	22.8(0.90)	22.0(0.87)	9.5(0.37)	20.6(0.81)	22.4(0.88)
12	1/2	-LF-ML12-NS8	38.8(1.53)	19.8(0.78)	22.8(0.90)	22.0(0.87)	9.5(0.37)	25.4(1.00)	28.4(1.12)
16	3/8	-LF-ML16-NS6	39.5(1.56)	15.0(0.59)	24.4(0.96)	25.0(0.98)	12.7(0.50)	27.0(1.06)	23.6(0.93)
16	1/2	-LF-ML16-NS8	39.5(1.56)	19.8(0.78)	24.4(0.96)	25.0(0.98)	12.7(0.50)	27.0(1.06)	28.5(1.12)

Union Elbows



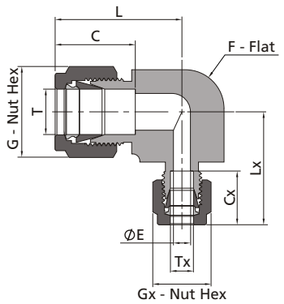
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)				
		L	C	G	F	E
1/16	-LU-FL1	0.70(17.8)	0.34(8.6)	0.31(7.9)	0.37(9.5)	0.05(1.3)
1/8	-LU-FL2	0.88(22.4)	0.50(12.7)	0.44(11.1)	0.37(9.5)	0.09(2.3)
3/16	-LU-FL3	1.00(25.4)	0.54(13.7)	0.50(12.7)	0.50(12.7)	0.12(3.0)
1/4	-LU-FL4	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)
5/16	-LU-FL5	1.13(28.7)	0.64(16.3)	0.63(15.9)	0.56(14.3)	0.25(6.4)
3/8	-LU-FL6	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)
1/2	-LU-FL8	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)
5/8	-LU-FL10	1.50(38.1)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.5(12.7)
3/4	-LU-FL12	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.62(15.7)
7/8	-LU-FL14	1.76(44.7)	1.02(25.9)	1.25(31.8)	1.37(34.9)	0.72(18.3)
1	-LU-FL16	1.93(49.0)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)
1 1/8	-LU-FL18	2.17(55.1)	1.23(31.2)	1.63(41.3)	1.69(42.9)	0.97(24.6)
1 1/8	-LU-FL20	2.62(66.5)	1.62(41.1)	1.87(47.6)	1.69(42.9)	1.09(27.7)
1 1/2	-LU-FL24	3.07(78.0)	1.97(50.0)	2.25(57.2)	2.00(50.8)	1.34(34.0)

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)				
		L	C	G	F	E
3	-LU-ML3	22.3(0.88)	12.9(0.51)	12.0(0.47)	9.5(0.37)	2.4(0.09)
4	-LU-ML4	25.4(1.00)	13.7(0.54)	12.0(0.47)	12.7(0.50)	2.4(0.09)
6	-LU-ML6	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)
8	-LU-ML8	28.8(1.13)	16.2(0.64)	16.0(0.63)	14.3(0.56)	6.4(0.25)
10	-LU-ML10	31.5(1.24)	17.2(0.68)	19.0(0.75)	17.5(0.69)	7.9(0.31)
12	-LU-ML12	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)
14	-LU-ML14	38.0(1.50)	24.4(0.96)	25.0(0.98)	23.8(0.94)	11.0(0.43)
15	-LU-ML15	38.8(1.53)	24.4(0.96)	25.0(0.98)	23.8(0.94)	11.9(0.47)
16	-LU-ML16	38.0(1.50)	24.4(0.96)	25.0(0.98)	23.8(0.94)	12.7(0.50)
18	-LU-ML18	39.8(1.57)	24.4(0.96)	30.0(1.18)	27.0(1.06)	15.1(0.59)
20	-LU-ML20	44.6(1.76)	26.0(1.02)	32.0(1.26)	34.9(1.37)	15.9(0.63)
22	-LU-ML22	44.6(1.76)	26.0(1.02)	32.0(1.26)	34.9(1.37)	18.3(0.72)
25	-LU-ML25	49.1(1.93)	31.3(1.23)	38.0(1.5)	34.9(1.37)	21.8(0.86)
28	-LU-ML28	64.0(2.52)	36.6(1.44)	46.0(1.81)	42.9(1.69)	21.8(0.86)
30	-LU-ML30	69.9(2.75)	39.6(1.56)	50.0(1.97)	42.9(1.69)	26.2(1.03)
32	-LU-ML32	72.3(2.85)	42.0(1.65)	50.0(1.97)	42.9(1.69)	28.6(1.13)
38	-LU-ML38	84.0(3.31)	49.4(1.94)	60.0(2.36)	50.8(2.00)	33.7(1.33)

Union Reducing Elbows



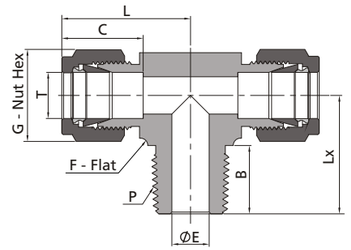
Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)							
			L	C	G	F	E	Cx	Gx	Lx
3/16	1/8	-LU-FL3-FL2	1.00(25.4)	0.54(13.7)	0.50(12.7)	0.50(12.7)	0.09(2.3)	0.50(12.7)	0.44(11.1)	0.97(24.7)
1/4	1/8	-LU-FL4-FL2	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.09(2.3)	0.50(12.7)	0.44(11.1)	1.00(25.4)
5/16	1/8	-LU-FL5-FL2	1.17(29.7)	0.64(16.3)	0.63(15.9)	0.56(14.3)	0.09(2.3)	0.50(12.7)	0.44(11.1)	1.04(26.4)
5/16	1/4	-LU-FL5-FL4	1.17(29.7)	0.64(16.3)	0.63(15.9)	0.56(14.3)	0.19(4.8)	0.60(15.2)	0.56(14.3)	1.14(29.0)
3/8	1/8	-LU-FL6-FL2	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.09(2.3)	0.50(12.7)	0.44(11.1)	1.04(26.4)
3/8	1/4	-LU-FL6-FL4	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.19(4.8)	0.60(15.2)	0.56(14.3)	1.14(29.0)
3/8	5/16	-LU-FL6-FL5	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.25(6.4)	0.64(16.3)	0.63(15.9)	1.17(29.7)
1/2	1/4	-LU-FL8-FL4	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.19(4.8)	0.60(15.2)	0.56(14.3)	1.27(32.2)
1/2	5/16	-LU-FL8-FL5	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.25(6.4)	0.64(16.3)	0.63(15.9)	1.28(32.5)
1/2	3/8	-LU-FL8-FL6	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.28(7.1)	0.66(16.8)	0.69(17.5)	1.32(33.6)
5/8	3/8	-LU-FL10-FL6	1.50(38.1)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.28(7.1)	0.66(16.8)	0.69(17.5)	1.40(35.6)
5/8	1/2	-LU-FL10-FL8	1.50(38.1)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.41(10.4)	0.90(22.9)	0.87(22.2)	1.50(38.1)
3/4	1/4	-LU-FL12-FL4	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.19(4.8)	0.60(15.2)	0.56(14.3)	1.41(35.9)
3/4	3/8	-LU-FL12-FL6	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.28(7.1)	0.66(16.8)	0.69(17.5)	1.47(37.4)
3/4	1/2	-LU-FL12-FL8	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.41(10.4)	0.90(22.9)	0.87(22.2)	1.57(39.9)
7/8	1/4	-LU-FL14-FL4	1.76(44.7)	1.02(25.9)	1.25(31.8)	1.37(34.9)	0.19(4.8)	0.60(15.2)	0.56(14.3)	1.60(40.7)
1	1/2	-LU-FL16-FL8	1.93(49.0)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.41(10.4)	0.90(22.9)	0.87(22.2)	1.75(44.4)
1	3/4	-LU-FL16-FL12	1.93(49.0)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.62(15.7)	0.96(24.4)	1.13(28.6)	1.75(44.4)

Metric Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)							
			L	C	G	F	E	Cx	Gx	Lx
8	6	-LU-ML8-ML6	28.8(1.13)	16.2(0.64)	16.0(0.63)	14.3(0.56)	4.8(0.19)	15.3(0.60)	14.0(0.55)	27.9(1.10)
10	8	-LU-ML10-ML8	31.5(1.24)	17.2(0.68)	19.0(0.75)	17.5(0.69)	6.4(0.25)	16.2(0.64)	16.0(0.63)	30.5(1.20)
12	8	-LU-ML12-ML8	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	6.4(0.25)	16.2(0.64)	16.0(0.63)	32.6(1.28)
14	8	-LU-ML14-ML8	38.8(1.53)	24.4(0.96)	25.0(0.98)	23.8(0.94)	6.4(0.25)	16.2(0.64)	16.0(0.63)	35.4(1.39)
14	10	-LU-ML14-ML10	38.8(1.53)	24.4(0.96)	25.0(0.98)	23.8(0.94)	7.9(0.31)	17.2(0.68)	19.0(0.75)	36.4(1.43)

Male Branch Tees



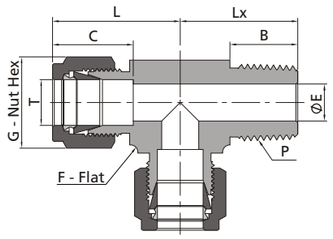
Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						
			L	C	G	F	E	B	Lx
1/8	1/8	-TTM-FL2-NS2	0.93(23.6)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.3)	0.38(9.7)	0.70(17.8)
1/8	1/4	-TTM-FL2-NS4	0.97(24.6)	0.50(12.7)	0.44(11.1)	0.50(12.7)	0.09(2.3)	0.56(14.2)	0.92(23.4)
3/16	1/8	-TTM-FL3-NS2	0.96(24.4)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.12(3.0)	0.38(9.7)	0.70(17.8)
1/4	1/8	-TTM-FL4-NS2	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.38(9.7)	0.74(18.8)
1/4	1/4	-TTM-FL4-NS4	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.56(14.2)	0.92(23.4)
5/16	1/8	-TTM-FL5-NS2	1.17(29.7)	0.64(16.3)	0.63(15.9)	0.63(15.9)	0.19(4.8)	0.38(9.7)	0.82(20.8)
5/16	1/4	-TTM-FL5-NS4	1.17(29.7)	0.64(16.3)	0.63(15.9)	0.63(15.9)	0.25(6.4)	0.56(14.2)	1.01(25.7)
3/8	1/4	-TTM-FL6-NS4	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)	0.56(14.2)	1.00(25.4)
3/8	3/8	-TTM-FL6-NS6	1.31(33.3)	0.66(16.8)	0.69(17.5)	0.81(20.6)	0.28(7.1)	0.56(14.2)	1.11(28.2)
1/2	3/8	-TTM-FL8-NS6	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.38(9.7)	0.56(14.2)	1.11(28.2)
1/2	1/2	-TTM-FL8-NS8	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)	0.75(19.1)	1.30(33.0)
5/8	1/2	-TTM-FL10-NS8	1.53(38.9)	0.96(24.4)	1.00(25.4)	1.00(25.4)	0.47(11.9)	0.75(19.1)	1.41(35.8)
3/4	3/4	-TTM-FL12-NS12	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.62(15.7)	0.75(19.1)	1.45(36.8)
7/8	3/4	-TTM-FL14-NS12	1.76(44.7)	1.02(25.9)	1.25(31.8)	1.31(33.3)	0.62(15.7)	0.75(19.1)	1.50(38.1)
1	3/4	-TTM-FL16-NS12	1.94(49.3)	1.23(31.2)	1.50(38.1)	1.31(33.3)	0.62(15.7)	0.75(19.1)	1.67(42.4)
1	1	-TTM-FL16-NS16	1.94(49.3)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)	0.94(23.9)	1.84(46.7)

Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	C	G	F	E	B	Lx
6	1/8	-TTM-ML6-NS2	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	9.7(0.38)	18.8(0.74)
6	1/4	-TTM-ML6-NS4	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	14.2(0.56)	23.4(0.92)
8	1/8	-TTM-ML8-NS2	29.9(1.18)	16.2(0.64)	16.0(0.63)	15.9(0.63)	4.8(0.19)	9.7(0.38)	20.8(0.82)
8	1/4	-TTM-ML8-NS4	29.9(1.18)	16.2(0.64)	16.0(0.63)	15.9(0.63)	6.4(0.25)	14.2(0.56)	25.4(1.00)
10	1/4	-TTM-ML10-NS4	33.5(1.32)	17.2(0.68)	19.0(0.75)	20.6(0.81)	7.9(0.31)	14.2(0.56)	28.2(1.11)
10	3/8	-TTM-ML10-NS6	33.5(1.32)	17.2(0.68)	19.0(0.75)	20.6(0.81)	7.9(0.31)	14.2(0.56)	28.2(1.11)
12	1/4	-TTM-ML12-NS4	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	7.9(0.31)	14.2(0.56)	28.2(1.11)
12	3/8	-TTM-ML12-NS6	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	14.2(0.56)	28.2(1.11)
12	1/2	-TTM-ML12-NS8	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	19.1(0.75)	33.0(1.30)
16	1/2	-TTM-ML16-NS8	38.8(1.53)	24.4(0.96)	25.0(0.98)	25.4(1.00)	11.9(0.47)	19.1(0.75)	35.8(1.41)

Male Run Tees



Fractional Tube — **NPT Thread**

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						
			L	C	G	F	E	B	Lx
1/8	1/8	-TMT-FL2-NS2	0.93(23.6)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.3)	0.38(9.7)	0.70(17.8)
1/8	1/4	-TMT-FL2-NS4	0.97(24.6)	0.50(12.7)	0.44(11.1)	0.50(12.7)	0.09(2.3)	0.56(14.2)	0.92(23.4)
3/16	1/8	-TMT-FL3-NS2	0.96(24.4)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.12(3.0)	0.38(9.7)	0.70(17.8)
1/4	1/8	-TMT-FL4-NS2	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.38(9.7)	0.74(18.8)
1/4	1/4	-TMT-FL4-NS4	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.56(14.2)	0.92(23.4)
5/16	1/8	-TMT-FL5-NS2	1.17(29.7)	0.64(16.3)	0.63(15.9)	0.63(15.9)	0.19(4.8)	0.38(9.7)	0.82(20.8)
5/16	1/4	-TMT-FL5-NS4	1.17(29.7)	0.64(16.3)	0.63(15.9)	0.63(15.9)	0.25(6.4)	0.56(14.2)	1.01(25.7)
3/8	1/4	-TMT-FL6-NS4	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)	0.56(14.2)	1.00(25.4)
3/8	3/8	-TMT-FL6-NS6	1.31(33.3)	0.66(16.8)	0.69(17.5)	0.81(20.6)	0.28(7.1)	0.56(14.2)	1.11(28.2)
1/2	3/8	-TMT-FL8-NS6	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.38(9.7)	0.56(14.2)	1.11(28.2)
1/2	1/2	-TMT-FL8-NS8	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)	0.75(19.1)	1.3(33.0)
5/8	1/2	-TMT-FL10-NS8	1.50(38.1)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.47(11.9)	0.75(19.1)	1.41(35.8)
3/4	3/4	-TMT-FL12-NS12	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.62(15.7)	0.75(19.1)	1.45(36.8)
7/8	3/4	-TMT-FL14-NS12	1.76(44.7)	1.02(25.9)	1.25(31.8)	1.31(33.3)	0.62(15.7)	0.75(19.1)	1.50(38.1)
1	3/4	-TMT-FL16-NS12	1.94(49.3)	1.23(31.2)	1.50(38.1)	1.31(33.3)	0.62(15.7)	0.75(19.1)	1.67(42.4)
1	1	-TMT-FL16-NS16	1.94(49.3)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)	0.94(23.9)	1.84(46.7)

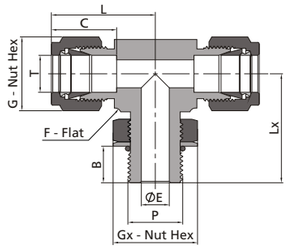
Metric Tube — **NPT Thread**

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	C	G	F	E	B	Lx
6	1/8	-TMT-ML6-NS2	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	9.7(0.38)	18.0(0.71)
6	1/4	-TMT-ML6-NS4	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	14.2(0.56)	23.4(0.92)
8	1/8	-TMT-ML8-NS2	29.9(1.18)	16.2(0.64)	16.0(0.63)	15.9(0.63)	4.8(0.19)	9.7(0.38)	20.8(0.82)
8	1/4	-TMT-ML8-NS4	29.9(1.18)	16.2(0.64)	16.0(0.63)	15.9(0.63)	6.4(0.25)	14.2(0.56)	25.4(1.00)
10	1/4	-TMT-ML10-NS4	33.5(1.32)	17.2(0.68)	19.0(0.75)	20.6(0.81)	7.9(0.31)	14.2(0.56)	28.2(1.11)
10	1/2	-TMT-ML10-NS8	33.5(1.32)	17.2(0.68)	19.0(0.75)	20.6(0.81)	7.9(0.31)	14.2(0.56)	28.2(1.11)
12	1/4	-TMT-ML12-NS4	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	7.9(0.31)	14.2(0.56)	28.2(1.11)
12	3/8	-TMT-ML12-NS6	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	14.2(0.56)	28.2(1.11)
12	1/2	-TMT-ML12-NS8	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	19.1(0.75)	33.0(1.30)
16	1/2	-TMT-ML16-NS8	38.0(1.50)	24.4(0.96)	25.0(0.98)	23.8(0.94)	11.9(0.47)	19.1(0.75)	35.0(1.38)

Adjustable Male Branch Tees

SAE/MS Straight Thread

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

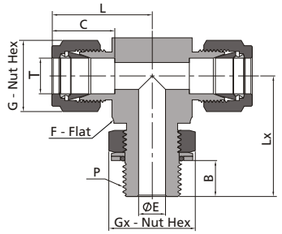


Fractional Tube — **SAE/MS Straight Thread**

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)							
			L	B	C	E	G	F	Lx	Gx
1/4	7/16-20	-TTP-FL4-ST7	1.12(28.5)	0.39(9.9)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.50(12.7)	1.12(28.5)	0.56(14.3)
3/8	9/16-18	-TTP-FL6-ST9	1.26(32.0)	0.44(11.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.63(15.9)	1.27(32.3)	0.69(17.5)
1/2	3/4-16	-TTP-FL8-ST12	1.48(37.6)	0.50(12.7)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.81(20.6)	1.49(37.8)	0.87(22.2)
3/4	1 1/16-12	-TTP-FL12-ST17	1.63(41.4)	0.66(16.8)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.06(27.0)	1.92(48.8)	1.13(28.6)
1	1 5/16-12	-TTP-FL16-ST21	1.99(50.5)	0.66(16.8)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.37(34.9)	2.11(53.6)	1.50(38.1)
1 1/4	1 5/8-12	-TTP-FL20-ST26	2.67(67.8)	0.66(16.8)	1.62(41.1)	1.09(27.7)	1.87(47.6)	1.69(42.9)	2.29(58.2)	1.87(47.6)
1 1/2	1 7/8-12	-TTP-FL24-ST30	3.07(78.0)	0.66(16.8)	1.97(50.0)	1.34(34.0)	2.25(57.2)	2.00(50.8)	2.38(60.5)	2.13(54.0)

Adjustable Male Branch Tees

ISO Parallel Thread



Fractional Tube — **ISO Parallel Thread (PP)**

T-Tube O.D. (in.)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, in. (mm)							
			L	B	C	E	G	F	Lx	Gx
1/4	1/8	-TTP-FL4-PP2	1.06(26.9)	0.32(8.1)	0.60(15.2)	0.16(4.1)	0.56(14.3)	0.50(12.7)	1.04(26.4)	0.56(14.3)
1/4	1/4	-TTP-FL4-PP4	1.14(29.0)	0.36(9.1)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.63(15.9)	1.27(32.3)	0.75(19.1)
3/8	1/4	-TTP-FL6-PP4	1.20(30.5)	0.36(9.1)	0.66(16.8)	0.23(5.8)	0.69(17.5)	0.63(15.9)	1.27(32.3)	0.75(19.1)
1/2	3/8	-TTP-FL8-PP6	1.42(36.1)	0.37(9.4)	0.90(22.9)	0.31(7.9)	0.87(22.2)	0.81(20.6)	1.46(37.1)	0.87(22.2)
1/2	1/2	-TTP-FL8-PP8	1.50(38.1)	0.51(13.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.94(23.8)	1.71(43.4)	1.06(27.0)
5/8	1/2	-TTP-FL10-PP8	1.50(38.1)	0.51(13.0)	0.96(24.4)	0.47(11.9)	1.00(25.4)	0.94(23.8)	1.71(43.4)	1.06(27.0)
3/4	1/2	-TTP-FL12-PP8	1.57(39.9)	0.51(13.0)	0.96(24.4)	0.47(11.9)	1.13(28.6)	1.06(27.0)	1.78(45.2)	1.06(27.0)
3/4	3/4	-TTP-FL12-PP12	1.57(39.9)	0.51(13.0)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.06(27.0)	1.92(48.8)	1.37(34.9)
1	1	-TTP-FL16-PP16	1.93(49.0)	0.55(14.0)	1.23(31.2)	0.78(19.8)	1.50(38.1)	1.37(34.9)	2.11(53.6)	1.63(41.3)

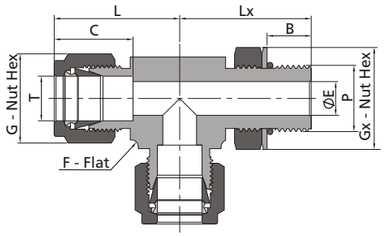
Metric Tube — **ISO Parallel Thread (PP)**

T-Tube O.D. (mm)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm (in.)							
			L	B	C	E	G	F	Lx	Gx
6	1/8	-TTP-ML6-PP2	27.0(1.06)	8.1(0.32)	15.3(0.60)	4.0(0.16)	14.0(0.55)	12.7(0.50)	26.4(1.04)	14.3(0.56)
6	1/4	-TTP-ML6-PP4	29.0(1.14)	9.1(0.36)	15.3(0.60)	4.8(0.19)	14.0(0.55)	15.9(0.63)	32.2(1.27)	19.1(0.75)
8	1/8	-TTP-ML8-PP2	28.8(1.13)	8.1(0.32)	16.2(0.64)	4.0(0.16)	16.0(0.63)	14.3(0.56)	27.5(1.08)	14.3(0.56)
8	1/4	-TTP-ML8-PP4	29.9(1.18)	9.1(0.36)	16.2(0.64)	5.9(0.23)	16.0(0.63)	15.9(0.63)	32.2(1.27)	19.1(0.75)
10	1/4	-TTP-ML10-PP4	33.5(1.32)	9.1(0.36)	17.2(0.68)	5.9(0.23)	19.0(0.75)	20.6(0.81)	35.1(1.38)	19.1(0.75)
12	3/8	-TTP-ML12-PP6	36.0(1.42)	9.4(0.37)	22.8(0.90)	7.9(0.31)	22.0(0.87)	20.6(0.81)	37.1(1.46)	22.2(0.87)
12	1/2	-TTP-ML12-PP8	38.0(1.50)	13.0(0.51)	22.8(0.90)	9.5(0.37)	22.0(0.87)	23.8(0.94)	43.5(1.71)	27.0(1.06)

Adjustable Male Run Tees

SAE/MS Straight Thread

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

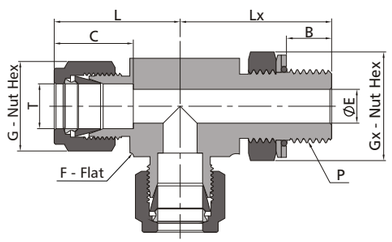


Fractional Tube — **SAE/MS Straight Thread**

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)							
			L	B	C	E	G	F	Lx	Gx
1/4	7/16-20	-TPT-FL4-ST7	1.12(28.5)	0.39(9.9)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.50(12.7)	1.12(28.5)	0.56(14.3)
3/8	9/16-18	-TPT-FL6-ST9	1.26(32.0)	0.44(11.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.63(15.9)	1.27(32.3)	0.69(17.5)
1/2	3/4-16	-TPT-FL8-ST12	1.48(37.6)	0.50(12.7)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.81(20.6)	1.49(37.8)	0.87(22.2)
3/4	1 1/16-12	-TPT-FL12-ST17	1.63(41.4)	0.66(16.8)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.06(27.0)	1.92(48.8)	1.13(28.6)
1	1 5/16-12	-TPT-FL16-ST21	1.99(50.5)	0.66(16.8)	1.23(31.2)	0.88(22.4)	1.50(38.1)	1.37(34.9)	2.11(53.6)	1.50(38.1)
1 1/4	1 5/8-12	-TPT-FL20-ST26	2.67(67.8)	0.66(16.8)	1.62(41.1)	1.09(27.7)	1.87(47.6)	1.69(42.9)	2.29(58.2)	1.87(47.6)
1 1/2	1 7/8-12	-TPT-FL24-ST30	3.07(78.0)	0.66(16.8)	1.97(50.0)	1.34(34.0)	2.25(57.2)	2.00(50.8)	2.38(60.5)	2.13(54.0)

Adjustable Male Run Tees

ISO Parallel Thread



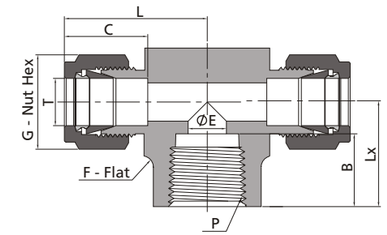
Fractional Tube — **ISO Parallel Thread (PP)**

T-Tube O.D. (in.)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, in. (mm)							
			L	B	C	E	G	F	Lx	Gx
1/4	1/8	-TPT-FL4-PP2	1.06(26.9)	0.32(8.1)	0.60(15.2)	0.16(4.1)	0.56(14.3)	0.50(12.7)	1.04(26.4)	0.56(14.3)
1/4	1/4	-TPT-FL4-PP4	1.14(29.0)	0.36(9.1)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.63(15.9)	1.27(32.3)	0.75(19.1)
3/8	1/4	-TPT-FL6-PP4	1.20(30.5)	0.36(9.1)	0.66(16.8)	0.23(5.8)	0.69(17.5)	0.63(15.9)	1.27(32.3)	0.75(19.1)
1/2	3/8	-TPT-FL8-PP6	1.42(36.1)	0.37(9.4)	0.90(22.9)	0.31(7.9)	0.87(22.2)	0.81(20.6)	1.46(37.1)	0.87(22.2)
1/2	1/2	-TPT-FL8-PP8	1.50(38.1)	0.51(13.0)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.94(23.8)	1.71(43.4)	1.06(27.0)
5/8	1/2	-TPT-FL10-PP8	1.50(38.1)	0.51(13.0)	0.96(24.4)	0.47(11.9)	1.00(25.4)	0.94(23.8)	1.71(43.4)	1.06(27.0)
3/4	1/2	-TPT-FL12-PP8	1.57(39.9)	0.51(13.0)	0.96(24.4)	0.47(11.9)	1.13(28.6)	1.06(27.0)	1.78(45.2)	1.06(27.0)
3/4	3/4	-TPT-FL12-PP12	1.57(39.9)	0.51(13.0)	0.96(24.4)	0.62(15.7)	1.13(28.6)	1.06(27.0)	1.92(48.8)	1.37(34.9)
1	1	-TPT-FL16-PP16	1.93(49.0)	0.55(14.0)	1.23(31.2)	0.78(19.8)	1.50(38.1)	1.37(34.9)	2.11(53.6)	1.63(41.3)

Metric Tube — **ISO Parallel Thread (PP)**

T-Tube O.D. (mm)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm (in.)							
			L	B	C	E	G	F	Lx	Gx
6	1/8	-TPT-ML6-PP2	27.0(1.06)	8.1(0.32)	15.3(0.60)	4.0(0.16)	14.0(0.55)	12.7(0.50)	26.4(1.04)	14.3(0.56)
6	1/4	-TPT-ML6-PP4	29.0(1.14)	9.1(0.36)	15.3(0.60)	4.8(0.19)	14.0(0.55)	15.9(0.63)	32.2(1.27)	19.1(0.75)
8	1/8	-TPT-ML8-PP2	28.8(1.13)	8.1(0.32)	16.2(0.64)	4.0(0.16)	16.0(0.63)	14.3(0.56)	27.5(1.08)	14.3(0.56)
8	1/4	-TPT-ML8-PP4	29.9(1.18)	9.1(0.36)	16.2(0.64)	5.9(0.23)	16.0(0.63)	15.9(0.63)	32.2(1.27)	19.1(0.75)
10	1/4	-TPT-ML10-PP4	33.5(1.32)	9.1(0.36)	17.2(0.68)	5.9(0.23)	19.0(0.75)	20.6(0.81)	35.1(1.38)	19.1(0.75)
12	3/8	-TPT-ML12-PP6	36.0(1.42)	9.4(0.37)	22.8(0.90)	7.9(0.31)	22.0(0.87)	20.6(0.81)	37.1(1.46)	22.2(0.87)
12	1/2	-TPT-ML12-PP8	38.0(1.50)	13.0(0.51)	22.8(0.90)	9.5(0.37)	22.0(0.87)	23.8(0.94)	43.5(1.71)	27.0(1.06)

Female Branch Tees



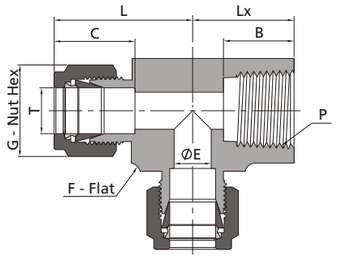
Fractional Tube — **NPT Thread**

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						
			L	C	G	F	E	B	Lx
1/8	1/8	-TTF-FL2-NS2	0.97(24.6)	0.50(12.7)	0.44(11.1)	0.50(12.7)	0.09(2.3)	0.41(10.4)	0.75(19.1)
3/16	1/8	-TTF-FL3-NS2	1.01(25.7)	0.54(13.7)	0.50(12.7)	0.50(12.7)	0.12(3.0)	0.41(10.4)	0.75(19.1)
1/4	1/8	-TTF-FL4-NS2	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.41(10.4)	0.75(19.1)
1/4	1/4	-TTF-FL4-NS4	1.17(29.7)	0.60(15.2)	0.56(14.3)	0.69(17.5)	0.19(4.8)	0.59(15.0)	0.88(22.4)
5/16	1/8	-TTF-FL5-NS2	1.17(29.7)	0.64(16.2)	0.63(15.9)	0.63(15.9)	0.25(6.4)	0.41(10.4)	0.75(19.1)
3/8	1/4	-TTF-FL6-NS4	1.23(31.2)	0.66(16.8)	0.69(17.5)	0.69(17.5)	0.28(7.1)	0.59(15.0)	0.88(22.4)
3/8	3/8	-TTF-FL6-NS6	1.31(33.3)	0.66(16.8)	0.69(17.5)	0.81(20.6)	0.28(7.1)	0.59(15.0)	0.88(22.4)
3/8	1/2	-TTF-FL6-NS8	1.42(36.1)	0.66(16.8)	0.69(17.5)	1.00(25.4)	0.28(7.1)	0.78(19.8)	1.12(28.4)
1/2	1/4	-TTF-FL8-NS4	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)	0.59(15.0)	0.88(22.4)
1/2	3/8	-TTF-FL8-NS6	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)	0.59(15.0)	0.88(22.4)
1/2	1/2	-TTF-FL8-NS8	1.53(38.9)	0.90(22.9)	0.87(22.2)	1.00(25.4)	0.41(10.4)	0.78(19.8)	1.12(28.4)
5/8	1/2	-TTF-FL10-NS8	1.53(38.9)	0.96(24.4)	1.00(25.4)	1.00(25.4)	0.50(12.7)	0.78(19.8)	1.12(28.4)
3/4	3/4	-TTF-FL12-NS12	1.76(44.7)	0.96(24.4)	1.13(28.6)	1.37(34.9)	0.62(15.7)	0.81(20.6)	1.25(31.8)
7/8	3/4	-TTF-FL14-NS12	1.76(44.7)	1.02(25.9)	1.25(31.8)	1.37(34.9)	0.72(18.3)	0.81(20.6)	1.25(31.8)
1	3/4	-TTF-FL16-NS12	1.93(49.0)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)	0.81(20.6)	1.25(31.8)
1	1	-TTF-FL16-NS16	2.11(53.6)	1.23(31.2)	1.50(38.1)	1.69(42.9)	0.88(22.4)	1.00(25.4)	1.50(38.1)

Metric Tube — **NPT Thread**

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	C	G	F	E	B	Lx
6	1/8	-TTF-ML6-NS2	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	10.4(0.41)	19.0(0.75)
6	1/4	-TTF-ML6-NS4	29.8(1.17)	15.3(0.60)	14.0(0.55)	17.5(0.69)	4.8(0.19)	15.0(0.59)	22.4(0.88)
8	1/8	-TTF-ML8-NS2	29.9(1.18)	16.2(0.64)	16.0(0.63)	15.9(0.63)	6.4(0.25)	10.4(0.41)	19.0(0.75)
8	1/4	-TTF-ML8-NS4	30.6(1.2)	16.2(0.64)	16.0(0.63)	17.5(0.69)	6.4(0.25)	15.0(0.59)	22.4(0.88)
10	1/4	-TTF-ML10-NS4	33.5(1.32)	17.2(0.68)	19.0(0.75)	20.6(0.81)	7.9(0.31)	15.0(0.59)	22.4(0.88)
12	1/8	-TTF-ML12-NS2	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	6.4(0.25)	10.4(0.41)	22.3(0.88)
12	1/4	-TTF-ML12-NS4	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	15.0(0.59)	22.4(0.88)
12	3/8	-TTF-ML12-NS6	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	15.0(0.59)	22.4(0.88)
12	1/2	-TTF-ML12-NS8	38.8(1.53)	22.8(0.90)	22.0(0.87)	25.4(1.00)	9.5(0.37)	19.8(0.78)	28.5(1.12)
16	1/2	-TTF-ML16-NS8	38.8(1.53)	24.4(0.96)	25.0(0.98)	25.4(1.00)	12.7(0.50)	19.8(0.78)	28.4(1.12)

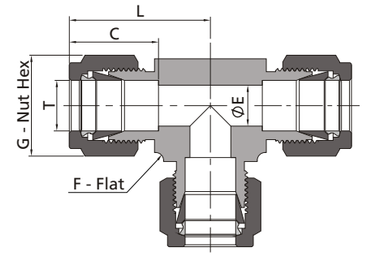
Female Run Tees



Fractional Tube									NPT Thread
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						
			L	C	G	F	E	B	Lx
1/8	1/8	-TFT-FL2-NS2	0.97(24.6)	0.50(12.7)	0.44(11.1)	0.50(12.7)	0.09(2.3)	0.41(10.4)	0.75(19.1)
3/16	1/8	-TFT-FL3-NS2	1.01(25.7)	0.54(13.7)	0.50(12.7)	0.50(12.7)	0.12(3.0)	0.41(10.4)	0.75(19.1)
1/4	1/8	-TFT-FL4-NS2	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.41(10.4)	0.75(19.1)
1/4	1/4	-TFT-FL4-NS4	1.17(29.7)	0.60(15.2)	0.56(14.3)	0.69(17.5)	0.19(4.8)	0.59(15.0)	0.88(22.4)
5/16	1/8	-TFT-FL5-NS2	1.17(29.7)	0.64(16.2)	0.63(15.9)	0.63(15.9)	0.25(6.4)	0.41(10.4)	0.75(19.1)
3/8	1/4	-TFT-FL6-NS4	1.23(31.2)	0.66(16.8)	0.69(17.5)	0.69(17.5)	0.28(7.1)	0.59(15.0)	0.88(22.4)
1/2	1/4	-TFT-FL8-NS4	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)	0.59(15.0)	0.88(22.4)
1/2	3/8	-TFT-FL8-NS6	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)	0.59(15.0)	0.88(22.4)
1/2	1/2	-TFT-FL8-NS8	1.57(39.9)	0.90(22.9)	0.87(22.2)	1.06(27.0)	0.41(10.4)	0.78(19.8)	1.12(28.4)
5/8	1/2	-TFT-FL10-NS8	1.57(39.9)	0.96(24.4)	1.00(25.4)	1.06(27.0)	0.50(12.7)	0.78(19.8)	1.12(28.4)
3/4	3/4	-TFT-FL12-NS12	1.76(44.7)	0.96(24.4)	1.13(28.6)	1.37(34.9)	0.62(15.7)	0.81(20.6)	1.25(31.8)
7/8	1/2	-TFT-FL14-NS8	1.76(44.7)	1.02(25.9)	1.25(31.8)	1.37(34.9)	0.62(15.7)	0.78(19.8)	1.12(28.4)
7/8	3/4	-TFT-FL14-NS12	1.76(44.7)	1.02(25.9)	1.25(31.8)	1.37(34.9)	0.72(18.3)	0.81(20.6)	1.25(31.8)
1	3/4	-TFT-FL16-NS12	1.93(49.0)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)	0.81(20.6)	1.25(31.8)
1	1	-TFT-FL16-NS16	2.11(53.6)	1.23(31.2)	1.50(38.1)	1.69(42.9)	0.88(22.4)	1.00(25.4)	1.50(38.1)

Metric Tube									NPT Thread
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)						
			L	C	G	F	E	B	Lx
6	1/8	-TFT-ML6-NS2	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	10.4(0.41)	19.0(0.75)
6	1/4	-TFT-ML6-NS4	29.8(1.17)	15.3(0.60)	14.0(0.55)	17.5(0.69)	4.8(0.19)	15.0(0.59)	22.4(0.88)
8	1/8	-TFT-ML8-NS2	29.9(1.18)	16.2(0.64)	16.0(0.63)	15.9(0.63)	4.8(0.19)	10.4(0.41)	19.0(0.75)
8	1/4	-TFT-ML8-NS4	30.6(1.20)	16.2(0.64)	16.0(0.63)	17.5(0.69)	6.4(0.25)	15.0(0.59)	22.4(0.88)
10	1/4	-TFT-ML10-NS4	33.5(1.32)	17.2(0.68)	19.0(0.75)	20.6(0.81)	7.9(0.31)	15.0(0.59)	22.4(0.88)
12	1/4	-TFT-ML12-NS4	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	15.0(0.59)	22.4(0.88)
12	3/8	-TFT-ML12-NS6	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	15.0(0.59)	23.1(0.91)
12	1/2	-TFT-ML12-NS8	38.8(1.53)	22.8(0.90)	22.0(0.87)	25.4(1.00)	9.5(0.37)	19.8(0.78)	28.5(1.12)
16	1/2	-TFT-ML16-NS8	39.8(1.57)	24.4(0.96)	25.0(0.98)	27.0(1.06)	11.9(0.47)	19.8(0.78)	28.4(1.12)

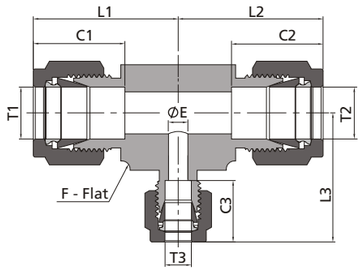
Union Tees



Fractional Tube						
T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)				
		L	C	G	F	E
1/16	-TTT-FL1	0.70(17.8)	0.34(8.6)	0.31(7.9)	0.37(9.5)	0.05(1.3)
1/8	-TTT-FL2	0.96(24.4)	0.50(12.7)	0.44(11.1)	0.37(9.5)	0.09(2.3)
3/16	-TTT-FL3	0.96(24.4)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.12(3.0)
1/4	-TTT-FL4	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)
5/16	-TTT-FL5	1.17(29.7)	0.64(16.2)	0.63(15.9)	0.63(15.9)	0.25(6.4)
3/8	-TTT-FL6	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)
1/2	-TTT-FL8	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)
5/8	-TTT-FL10	1.53(38.9)	0.96(24.4)	1.00(25.4)	1.00(25.4)	0.50(12.7)
3/4	-TTT-FL12	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.62(15.7)
7/8	-TTT-FL14	1.76(44.7)	1.02(25.9)	1.25(31.8)	1.37(34.9)	0.72(18.3)
1	-TTT-FL16	1.93(49.0)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)
1 1/8	-TTT-FL18	2.17(55.1)	1.23(31.2)	1.81(46.0)	1.69(42.9)	0.97(24.6)
1 1/4	-TTT-FL20	2.62(66.5)	1.62(41.1)	1.87(47.6)	1.69(42.9)	1.09(27.7)
1 1/2	-TTT-FL24	3.07(78.0)	1.97(50.0)	2.25(57.2)	2.00(50.8)	1.34(34.0)

Metric Tube						
T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)				
		L	C	G	F	E
2	-TTT-ML2	22.3(0.88)	12.9(0.51)	12.0(0.47)	9.5(0.37)	1.7(0.07)
3	-TTT-ML3	22.3(0.88)	12.9(0.51)	12.0(0.47)	9.5(0.37)	2.4(0.09)
4	-TTT-ML4	25.4(1.00)	13.7(0.54)	12.0(0.47)	12.7(0.50)	2.4(0.09)
6	-TTT-ML6	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)
8	-TTT-ML8	29.9(1.18)	16.2(0.64)	16.0(0.63)	15.9(0.63)	6.4(0.25)
10	-TTT-ML10	31.5(1.24)	17.2(0.68)	19.0(0.75)	17.5(0.69)	7.9(0.31)
12	-TTT-ML12	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)
14	-TTT-ML14	38.8(1.53)	24.4(0.96)	25.0(0.98)	25.4(1.00)	11.1(0.44)
15	-TTT-ML15	38.8(1.53)	24.4(0.96)	25.0(0.98)	25.4(1.00)	11.9(0.47)
16	-TTT-ML16	38.8(1.53)	24.4(0.96)	25.0(0.98)	25.4(1.00)	12.7(0.50)
18	-TTT-ML18	38.8(1.53)	24.4(0.96)	30.0(1.18)	27.0(1.06)	15.1(0.59)
20	-TTT-ML20	44.6(1.76)	26.0(1.02)	32.0(1.26)	34.9(1.37)	15.9(0.63)
22	-TTT-ML22	44.6(1.76)	26.0(1.02)	32.0(1.26)	34.9(1.37)	18.3(0.72)
25	-TTT-ML25	49.1(1.93)	31.3(1.23)	38.0(1.50)	34.9(1.37)	21.8(0.86)
28	-TTT-ML28	64.0(2.52)	36.6(1.44)	46.0(1.81)	42.9(1.69)	21.8(0.86)
30	-TTT-ML30	69.9(2.75)	39.6(1.56)	50.0(1.97)	42.9(1.69)	26.2(1.03)
32	-TTT-ML32	72.3(2.85)	42.0(1.65)	50.0(1.97)	42.9(1.69)	28.6(1.13)
38	-TTT-ML38	84.0(3.31)	49.4(1.94)	60.0(2.36)	50.8(2.00)	33.7(1.33)

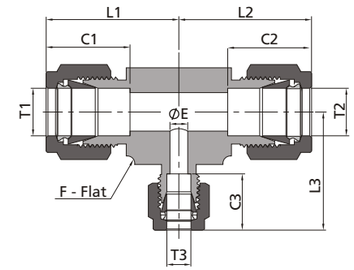
Reducing Union Tees



Fractional Tube

T1-Tube O.D. (in.)	T2-Tube O.D. (in.)	T3-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)							
				L1	L2	L3	C1	C2	C3	F	E
1/4	1/4	1/8	-TTT-FL4-FL4-FL2	1.05(26.7)	1.05(26.7)	0.96(24.4)	0.60(15.2)	0.60(15.2)	0.50(12.7)	0.50(12.7)	0.09(2.3)
3/8	1/4	1/4	-TTT-FL6-FL4-FL4	1.20(30.5)	1.14(29.0)	1.14(29.0)	0.66(16.8)	0.60(15.2)	0.60(15.2)	0.63(15.9)	0.19(4.8)
3/8	1/4	3/8	-TTT-FL6-FL4-FL6	1.20(30.5)	1.14(29.0)	1.20(30.5)	0.66(16.8)	0.60(15.2)	0.66(16.8)	0.63(15.9)	0.19(4.8)
3/8	3/8	1/4	-TTT-FL6-FL6-FL4	1.20(30.5)	1.20(30.5)	1.14(29.0)	0.66(16.8)	0.66(16.8)	0.60(15.2)	0.63(15.9)	0.19(4.8)
1/2	1/4	1/4	-TTT-FL8-FL4-FL4	1.42(36.1)	1.25(31.8)	1.25(31.8)	0.90(22.9)	0.60(15.2)	0.60(15.2)	0.81(20.6)	0.19(4.8)
1/2	1/4	1/2	-TTT-FL8-FL4-FL8	1.42(36.1)	1.25(31.8)	1.42(36.1)	0.90(22.9)	0.60(15.2)	0.90(22.9)	0.81(20.6)	0.19(4.8)
1/2	3/8	3/8	-TTT-FL8-FL6-FL6	1.42(36.1)	1.31(33.3)	1.31(33.3)	0.90(22.9)	0.66(16.8)	0.66(16.8)	0.81(20.6)	0.28(7.1)
1/2	3/8	1/2	-TTT-FL8-FL6-FL8	1.42(36.1)	1.31(33.3)	1.42(36.1)	0.90(22.9)	0.66(16.8)	0.90(22.9)	0.81(20.6)	0.28(7.1)
1/2	1/2	1/4	-TTT-FL8-FL8-FL4	1.42(36.1)	1.42(36.1)	1.25(31.8)	0.90(22.9)	0.90(22.9)	0.60(15.2)	0.81(20.6)	0.19(4.8)
1/2	1/2	3/8	-TTT-FL8-FL8-FL6	1.42(36.1)	1.42(36.1)	1.31(33.3)	0.90(22.9)	0.90(22.9)	0.66(16.8)	0.81(20.6)	0.28(7.1)
5/8	3/8	3/8	-TTT-FL10-FL6-FL6	1.53(38.9)	1.42(36.1)	1.42(36.1)	0.96(24.4)	0.66(16.8)	0.66(16.8)	1.00(25.4)	0.28(7.1)
5/8	3/8	1/2	-TTT-FL10-FL6-FL8	1.53(38.9)	1.42(36.1)	1.53(38.9)	0.96(24.4)	0.66(16.8)	0.90(22.9)	1.00(25.4)	0.28(7.1)
5/8	1/2	3/8	-TTT-FL10-FL8-FL6	1.53(38.9)	1.53(38.9)	1.42(36.1)	0.96(24.4)	0.90(22.9)	0.66(16.8)	1.00(25.4)	0.28(7.1)
5/8	1/2	1/2	-TTT-FL10-FL8-FL8	1.53(38.9)	1.53(38.9)	1.53(38.9)	0.96(24.4)	0.90(22.9)	0.90(22.9)	1.00(25.4)	0.41(10.4)
5/8	5/8	3/8	-TTT-FL10-FL10-FL6	1.53(38.9)	1.53(38.9)	1.42(36.1)	0.96(24.4)	0.96(24.4)	0.66(16.8)	1.00(25.4)	0.28(7.1)
5/8	5/8	1/2	-TTT-FL10-FL10-FL8	1.53(38.9)	1.53(38.9)	1.53(38.9)	0.96(24.4)	0.96(24.4)	0.90(22.9)	1.00(25.4)	0.41(10.4)
3/4	3/8	3/8	-TTT-FL12-FL6-FL6	1.56(39.6)	1.45(36.9)	1.45(36.9)	0.96(24.4)	0.66(16.8)	0.66(16.8)	1.06(27.0)	0.28(7.1)
3/4	3/8	1/2	-TTT-FL12-FL6-FL8	1.56(39.6)	1.56(39.6)	1.45(36.9)	0.96(24.4)	0.90(22.9)	0.66(16.8)	1.06(27.0)	0.28(7.1)
3/4	1/2	3/8	-TTT-FL12-FL8-FL6	1.56(39.6)	1.56(39.6)	1.45(36.9)	0.96(24.4)	0.90(22.9)	0.66(16.8)	1.06(27.0)	0.28(7.1)
3/4	1/2	1/2	-TTT-FL12-FL8-FL8	1.56(39.6)	1.56(39.6)	1.56(39.6)	0.96(24.4)	0.90(22.9)	0.90(22.9)	1.06(27.0)	0.41(10.4)
3/4	5/8	3/8	-TTT-FL12-FL10-FL6	1.56(39.6)	1.56(39.6)	1.45(36.9)	0.96(24.4)	0.96(24.4)	0.66(16.8)	1.06(27.0)	0.28(7.1)
3/4	5/8	1/2	-TTT-FL12-FL10-FL8	1.56(39.6)	1.56(39.6)	1.56(39.6)	0.96(24.4)	0.96(24.4)	0.90(22.9)	1.06(27.0)	0.41(10.4)
3/4	5/8	5/8	-TTT-FL12-FL10-FL10	1.56(39.6)	1.56(39.6)	1.56(39.6)	0.96(24.4)	0.96(24.4)	0.96(24.4)	1.06(27.0)	0.50(12.7)
3/4	3/4	1/4	-TTT-FL12-FL12-FL4	1.56(39.6)	1.56(39.6)	1.38(35.1)	0.96(24.4)	0.96(24.4)	0.60(15.2)	1.06(27.0)	0.19(4.8)
3/4	3/4	3/8	-TTT-FL12-FL12-FL6	1.56(39.6)	1.56(39.6)	1.45(36.9)	0.96(24.4)	0.96(24.4)	0.66(16.8)	1.06(27.0)	0.28(7.1)
3/4	3/4	1/2	-TTT-FL12-FL12-FL8	1.56(39.6)	1.56(39.6)	1.56(39.6)	0.96(24.4)	0.96(24.4)	0.90(22.9)	1.06(27.0)	0.41(10.4)
3/4	3/4	5/8	-TTT-FL12-FL12-FL10	1.56(39.6)	1.56(39.6)	1.56(39.6)	0.96(24.4)	0.96(24.4)	0.96(24.4)	1.06(27.0)	0.50(12.7)
7/8	1/2	3/4	-TTT-FL14-FL8-FL12	1.76(44.7)	1.76(44.7)	1.76(44.7)	1.02(25.9)	0.90(22.9)	0.96(24.4)	1.37(34.9)	0.41(10.4)
7/8	5/8	3/8	-TTT-FL14-FL10-FL6	1.76(44.7)	1.76(44.7)	1.65(41.9)	1.02(25.9)	0.96(24.4)	0.66(16.8)	1.37(34.9)	0.28(7.1)
7/8	3/4	3/8	-TTT-FL14-FL12-FL6	1.76(44.7)	1.76(44.7)	1.65(41.9)	1.02(25.9)	0.96(24.4)	0.66(16.8)	1.37(34.9)	0.28(7.1)
7/8	3/4	1/2	-TTT-FL14-FL12-FL8	1.76(44.7)	1.76(44.7)	1.76(44.7)	1.02(25.9)	0.96(24.4)	0.90(22.9)	1.37(34.9)	0.41(10.4)
7/8	3/4	3/4	-TTT-FL14-FL12-FL12	1.76(44.7)	1.76(44.7)	1.76(44.7)	1.02(25.9)	0.96(24.4)	0.96(24.4)	1.37(34.9)	0.62(15.7)
7/8	7/8	1/4	-TTT-FL14-FL14-FL4	1.76(44.7)	1.76(44.7)	1.59(40.4)	1.02(25.9)	1.02(25.9)	0.60(15.2)	1.37(34.9)	0.19(4.8)
7/8	7/8	3/8	-TTT-FL14-FL14-FL6	1.76(44.7)	1.76(44.7)	1.65(41.9)	1.02(25.9)	1.02(25.9)	0.66(16.8)	1.37(34.9)	0.28(7.1)
1	3/8	3/8	-TTT-FL16-FL6-FL6	1.94(49.3)	1.65(41.9)	1.65(41.9)	1.23(31.2)	0.66(16.8)	0.66(16.8)	1.37(34.9)	0.28(7.1)
1	1/2	1/4	-TTT-FL16-FL8-FL4	1.94(49.3)	1.76(44.7)	1.59(40.4)	1.23(31.2)	0.90(22.9)	0.60(15.2)	1.37(34.9)	0.19(4.8)
1	1/2	3/8	-TTT-FL16-FL8-FL6	1.94(49.3)	1.76(44.7)	1.65(41.9)	1.23(31.2)	0.90(22.9)	0.66(16.8)	1.37(34.9)	0.28(7.1)
1	1/2	1/2	-TTT-FL16-FL8-FL8	1.94(49.3)	1.76(44.7)	1.76(44.7)	1.23(31.2)	0.90(22.9)	0.90(22.9)	1.37(34.9)	0.41(10.4)
1	1/2	1	-TTT-FL16-FL8-FL16	1.94(49.3)	1.76(44.7)	1.94(49.3)	1.23(31.2)	0.90(22.9)	1.23(31.2)	1.37(34.9)	0.41(10.4)
1	5/8	3/8	-TTT-FL16-FL10-FL6	1.94(49.3)	1.76(44.7)	1.65(41.9)	1.23(31.2)	0.96(24.4)	0.66(16.8)	1.37(34.9)	0.28(7.1)
1	3/4	3/8	-TTT-FL16-FL12-FL6	1.94(49.3)	1.76(44.7)	1.65(41.9)	1.23(31.2)	0.96(24.4)	0.66(16.8)	1.37(34.9)	0.28(7.1)
1	3/4	1/2	-TTT-FL16-FL12-FL8	1.94(49.3)	1.76(44.7)	1.76(44.7)	1.23(31.2)	0.96(24.4)	0.90(22.9)	1.37(34.9)	0.41(10.4)
1	3/4	5/8	-TTT-FL16-FL12-FL10	1.94(49.3)	1.76(44.7)	1.76(44.7)	1.23(31.2)	0.96(24.4)	0.96(24.4)	1.37(34.9)	0.50(12.7)
1	3/4	1	-TTT-FL16-FL12-FL16	1.94(49.3)	1.76(44.7)	1.94(49.3)	1.23(31.2)	0.96(24.4)	1.23(31.2)	1.37(34.9)	0.62(15.7)
1	7/8	1/4	-TTT-FL16-FL14-FL4	1.94(49.3)	1.76(44.7)	1.59(40.4)	1.23(31.2)	1.02(25.9)	0.60(15.2)	1.37(34.9)	0.19(4.8)
1	7/8	3/8	-TTT-FL16-FL14-FL6	1.94(49.3)	1.76(44.7)	1.65(41.9)	1.23(31.2)	1.02(25.9)	0.66(16.8)	1.37(34.9)	0.28(7.1)
1	7/8	1/2	-TTT-FL16-FL14-FL8	1.94(49.3)	1.76(44.7)	1.76(44.7)	1.23(31.2)	1.02(25.9)	0.90(22.9)	1.37(34.9)	0.41(10.4)
1	7/8	3/4	-TTT-FL16-FL14-FL12	1.94(49.3)	1.76(44.7)	1.76(44.7)	1.23(31.2)	1.02(25.9)	0.96(24.4)	1.37(34.9)	0.50(12.7)
1	7/8	7/8	-TTT-FL16-FL14-FL14	1.94(49.3)	1.76(44.7)	1.76(44.7)	1.23(31.2)	1.02(25.9)	1.02(25.9)	1.37(34.9)	0.72(18.3)
1	1	1/4	-TTT-FL16-FL16-FL4	1.94(49.3)	1.94(49.3)	1.59(40.4)	1.23(31.2)	1.23(31.2)	0.60(15.2)	1.37(34.9)	0.19(4.8)
1	1	3/8	-TTT-FL16-FL16-FL6	1.94(49.3)	1.94(49.3)	1.65(41.9)	1.23(31.2)	1.23(31.2)	0.66(16.8)	1.37(34.9)	0.28(7.1)
1	1	1/2	-TTT-FL16-FL16-FL8	1.94(49.3)	1.94(49.3)	1.76(44.7)	1.23(31.2)	1.23(31.2)	0.90(22.9)	1.37(34.9)	0.41(10.4)
1	1	5/8	-TTT-FL16-FL16-FL10	1.94(49.3)	1.94(49.3)	1.76(44.7)	1.23(31.2)	1.23(31.2)	0.96(24.4)	1.37(34.9)	0.50(12.7)
1	1	3/4	-TTT-FL16-FL16-FL12	1.94(49.3)	1.94(49.3)	1.76(44.7)	1.23(31.2)	1.23(31.2)	0.96(24.4)	1.37(34.9)	0.62(15.7)
1	1	7/8	-TTT-FL16-FL16-FL14	1.94(49.3)	1.94(49.3)	1.76(44.7)	1.23(31.2)	1.23(31.2)	1.02(25.9)	1.37(34.9)	0.72(18.3)
1 1/4	1 1/4	1	-TTT-FL20-FL20-FL16	2.67(67.8)	2.67(67.8)	2.17(55.1)	1.62(41.2)	1.62(41.2)	1.23(31.3)	1.69(42.9)	0.88(22.4)
1 1/2	1 1/2	1	-TTT-FL24-FL24-FL16	3.10(78.7)	3.10(78.7)	2.36(60.0)	1.97(50.0)	1.97(50.0)	1.23(31.3)	2.00(50.8)	0.88(22.4)

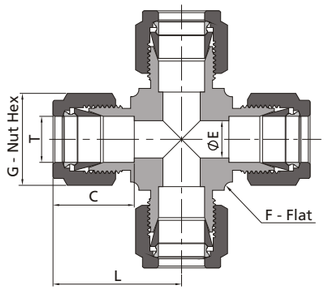
Reducing Union Tees



Metric Tube

T1-Tube O.D. (mm)	T2-Tube O.D. (mm)	T3-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)							
				L1	L2	L3	C1	C2	C3	F	E
3	3	6	-TTT-ML3-ML3-ML6	24.7(0.97)	24.7(0.97)	27.0(1.06)	12.9(0.51)	12.9(0.51)	15.3(0.60)	12.7(0.50)	2.4(0.09)
6	6	3	-TTT-ML6-ML6-ML3	27.0(1.06)	27.0(1.06)	25.4(1.00)	15.3(0.60)	15.3(0.60)	12.9(0.51)	12.7(0.50)	2.4(0.09)
6	6	8	-TTT-ML6-ML6-ML8	28.0(1.10)	28.0(1.10)	28.8(1.13)	15.3(0.60)	15.3(0.60)	16.2(0.64)	14.3(0.56)	4.8(0.19)
8	8	6	-TTT-ML8-ML8-ML6	30.0(1.18)	30.0(1.18)	29.0(1.14)	16.2(0.64)	16.2(0.64)	15.3(0.60)	15.9(0.63)	4.8(0.19)
8	8	12	-TTT-ML8-ML8-ML12	35.2(1.39)	35.2(1.39)	36.0(1.42)	16.2(0.64)	16.2(0.64)	22.8(0.90)	20.6(0.81)	6.4(0.25)
10	10	6	-TTT-ML10-ML10-ML6	31.5(1.24)	31.5(1.24)	29.9(1.18)	17.2(0.68)	17.2(0.68)	15.3(0.60)	17.5(0.69)	4.8(0.19)
10	10	8	-TTT-ML10-ML10-ML8	31.5(1.24)	31.5(1.24)	30.7(1.21)	17.2(0.68)	17.2(0.68)	16.2(0.64)	17.5(0.69)	6.4(0.25)
12	12	6	-TTT-ML12-ML12-ML6	36.0(1.42)	36.0(1.42)	31.8(1.25)	22.8(0.90)	22.8(0.90)	15.3(0.60)	20.6(0.81)	4.8(0.19)
12	12	8	-TTT-ML12-ML12-ML8	36.0(1.42)	36.0(1.42)	35.2(1.39)	22.8(0.90)	22.8(0.90)	16.2(0.64)	20.6(0.81)	6.4(0.25)
12	12	14	-TTT-ML12-ML12-ML14	38.0(1.50)	38.0(1.50)	38.0(1.50)	22.8(0.90)	22.8(0.90)	24.4(0.96)	25.4(1.00)	9.5(0.37)
12	12	18	-TTT-ML12-ML12-ML18	39.8(1.57)	39.8(1.57)	39.8(1.57)	22.8(0.90)	22.8(0.90)	24.4(0.96)	27.0(1.06)	9.5(0.37)
14	14	8	-TTT-ML14-ML14-ML8	38.0(1.50)	38.0(1.50)	37.2(1.46)	24.4(0.96)	24.4(0.96)	16.2(0.64)	25.4(1.00)	6.4(0.25)
14	14	10	-TTT-ML14-ML14-ML10	38.0(1.50)	38.0(1.50)	38.0(1.50)	24.4(0.96)	24.4(0.96)	17.2(0.68)	25.4(1.00)	7.9(0.31)
15	15	12	-TTT-ML15-ML15-ML12	38.8(1.53)	38.8(1.53)	38.8(1.53)	24.4(0.96)	24.4(0.96)	22.8(0.90)	25.4(1.00)	9.5(0.37)
16	8	16	-TTT-ML16-ML8-ML16	38.8(1.53)	37.2(1.46)	38.8(1.53)	24.4(0.96)	16.2(0.64)	24.4(0.96)	25.4(1.00)	6.4(0.25)
16	16	12	-TTT-ML16-ML16-ML12	38.8(1.53)	38.8(1.53)	38.9(1.53)	24.4(0.96)	24.4(0.96)	22.8(0.90)	25.4(1.00)	9.5(0.37)
18	18	8	-TTT-ML18-ML18-ML8	39.8(1.57)	39.8(1.57)	39.0(1.54)	24.4(0.96)	24.4(0.96)	16.2(0.64)	27.0(1.06)	6.4(0.25)
18	18	10	-TTT-ML18-ML18-ML10	39.8(1.57)	39.8(1.57)	39.8(1.57)	24.4(0.96)	24.4(0.96)	17.2(0.68)	27.0(1.06)	7.9(0.31)
18	18	12	-TTT-ML18-ML18-ML12	39.8(1.57)	39.8(1.57)	39.8(1.57)	24.4(0.96)	24.4(0.96)	22.8(0.90)	27.0(1.06)	9.5(0.37)
18	18	14	-TTT-ML18-ML18-ML14	39.8(1.57)	39.8(1.57)	39.8(1.57)	24.4(0.96)	24.4(0.96)	24.4(0.96)	27.0(1.06)	11.1(0.44)
20	20	14	-TTT-ML20-ML20-ML14	44.6(1.76)	44.6(1.76)	44.6(1.76)	26.0(1.02)	26.0(1.02)	24.4(0.96)	34.9(1.37)	11.1(0.44)
22	22	12	-TTT-ML22-ML22-ML12	44.6(1.76)	44.6(1.76)	44.6(1.76)	26.0(1.02)	26.0(1.02)	22.8(0.90)	34.9(1.37)	9.5(0.37)
25	25	12	-TTT-ML25-ML25-ML12	49.1(1.93)	49.1(1.93)	44.7(1.76)	31.3(1.23)	31.3(1.23)	22.8(0.90)	34.9(1.37)	9.5(0.37)

Union Crosses



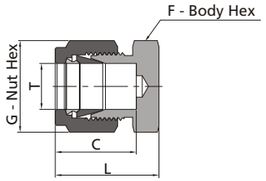
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)				
		L	C	G	F	E
1/8	-C-FL2	0.88(22.4)	0.50(12.7)	0.44(11.1)	0.37(9.5)	0.09(2.3)
3/16	-C-FL3	0.96(24.4)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.12(3.0)
1/4	-C-FL4	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)
5/16	-C-FL5	1.17(29.7)	0.64(16.2)	0.63(15.9)	0.63(15.9)	0.25(6.4)
3/8	-C-FL6	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)
1/2	-C-FL8	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)
5/8	-C-FL10	1.43(36.3)	0.96(24.4)	1.00(25.4)	1.06(27.0)	0.50(12.7)
3/4	-C-FL12	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.62(15.7)
7/8	-C-FL14	1.76(44.7)	1.02(25.9)	1.25(31.8)	1.37(34.9)	0.72(18.3)
1	-C-FL16	1.93(49.0)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)				
		L	C	G	F	E
3	-C-ML3	22.3(0.88)	12.9(0.51)	12.0(0.47)	9.5(0.37)	2.4(0.09)
4	-C-ML4	25.4(1.00)	13.7(0.54)	12.0(0.47)	12.7(0.50)	2.4(0.09)
6	-C-ML6	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)
8	-C-ML8	29.9(1.18)	16.2(0.64)	16.0(0.63)	15.9(0.63)	6.4(0.25)
10	-C-ML10	33.5(1.32)	17.2(0.68)	19.0(0.75)	20.6(0.81)	7.9(0.31)
12	-C-ML12	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)
16	-C-ML16	37.0(1.46)	24.4(0.96)	25.0(0.98)	23.8(0.94)	12.7(0.50)
18	-C-ML18	38.3(1.51)	24.4(0.96)	30.0(1.18)	27.0(1.06)	15.1(0.59)
20	-C-ML20	44.6(1.76)	26.0(1.02)	32.0(1.26)	34.9(1.37)	15.9(0.63)
22	-C-ML22	44.7(1.76)	26.0(1.02)	32.0(1.26)	34.9(1.37)	18.3(0.72)
25	-C-ML25	49.2(1.94)	31.3(1.23)	38.0(1.50)	34.9(1.37)	21.8(0.86)

Caps



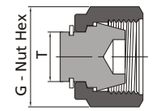
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)			
		L	C	G	F
1/16	-TC-FL1	0.59(15.0)	0.34(8.6)	0.31(7.9)	0.31(7.9)
1/8	-TC-FL2	0.79(20.1)	0.50(12.7)	0.44(11.1)	0.44(11.1)
3/16	-TC-FL3	0.84(21.3)	0.54(13.7)	0.50(12.7)	0.44(11.1)
1/4	-TC-FL4	0.92(23.4)	0.60(15.2)	0.56(14.3)	0.50(12.7)
5/16	-TC-FL5	0.96(24.4)	0.64(16.3)	0.63(15.9)	0.56(14.3)
3/8	-TC-FL6	1.01(25.7)	0.66(16.8)	0.69(17.5)	0.63(15.9)
1/2	-TC-FL8	1.15(29.2)	0.90(22.9)	0.87(22.2)	0.81(20.6)
5/8	-TC-FL10	1.18(30.0)	0.96(24.4)	1.00(25.4)	0.94(23.8)
3/4	-TC-FL12	1.24(31.5)	0.96(24.4)	1.13(28.6)	1.06(27.0)
7/8	-TC-FL14	1.34(34.0)	1.02(25.9)	1.25(31.8)	1.19(30.2)
1	-TC-FL16	1.51(38.4)	1.23(31.2)	1.50(38.1)	1.37(34.9)
1 1/8	-TC-FL18	1.51(38.4)	1.23(31.2)	1.81(46.0)	1.63(41.3)
1 1/4	-TC-FL20	2.10(53.3)	1.62(41.1)	1.87(47.6)	1.75(44.5)
1 1/2	-TC-FL24	2.54(64.5)	1.97(50.0)	2.25(57.2)	2.13(54.0)

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)			
		L	C	G	F
2	-TC-ML2	20.1(0.79)	12.9(0.51)	12.0(0.47)	12.0(0.47)
3	-TC-ML3	20.1(0.79)	12.9(0.51)	12.0(0.47)	12.0(0.47)
4	-TC-ML4	21.3(0.84)	13.7(0.54)	12.0(0.47)	12.0(0.47)
6	-TC-ML6	23.1(0.91)	15.3(0.60)	14.0(0.55)	14.0(0.55)
8	-TC-ML8	24.5(0.96)	16.2(0.64)	16.0(0.63)	15.0(0.59)
10	-TC-ML10	26.6(1.05)	17.2(0.68)	19.0(0.75)	18.0(0.71)
12	-TC-ML12	29.1(1.15)	22.8(0.90)	22.0(0.87)	22.0(0.87)
14	-TC-ML14	29.9(1.18)	24.4(0.96)	25.0(0.98)	24.0(0.94)
15	-TC-ML15	29.9(1.18)	24.4(0.96)	25.0(0.98)	24.0(0.94)
16	-TC-ML16	29.9(1.18)	24.4(0.96)	25.0(0.98)	24.0(0.94)
18	-TC-ML18	31.4(1.24)	24.4(0.96)	30.0(1.18)	27.0(1.06)
20	-TC-ML20	34.0(1.34)	26.0(1.02)	32.0(1.26)	30.0(1.18)
22	-TC-ML22	34.0(1.34)	26.0(1.02)	32.0(1.26)	30.0(1.18)
25	-TC-ML25	38.5(1.52)	31.3(1.23)	38.0(1.50)	35.0(1.38)
28	-TC-ML28	48.5(1.91)	36.6(1.44)	46.0(1.81)	41.0(1.61)
30	-TC-ML30	53.4(2.10)	39.6(1.56)	50.0(1.97)	46.0(1.81)
32	-TC-ML32	55.8(2.20)	42.0(1.65)	50.0(1.97)	46.0(1.81)
38	-TC-ML38	65.4(2.57)	49.4(1.94)	60.0(2.36)	55.0(2.17)

Plugs



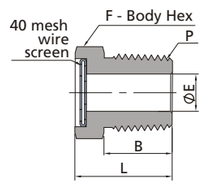
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)
		G
1/16	-TP-FL1	0.31(7.9)
1/8	-TP-FL2	0.44(11.1)
3/16	-TP-FL3	0.50(12.7)
1/4	-TP-FL4	0.56(14.3)
5/16	-TP-FL5	0.63(15.9)
3/8	-TP-FL6	0.69(17.5)
1/2	-TP-FL8	0.87(22.2)
5/8	-TP-FL10	1.00(25.4)
3/4	-TP-FL12	1.13(28.6)
7/8	-TP-FL14	1.25(31.8)
1	-TP-FL16	1.50(38.1)
1 1/4	-TP-FL20	1.87(47.6)
1 1/2	-TP-FL24	2.25(57.2)

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)
		G
2	-TP-ML2	12.0(0.47)
3	-TP-ML3	12.0(0.47)
4	-TP-ML4	12.0(0.47)
6	-TP-ML6	14.0(0.55)
8	-TP-ML8	16.0(0.63)
10	-TP-ML10	19.0(0.75)
12	-TP-ML12	22.0(0.87)
14	-TP-ML14	25.0(0.98)
15	-TP-ML15	25.0(0.98)
16	-TP-ML16	25.0(0.98)
18	-TP-ML18	30.0(1.18)
20	-TP-ML20	32.0(1.26)
22	-TP-ML22	32.0(1.26)
25	-TP-ML25	38.0(1.50)
28	-TP-ML28	46.0(1.81)
30	-TP-ML30	50.0(1.97)
32	-TP-ML32	50.0(1.97)
38	-TP-ML38	60.0(2.36)

Vent Protectors



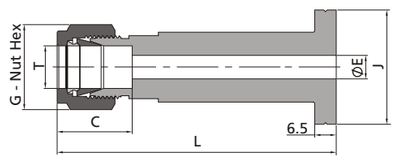
40 mesh 300 series stainless steel wire screen assembly

NPT Thread

P-NPT Size	Ordering Number	Dimension, in. (mm)			
		L	F	B	E
1/8	SS-VPF-NS2	0.56(14.2)	0.50(12.7)	0.38(9.7)	0.19(4.8)
1/4	SS-VPF-NS4	0.78(19.8)	0.56(14.3)	0.56(14.2)	0.28(7.1)
3/8	SS-VPF-NS6	0.81(20.6)	0.69(17.5)	0.56(14.2)	0.41(10.4)
1/2	SS-VPF-NS8	1.03(26.2)	0.87(22.2)	0.75(19.1)	0.50(12.7)
3/4	SS-VPF-NS12	1.06(26.9)	1.06(27.0)	0.76(19.2)	0.72(18.3)
1	SS-VPF-NS16	1.37(34.8)	1.37(34.9)	0.94(23.9)	0.88(22.4)

To order brass, replace SS in the ordering number with B
Example: B-VPF-NS2

Lapped Flange Connectors



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

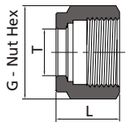
Fractional Tube

T-Tube O.D. (in.)	Flange Seal	Basic Ordering Number	Dimension, in. (mm)				
			L	G	C	E	J
1/4	A	-LFC-FL4A	3.18(80.8)	0.56(14.3)	0.60(15.2)	0.19(4.8)	1.36(34.5)
1/4	B	-LFC-FL4B	3.18(80.8)	0.56(14.3)	0.60(15.2)	0.19(4.8)	1.36(34.5)
3/8	A	-LFC-FL6A	3.26(82.9)	0.69(17.5)	0.66(16.8)	0.28(7.1)	1.36(34.5)
3/8	B	-LFC-FL6B	3.26(82.9)	0.69(17.5)	0.66(16.8)	0.28(7.1)	1.36(34.5)
1/2	A	-LFC-FL8A	3.35(85.1)	0.87(22.2)	0.90(22.9)	0.31(7.9)	1.36(34.5)
1/2	B	-LFC-FL8B	3.35(85.1)	0.87(22.2)	0.90(22.9)	0.31(7.9)	1.36(34.5)

Metric Tube

T-Tube O.D. (mm)	Flange Seal	Basic Ordering Number	Dimension, mm (in.)				
			L	G	C	E	J
10	A	-LFC-ML10A	82.6(3.25)	19.0(0.75)	17.2(0.68)	7.9(0.31)	34.5(1.36)
10	B	-LFC-ML10B	82.6(3.25)	19.0(0.75)	17.2(0.68)	7.9(0.31)	34.5(1.36)

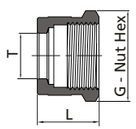
Nuts



Fractional Tube			
T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)	
		L	G
1/16	-N-FL1	0.31(7.9)	0.31(7.9)
1/8	-N-FL2	0.47(11.9)	0.44(11.1)
3/16	-N-FL3	0.47(11.9)	0.50(12.7)
1/4	-N-FL4	0.50(12.7)	0.56(14.3)
5/16	-N-FL5	0.53(13.5)	0.63(15.9)
3/8	-N-FL6	0.56(14.2)	0.69(17.5)
1/2	-N-FL8	0.69(17.5)	0.87(22.2)
5/8	-N-FL10	0.69(17.5)	1.00(25.4)
3/4	-N-FL12	0.69(17.5)	1.13(28.6)
7/8	-N-FL14	0.69(17.5)	1.25(31.8)
1	-N-FL16	0.81(20.6)	1.50(38.1)
1 1/8	-N-FL18	1.21(30.8)	1.81(46.0)
1 1/4	-N-FL20	1.25(31.8)	1.87(47.6)
1 1/2	-N-FL24	1.50(38.1)	2.25(57.2)

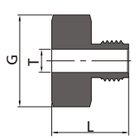
Metric Tube			
T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)	
		L	G
2	-N-ML2	11.9(0.47)	12.0(0.47)
3	-N-ML3	11.9(0.47)	12.0(0.47)
4	-N-ML4	11.9(0.47)	12.0(0.47)
6	-N-ML6	12.7(0.50)	14.0(0.55)
8	-N-ML8	13.5(0.53)	16.0(0.63)
10	-N-ML10	15.1(0.59)	19.0(0.75)
12	-N-ML12	17.4(0.69)	22.0(0.87)
14	-N-ML14	17.4(0.69)	25.0(0.98)
15	-N-ML15	17.4(0.69)	25.0(0.98)
16	-N-ML16	17.4(0.69)	25.0(0.98)
18	-N-ML18	17.4(0.69)	30.0(1.18)
20	-N-ML20	17.4(0.69)	32.0(1.26)
22	-N-ML22	17.4(0.69)	32.0(1.26)
25	-N-ML25	20.6(0.81)	38.0(1.50)
28	-N-ML28	30.6(1.20)	46.0(1.81)
30	-N-ML30	32.7(1.29)	50.0(1.97)
32	-N-ML32	34.4(1.35)	50.0(1.97)
38	-N-ML38	40.6(1.60)	60.0(2.36)

Knurled Nuts



To order a knurled nut add K to the nut ordering number.
Exemple: **B-KN-FL4**

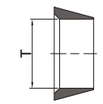
Male Nuts



Fractional Tube			
T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)	
		L	G
1/16	-MN-FL1	0.38(9.7)	0.25(6.4)
1/8	-MN-FL2	0.53(13.5)	0.37(9.5)
1/4	-MN-FL4	0.62(15.7)	0.50(12.7)
1/2	-MN-FL8	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-ML3	13.5(0.53)	10.0(0.39)
6	-MN-ML6	15.7(0.62)	14.0(0.55)
10	-MN-ML10	22.1(0.87)	22.0(0.87)
12	-MN-ML12	22.1(0.87)	24.0(0.94)

Front Ferrules

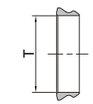


Fractional Tube	
T-Tube O.D. (in.)	Basic Ordering Number
1/16	-FF-FL1
1/8	-FF-FL2
3/16	-FF-FL3
1/4	-FF-FL4
5/16	-FF-FL5
3/8	-FF-FL6
1/2	-FF-FL8
5/8	-FF-FL10
3/4	-FF-FL12
7/8	-FF-FL14
1	-FF-FL16
1 1/8	-FF-FL18*
1 1/4	-FF-FL20*
1 1/2	-FF-FL24*

Metric Tube	
T-Tube O.D. (mm)	Basic Ordering Number
2	-FF-ML2
3	-FF-ML3
4	-FF-ML4
6	-FF-ML6
8	-FF-ML8
10	-FF-ML10
12	-FF-ML12
14	-FF-ML14
15	-FF-ML15
16	-FF-ML16
18	-FF-ML18
20	-FF-ML20
22	-FF-ML22
25	-FF-ML25
28	-FF-ML28*
30	-FF-ML30*
32	-FF-ML32*
38	-FF-ML38*

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

Rear Ferrules

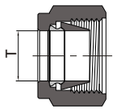


Fractional Tube	
T-Tube O.D. (in.)	Basic Ordering Number
1/16	-RF-FL1
1/8	-RF-FL2
3/16	-RF-FL3
1/4	-RF-FL4
5/16	-RF-FL5
3/8	-RF-FL6
1/2	-RF-FL8
5/8	-RF-FL10
3/4	-RF-FL12
7/8	-RF-FL14
1	-RF-FL16
1 1/8	-RF-FL18*
1 1/4	-RF-FL20*
1 1/2	-RF-FL24*

Metric Tube	
T-Tube O.D. (mm)	Basic Ordering Number
2	-RF-ML2
3	-RF-ML3
4	-RF-ML4
6	-RF-ML6
8	-RF-ML8
10	-RF-ML10
12	-RF-ML12
14	-RF-ML14
15	-RF-ML15
16	-RF-ML16
18	-RF-ML18
20	-RF-ML20
22	-RF-ML22
25	-RF-ML25
28	-RF-ML28*
30	-RF-ML30*
32	-RF-ML32*
38	-RF-ML38*

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

Nuts + Ferrules



Fractional Tube	
T-Tube O.D. (in.)	Basic Ordering Number
1/16	-NFR-FL1
1/8	-NFR-FL2
3/16	-NFR-FL3
1/4	-NFR-FL4
5/16	-NFR-FL5
3/8	-NFR-FL6
1/2	-NFR-FL8
5/8	-NFR-FL10
3/4	-NFR-FL12
7/8	-NFR-FL14
1	-NFR-FL16
1 1/8	-NFR-FL18
1 1/4	-NFR-FL20
1 1/2	-NFR-FL24

Metric Tube	
T-Tube O.D. (mm)	Basic Ordering Number
2	-NFR-ML2
3	-NFR-ML3
4	-NFR-ML4
6	-NFR-ML6
8	-NFR-ML8
10	-NFR-ML10
12	-NFR-ML12
14	-NFR-ML14
15	-NFR-ML15
16	-NFR-ML16
18	-NFR-ML18
20	-NFR-ML20
22	-NFR-ML22
25	-NFR-ML25
28	-NFR-ML28
30	-NFR-ML30
32	-NFR-ML32
38	-NFR-ML38

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-FL1
1/8	-NFS-FL2
3/16	-NFS-FL3
1/4	-NFS-FL4
5/16	-NFS-FL5
3/8	-NFS-FL6
1/2	-NFS-FL8
5/8	-NFS-FL10
3/4	-NFS-FL12

Metric Tube	
T-Tube O.D. (mm)	Basic Ordering Number
2	-NFS-ML2
3	-NFS-ML3
4	-NFS-ML4
6	-NFS-ML6
8	-NFS-ML8
10	-NFS-ML10
12	-NFS-ML12
14	-NFS-ML14
15	-NFS-ML15
16	-NFS-ML16
18	-NFS-ML18

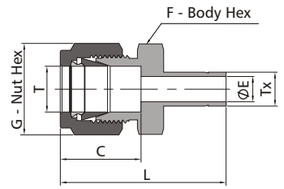
Ferrule Sets

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

Fractional Tube	
T-Tube O.D. (in.)	Basic Ordering Number
1/16	-FRS-FL1
1/8	-FRS-FL2
3/16	-FRS-FL3
1/4	-FRS-FL4
5/16	-FRS-FL5
3/8	-FRS-FL6
1/2	-FRS-FL8
5/8	-FRS-FL10
3/4	-FRS-FL12

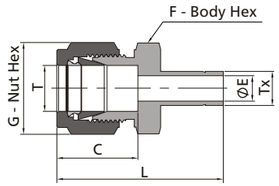
Metric Tube	
T-Tube O.D. (mm)	Basic Ordering Number
2	-FRS-ML2
3	-FRS-ML3
4	-FRS-ML4
6	-FRS-ML6
8	-FRS-ML8
10	-FRS-ML10
12	-FRS-ML12
14	-FRS-ML14
15	-FRS-ML15
16	-FRS-ML16
18	-FRS-ML18

Reducers



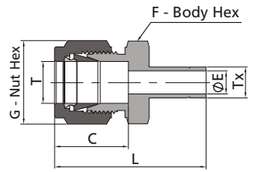
Fractional Tube							
T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)				
			L	C	G	F	E
1/16	1/8	-R-FL1-FT2	1.15(29.2)	0.34(8.6)	0.31(7.9)	0.31(7.9)	0.05(1.3)
1/16	3/16	-R-FL1-FT3	1.18(30.0)	0.34(8.6)	0.31(7.9)	0.31(7.9)	0.05(1.3)
1/16	1/4	-R-FL1-FT4	1.24(31.5)	0.34(8.6)	0.31(7.9)	0.31(7.9)	0.05(1.3)
1/8	1/16	-R-FL2-FT1	1.14(29.0)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.03(0.8)
1/8	1/8	-R-FL2-FT2	1.32(33.5)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.08(2.0)
1/8	3/16	-R-FL2-FT3	1.35(34.3)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.3)
1/8	1/4	-R-FL2-FT4	1.42(36.1)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.3)
1/8	3/8	-R-FL2-FT6	1.48(37.6)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.3)
1/8	1/2	-R-FL2-FT8	1.74(44.2)	0.50(12.7)	0.44(11.1)	0.56(14.3)	0.09(2.3)
3/16	1/8	-R-FL3-FT2	1.37(34.8)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.08(2.0)
3/16	1/4	-R-FL3-FT4	1.46(37.1)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.12(3.0)
1/4	1/8	-R-FL4-FT2	1.45(36.8)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.08(2.0)
1/4	3/16	-R-FL4-FT3	1.48(37.6)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.12(3.0)
1/4	1/4	-R-FL4-FT4	1.54(39.1)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.17(4.3)
1/4	5/16	-R-FL4-FT5	1.57(39.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)
1/4	3/8	-R-FL4-FT6	1.60(40.6)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)
1/4	1/2	-R-FL4-FT8	1.82(46.2)	0.60(15.2)	0.56(14.3)	0.56(14.3)	0.19(4.8)
1/4	5/8	-R-FL4-FT10	1.89(48.0)	0.60(15.2)	0.56(14.3)	0.69(17.5)	0.19(4.8)
1/4	3/4	-R-FL4-FT12	1.88(47.8)	0.60(15.2)	0.56(14.3)	0.81(20.6)	0.19(4.8)
5/16	3/8	-R-FL5-FT6	1.65(41.9)	0.64(16.3)	0.63(15.9)	0.56(14.3)	0.25(6.4)
5/16	1/2	-R-FL5-FT8	1.87(47.5)	0.64(16.3)	0.63(15.9)	0.56(14.3)	0.25(6.4)
3/8	1/4	-R-FL6-FT4	1.63(41.4)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.17(4.3)
3/8	3/8	-R-FL6-FT6	1.70(43.2)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.27(6.9)
3/8	1/2	-R-FL6-FT8	1.91(48.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)
3/8	5/8	-R-FL6-FT10	1.98(50.3)	0.66(16.8)	0.69(17.5)	0.69(17.5)	0.28(7.1)
3/8	3/4	-R-FL6-FT12	1.98(50.3)	0.66(16.8)	0.69(17.5)	0.81(20.6)	0.28(7.1)
1/2	1/4	-R-FL8-FT4	1.77(45.0)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.17(4.3)
1/2	3/8	-R-FL8-FT6	1.84(46.7)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.27(6.9)
1/2	1/2	-R-FL8-FT8	2.06(52.3)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.37(9.4)
1/2	5/8	-R-FL8-FT10	2.12(53.8)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)
1/2	3/4	-R-FL8-FT12	2.12(53.8)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)
1/2	1	-R-FL8-FT16	2.37(60.2)	0.90(22.9)	0.87(22.2)	1.06(27.0)	0.41(10.4)
5/8	3/4	-R-FL10-FT12	2.15(54.6)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.50(12.7)
5/8	7/8	-R-FL10-FT14	2.21(56.1)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.50(12.7)
5/8	1	-R-FL10-FT16	2.40(61.0)	0.96(24.4)	1.00(25.4)	1.06(27.0)	0.50(12.7)
3/4	3/4	-R-FL12-FT12	2.15(54.6)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.58(14.7)
3/4	1	-R-FL12-FT16	2.46(62.5)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.62(15.7)
1	1 1/4	-R-FL16-FT20	3.17(80.5)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)
1	1 1/2	-R-FL16-FT24	3.51(89.2)	1.23(31.2)	1.50(38.1)	1.63(41.3)	0.88(22.4)
1	2	-R-FL16-FT32	4.43(112.5)	1.23(31.2)	1.50(38.1)	2.13(54.0)	0.96(24.4)
1 1/4	1 1/2	-R-FL20-FT24	4.10(104.1)	1.62(41.1)	2.25(57.2)	1.87(47.6)	1.09(27.7)

Reducers



Metric Tube							
T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)				
			L	C	G	F	E
2	3	-R-ML2-MT3	33.5(1.32)	12.9(0.51)	12.0(0.47)	12.0(0.47)	1.7(0.07)
3	4	-R-ML3-MT4	35.0(1.38)	12.9(0.51)	12.0(0.47)	12.0(0.47)	2.4(0.09)
3	6	-R-ML3-MT6	36.1(1.42)	12.9(0.51)	12.0(0.47)	12.0(0.47)	2.4(0.09)
3	10	-R-ML3-MT10	38.4(1.51)	12.9(0.51)	12.0(0.47)	14.0(0.55)	2.4(0.09)
4	6	-R-ML4-MT6	37.1(1.46)	13.7(0.54)	12.0(0.47)	12.0(0.47)	2.4(0.09)
6	3	-R-ML6-MT3	36.9(1.45)	15.3(0.60)	14.0(0.55)	14.0(0.55)	1.9(0.07)
6	8	-R-ML6-MT8	39.9(1.57)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)
6	10	-R-ML6-MT10	40.7(1.60)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)
6	12	-R-ML6-MT12	46.3(1.82)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)
6	18	-R-ML6-MT18	49.6(1.95)	15.3(0.60)	14.0(0.55)	22.0(0.87)	4.8(0.19)
8	6	-R-ML8-MT6	40.3(1.59)	16.2(0.64)	16.0(0.63)	15.0(0.59)	4.1(0.16)
8	10	-R-ML8-MT10	42.0(1.65)	16.2(0.64)	16.0(0.63)	15.0(0.59)	6.4(0.25)
8	12	-R-ML8-MT12	47.6(1.87)	16.2(0.64)	16.0(0.63)	15.0(0.59)	6.4(0.25)
10	6	-R-ML10-MT6	42.4(1.67)	17.2(0.68)	19.0(0.75)	18.0(0.71)	4.1(0.16)
10	8	-R-ML10-MT8	43.4(1.71)	17.2(0.68)	19.0(0.75)	18.0(0.71)	5.6(0.22)
10	12	-R-ML10-MT12	49.8(1.96)	17.2(0.68)	19.0(0.75)	18.0(0.71)	7.9(0.31)
10	15	-R-ML10-MT15	51.3(2.02)	17.2(0.68)	19.0(0.75)	18.0(0.71)	7.9(0.31)
10	18	-R-ML10-MT18	51.3(2.02)	17.2(0.68)	19.0(0.75)	22.0(0.87)	7.9(0.31)
12	6	-R-ML12-MT6	44.9(1.77)	22.8(0.90)	22.0(0.87)	22.0(0.87)	4.1(0.16)
12	8	-R-ML12-MT8	45.9(1.81)	22.8(0.90)	22.0(0.87)	22.0(0.87)	5.6(0.22)
12	10	-R-ML12-MT10	46.7(1.84)	22.8(0.90)	22.0(0.87)	22.0(0.87)	7.1(0.28)
12	16	-R-ML12-MT16	53.8(2.12)	22.8(0.90)	22.0(0.87)	22.0(0.87)	9.5(0.37)
12	18	-R-ML12-MT18	53.8(2.12)	22.8(0.90)	22.0(0.87)	22.0(0.87)	9.5(0.37)
12	20	-R-ML12-MT20	56.1(2.21)	22.8(0.90)	22.0(0.87)	22.0(0.87)	9.5(0.37)
12	22	-R-ML12-MT22	56.1(2.21)	22.8(0.90)	22.0(0.87)	24.0(0.94)	9.5(0.37)
12	25	-R-ML12-MT25	62.4(2.46)	22.8(0.90)	22.0(0.87)	27.0(1.06)	9.5(0.37)
16	12	-R-ML16-MT12	53.0(2.09)	24.4(0.96)	25.0(0.98)	24.0(0.94)	8.8(0.35)
18	12	-R-ML18-MT12	54.6(2.15)	24.4(0.96)	30.0(1.18)	27.0(1.06)	8.8(0.35)
18	16	-R-ML18-MT16	56.1(2.21)	24.4(0.96)	30.0(1.18)	27.0(1.06)	12.0(0.47)
18	20	-R-ML18-MT20	57.6(2.27)	24.4(0.96)	30.0(1.18)	27.0(1.06)	15.1(0.59)
18	22	-R-ML18-MT22	57.6(2.27)	24.4(0.96)	30.0(1.18)	27.0(1.06)	15.1(0.59)
18	25	-R-ML18-MT25	62.4(2.46)	24.4(0.96)	30.0(1.18)	27.0(1.06)	15.1(0.59)
20	16	-R-ML20-MT16	57.9(2.28)	26.0(1.02)	32.0(1.26)	30.0(1.18)	12.0(0.47)
20	18	-R-ML20-MT18	57.9(2.28)	26.0(1.02)	32.0(1.26)	30.0(1.18)	13.9(0.55)
20	22	-R-ML20-MT22	59.4(2.34)	26.0(1.02)	32.0(1.26)	30.0(1.18)	15.9(0.63)
20	25	-R-ML20-MT25	64.2(2.53)	26.0(1.02)	32.0(1.26)	30.0(1.18)	15.8(0.62)
22	18	-R-ML22-MT18	57.9(2.28)	26.0(1.02)	32.0(1.26)	30.0(1.18)	13.9(0.55)
22	20	-R-ML22-MT20	59.4(2.34)	26.0(1.02)	32.0(1.26)	30.0(1.18)	15.5(0.61)
22	25	-R-ML22-MT25	64.2(2.53)	26.0(1.02)	32.0(1.26)	30.0(1.18)	18.3(0.72)
25	18	-R-ML25-MT18	63.1(2.48)	31.3(1.23)	38.0(1.50)	35.0(1.38)	13.9(0.55)
25	20	-R-ML25-MT20	64.6(2.54)	31.3(1.23)	38.0(1.50)	35.0(1.38)	15.5(0.61)

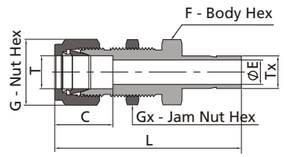
Reducers



Metric Tube							Fractional Tube
T-Tube O.D. (mm)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm (in.)				
			L	C	G	F	E
2	1/8	-R-ML2-FT2	33.5(1.32)	12.9(0.51)	12.0(0.47)	12.0(0.47)	1.7(0.07)
3	1/8	-R-ML3-FT2	33.5(1.32)	12.9(0.51)	12.0(0.47)	12.0(0.47)	2.0(0.08)
3	1/4	-R-ML3-FT4	36.1(1.42)	12.9(0.51)	12.0(0.47)	12.0(0.47)	2.4(0.09)
4	1/4	-R-ML4-FT4	37.1(1.46)	13.7(0.54)	12.0(0.47)	12.0(0.47)	2.4(0.09)
6	1/8	-R-ML6-FT2	36.9(1.45)	15.3(0.60)	14.0(0.55)	14.0(0.55)	2.0(0.08)
6	1/4	-R-ML6-FT4	39.2(1.54)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.4(0.17)
6	5/16	-R-ML6-FT5	39.9(1.57)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)
6	3/8	-R-ML6-FT6	40.7(1.60)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)
6	1/2	-R-ML6-FT8	46.3(1.82)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)
8	1/4	-R-ML8-FT4	40.3(1.59)	16.2(0.64)	16.0(0.63)	15.0(0.59)	4.4(0.17)
8	3/8	-R-ML8-FT6	42.0(1.65)	16.2(0.64)	16.0(0.63)	15.0(0.59)	6.4(0.25)
8	1/2	-R-ML8-FT8	47.6(1.87)	16.2(0.64)	16.0(0.63)	15.0(0.59)	6.4(0.25)
10	3/8	-R-ML10-FT6	44.4(1.75)	17.2(0.68)	19.0(0.75)	18.0(0.71)	6.8(0.27)
10	1/2	-R-ML10-FT8	49.8(1.96)	17.2(0.68)	19.0(0.75)	18.0(0.71)	7.9(0.31)
12	1/2	-R-ML12-FT8	52.3(2.06)	22.8(0.90)	22.0(0.87)	22.0(0.87)	9.3(0.37)
12	3/4	-R-ML12-FT12	53.8(2.12)	22.8(0.90)	22.0(0.87)	22.0(0.87)	9.5(0.37)
18	3/4	-R-ML18-FT12	56.1(2.21)	24.4(0.96)	30.0(1.18)	27.0(1.06)	14.7(0.58)
18	1	-R-ML18-FT16	62.4(2.46)	24.4(0.96)	30.0(1.18)	27.0(1.06)	15.1(0.59)
25	1	-R-ML25-FT16	69.5(2.74)	31.3(1.23)	38.0(1.50)	35.0(1.38)	20.2(0.80)

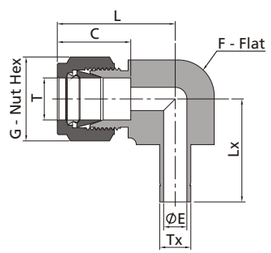
Fractional Tube							Metric Tube
T-Tube O.D. (in.)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, in. (mm)				
			L	C	G	F	E
1/8	6	-R-FL2-MT6	1.42(36.1)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.3)

Bulkhead Reducers



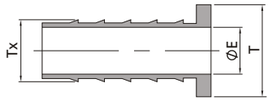
Fractional Tube								
T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)					
			L	C	G	F	Gx	E
1/8	1/8	-BR-FL2-FT2	1.95(49.5)	0.50(12.7)	0.44(11.1)	0.50(12.7)	0.50(12.7)	0.08(2.0)
1/4	1/4	-BR-FL4-FT4	2.20(55.9)	0.60(15.2)	0.56(14.3)	0.63(15.9)	0.63(15.9)	0.17(4.3)
3/8	3/8	-BR-FL6-FT6	2.41(61.2)	0.66(16.8)	0.69(17.5)	0.75(19.1)	0.75(19.1)	0.27(6.9)
1/2	1/2	-BR-FL8-FT8	2.87(72.9)	0.90(22.9)	0.87(22.2)	0.94(23.8)	0.94(23.8)	0.37(9.4)
5/8	5/8	-BR-FL10-FT10	2.96(75.2)	0.96(24.4)	1.00(25.4)	1.06(27.0)	1.06(27.0)	0.47(11.9)
3/4	3/4	-BR-FL12-FT12	3.21(81.5)	0.96(24.4)	1.13(28.6)	1.19(30.2)	1.19(30.2)	0.58(14.7)
1	1	-BR-FL16-FT16	3.95(100.3)	1.23(31.2)	1.50(38.1)	1.63(41.3)	1.63(41.3)	0.80(20.3)

Reducer Elbows



Metric Tube								
T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)					
			L	C	G	F	E	Lx
6	6	-LR-ML6-MT6	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.6(0.18)	18.8(0.74)
12	12	-LR-ML12-MT12	38.1(1.50)	22.8(0.90)	22.0(0.87)	23.8(0.94)	8.8(0.35)	23.4(0.92)

Insert for Soft Plastic Tubings



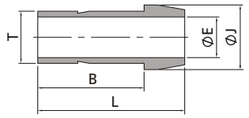
Fractional Tube

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

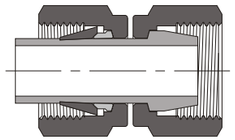
Metric Tube

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

Port Connectors



1" /25 mm and below



1 1/4" /28 mm and above

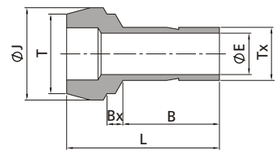
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)			
		L	B	E	J
1/16	-P-FL1	0.54(13.7)	0.42(10.7)	0.03(0.8)	0.13(3.3)
1/8	-P-FL2	0.88(22.4)	0.62(15.7)	0.08(2.0)	0.24(6.1)
1/4	-P-FL4	0.97(24.6)	0.74(18.8)	0.17(4.3)	0.37(9.4)
5/16	-P-FL5	1.02(25.9)	0.79(20.1)	0.22(5.6)	0.43(10.9)
3/8	-P-FL6	1.03(26.2)	0.80(20.3)	0.27(6.9)	0.50(12.7)
1/2	-P-FL8	1.41(35.8)	1.02(25.9)	0.37(9.4)	0.62(15.7)
5/8	-P-FL10	1.64(41.7)	1.11(28.1)	0.47(11.9)	0.81(20.5)
3/4	-P-FL12	1.65(41.9)	1.09(27.7)	0.58(14.7)	0.87(22.1)
1	-P-FL16	1.89(48.0)	1.36(34.5)	0.80(20.3)	1.12(28.4)
1 1/4	-P-FL20	2.72(69.1)	1.99(50.6)	1.02(25.9)	1.47(37.4)
1 1/2	-P-FL24	3.31(84.1)	2.34(59.4)	1.25(31.8)	1.80(45.8)

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)			
		L	B	E	J
3	-P-ML3	22.2(0.87)	15.7(0.62)	1.9(0.07)	6.0(0.24)
6	-P-ML6	24.6(0.97)	18.7(0.74)	4.1(0.16)	9.0(0.35)
8	-P-ML8	25.9(1.02)	20.0(0.79)	5.6(0.22)	11.0(0.43)
10	-P-ML10	26.1(1.03)	20.2(0.80)	7.1(0.28)	13.1(0.52)
12	-P-ML12	35.8(1.41)	26.0(1.02)	8.8(0.35)	15.0(0.59)
15	-P-ML15	37.8(1.49)	27.6(1.09)	11.2(0.44)	19.6(0.77)
16	-P-ML16	37.8(1.49)	27.6(1.09)	12.0(0.47)	20.6(0.81)
18	-P-ML18	37.8(1.49)	27.7(1.09)	13.9(0.55)	21.0(0.83)
20	-P-ML20	39.4(1.55)	29.2(1.15)	15.5(0.61)	24.6(0.97)
25	-P-ML25	49.3(1.94)	34.5(1.36)	19.9(0.78)	31.2(1.23)
28	-P-ML28	63.5(2.5)	48.3(1.90)	22.5(0.89)	34.4(1.35)
30	-P-ML30	67.6(2.66)	52.2(2.06)	24.3(0.96)	37.4(1.47)
32	-P-ML32	69.7(2.74)	52.4(2.06)	26.5(1.04)	39.4(1.55)
38	-P-ML38	81.9(3.22)	61.4(2.42)	31.6(1.24)	45.8(1.80)

Reducing Port Connectors



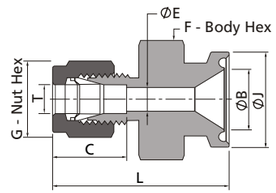
Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)				
			L	B	E	Bx	J
1/8	1/16	-P-FL2-FL1	0.68(17.3)	0.34(8.6)	0.03(0.8)	0.08(2.0)	0.24(6.1)
1/4	1/16	-P-FL4-FL1	0.71(18.0)	0.34(8.6)	0.03(0.8)	0.14(3.6)	0.37(9.4)
1/4	1/8	-P-FL4-FL2	0.89(22.6)	0.53(13.5)	0.08(2.0)	0.13(3.3)	0.37(9.4)
3/8	1/8	-P-FL6-FL2	0.91(23.1)	0.53(13.5)	0.08(2.0)	0.15(3.8)	0.50(12.7)
3/8	1/4	-P-FL6-FL4	0.98(24.9)	0.62(15.7)	0.17(4.3)	0.13(3.3)	0.50(12.7)
1/2	1/4	-P-FL8-FL4	1.15(29.2)	0.62(15.7)	0.17(4.3)	0.15(3.8)	0.62(15.7)
1/2	3/8	-P-FL8-FL6	1.20(30.5)	0.69(17.5)	0.27(6.9)	0.13(3.3)	0.62(15.7)
3/4	1/2	-P-FL12-FL8	1.49(37.8)	0.91(23.1)	0.37(9.4)	0.15(3.8)	0.87(22.1)
1	1/2	-P-FL16-FL8	1.69(42.9)	0.96(24.4)	0.37(9.4)	0.19(4.8)	1.12(28.5)
1	3/4	-P-FL16-FL12	1.72(43.7)	1.02(25.9)	0.58(14.7)	0.16(4.1)	1.12(28.5)

Metric Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)				
			L	B	E	Bx	J
6	3	-P-ML6-ML3	22.6(0.89)	13.5(0.53)	1.9(0.07)	3.2(0.13)	9.0(0.35)
8	6	-P-ML8-ML6	24.7(0.97)	15.7(0.62)	4.1(0.16)	3.1(0.12)	11.0(0.43)
10	6	-P-ML10-ML6	25.0(0.98)	15.7(0.62)	4.1(0.16)	3.4(0.13)	13.1(0.52)
10	8	-P-ML10-ML8	26.3(1.04)	17.0(0.67)	5.6(0.22)	3.1(0.12)	13.1(0.52)
12	6	-P-ML12-ML6	29.6(1.17)	15.7(0.62)	4.1(0.16)	3.6(0.14)	15.0(0.59)
12	8	-P-ML12-ML8	29.8(1.17)	16.8(0.66)	5.6(0.22)	3.4(0.13)	15.0(0.59)
12	10	-P-ML12-ML10	30.4(1.20)	17.5(0.69)	7.1(0.28)	3.1(0.12)	15.0(0.59)
16	12	-P-ML16-ML12	36.2(1.43)	23.1(0.91)	8.8(0.35)	3.4(0.13)	19.0(0.75)
28	25	-P-ML28-ML25	56.5(2.22)	33.0(1.30)	19.8(0.78)	8.2(0.32)	34.3(1.35)
32	25	-P-ML32-ML25	60.3(2.37)	33.0(1.30)	19.8(0.78)	9.9(0.39)	39.5(1.56)
38	25	-P-ML38-ML25	65.8(2.59)	33.0(1.30)	19.8(0.78)	12.3(0.48)	47.1(1.85)

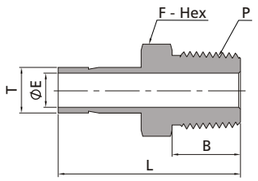
Sanitary Flange Fittings



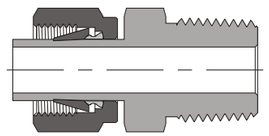
Fractional Tube

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	-SFF-FL4-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	-SFF-FL4-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	-SFF-FL4-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	-SFF-FL4-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	-SFF-FL6-SC8	1.63(41.4)	0.37(9.4)	0.66(16.8)	0.28(7.1)	1.00(25.4)	0.98(24.9)	0.98(24.9)
3/8	3/4	-SFF-FL6-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	-SFF-FL6-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	-SFF-FL6-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	-SFF-FL8-SC8	1.74(44.2)	0.37(9.4)	0.90(22.9)	0.37(9.4)	1.00(25.4)	0.98(24.9)	0.98(24.9)
1/2	3/4	-SFF-FL8-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	-SFF-FL8-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	-SFF-FL8-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	-SFF-FL16-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	-SFF-FL16-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)

Male Adapters



1" and below

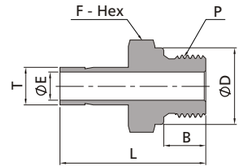


1 1/4" and above

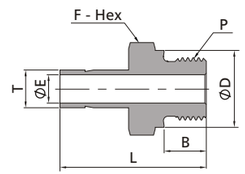
Fractional Tube						NPT Thread
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/16	1/8	-AM-FT1-NS2	1.00(25.4)	0.38(9.7)	0.03(0.8)	0.44(11.1)
1/8	1/8	-AM-FT2-NS2	1.16(29.5)	0.38(9.7)	0.08(2.0)	0.44(11.1)
1/8	1/4	-AM-FT2-NS4	1.37(34.8)	0.56(14.2)	0.08(2.0)	0.56(14.3)
3/16	1/8	-AM-FT3-NS2	1.19(30.2)	0.38(9.7)	0.12(3.0)	0.44(11.1)
3/16	1/4	-AM-FT3-NS4	1.40(35.6)	0.56(14.2)	0.12(3.0)	0.56(14.3)
1/4	1/8	-AM-FT4-NS2	1.25(31.8)	0.38(9.7)	0.17(4.3)	0.44(11.1)
1/4	1/4	-AM-FT4-NS4	1.46(37.1)	0.56(14.2)	0.17(4.3)	0.56(14.3)
1/4	3/8	-AM-FT4-NS6	1.49(37.8)	0.56(14.2)	0.17(4.3)	0.69(17.5)
1/4	1/2	-AM-FT4-NS8	1.71(43.4)	0.75(19.1)	0.17(4.3)	0.87(22.2)
5/16	1/8	-AM-FT5-NS2	1.29(32.8)	0.38(9.7)	0.19(4.8)	0.44(11.1)
5/16	1/4	-AM-FT5-NS4	1.50(38.1)	0.56(14.2)	0.22(5.6)	0.56(14.3)
5/16	3/8	-AM-FT5-NS6	1.53(38.9)	0.56(14.2)	0.22(5.6)	0.69(17.5)
5/16	1/2	-AM-FT5-NS8	1.74(44.2)	0.75(19.1)	0.22(5.6)	0.87(22.2)
3/8	1/8	-AM-FT6-NS2	1.32(33.5)	0.38(9.7)	0.19(4.8)	0.44(11.1)
3/8	1/4	-AM-FT6-NS4	1.53(38.9)	0.56(14.2)	0.27(6.9)	0.56(14.3)
3/8	3/8	-AM-FT6-NS6	1.56(39.6)	0.56(14.2)	0.27(6.9)	0.69(17.5)
3/8	1/2	-AM-FT6-NS8	1.78(45.2)	0.75(19.1)	0.27(6.9)	0.87(22.2)
1/2	1/4	-AM-FT8-NS4	1.75(44.5)	0.56(14.2)	0.28(7.1)	0.56(14.3)
1/2	3/8	-AM-FT8-NS6	1.78(45.2)	0.56(14.2)	0.37(9.4)	0.69(17.5)
1/2	1/2	-AM-FT8-NS8	2.00(50.8)	0.75(19.1)	0.37(9.4)	0.87(22.2)
5/8	1/2	-AM-FT10-NS8	2.06(52.3)	0.75(19.1)	0.47(11.9)	0.87(22.2)
3/4	1/2	-AM-FT12-NS8	2.06(52.3)	0.75(19.1)	0.47(11.9)	0.87(22.2)
3/4	3/4	-AM-FT12-NS12	2.06(52.3)	0.75(19.1)	0.58(14.7)	1.06(27.0)
3/4	1	-AM-FT12-NS16	2.41(61.2)	0.94(23.9)	0.81(20.7)	1.37(34.9)
1	3/4	-AM-FT16-NS12	2.31(58.7)	0.75(19.1)	0.62(15.7)	1.06(27.0)
1	1	-AM-FT16-NS16	2.60(66.0)	0.94(23.9)	0.80(20.3)	1.37(34.9)
1 1/4	1 1/4	-AM-FT20-NS20	3.16(80.3)	0.94(23.9)	1.02(25.9)	1.75(44.5)
1 1/2	1 1/2	-AM-FT24-NS24	3.72(94.5)	1.03(26.2)	1.25(31.8)	2.13(54.0)

Fractional Tube						ISO Tapered Thread (RT)
T-Tube O.D. (in.)	P-RT Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/8	1/8	-AM-FT2-RT2	1.16(29.5)	0.38(9.7)	0.08(2.0)	0.44(11.1)
1/8	1/4	-AM-FT2-RT4	1.37(34.8)	0.56(14.2)	0.08(2.0)	0.56(14.3)
1/4	1/8	-AM-FT4-RT2	1.25(31.8)	0.38(9.7)	0.17(4.3)	0.44(11.1)
1/4	1/4	-AM-FT4-RT4	1.46(37.1)	0.56(14.2)	0.17(4.3)	0.56(14.3)
1/4	3/8	-AM-FT4-RT6	1.49(37.8)	0.56(14.2)	0.17(4.3)	0.69(17.5)
1/4	1/2	-AM-FT4-RT8	1.71(43.4)	0.75(19.1)	0.17(4.3)	0.87(22.2)
5/16	1/8	-AM-FT5-RT2	1.29(32.8)	0.38(9.7)	0.19(4.8)	0.44(11.1)
5/16	1/4	-AM-FT5-RT4	1.50(38.1)	0.56(14.2)	0.22(5.6)	0.56(14.3)
3/8	1/4	-AM-FT6-RT4	1.53(38.9)	0.56(14.2)	0.27(6.9)	0.56(14.3)
3/8	3/8	-AM-FT6-RT6	1.56(39.6)	0.56(14.2)	0.27(6.9)	0.69(17.5)
3/8	1/2	-AM-FT6-RT8	1.78(45.2)	0.75(19.1)	0.27(6.9)	0.87(22.2)
1/2	1/4	-AM-FT8-RT4	1.75(44.5)	0.56(14.2)	0.28(7.1)	0.56(14.3)
1/2	3/8	-AM-FT8-RT6	1.78(45.2)	0.56(14.2)	0.37(9.4)	0.69(17.5)
1/2	1/2	-AM-FT8-RT8	2.00(50.8)	0.75(19.1)	0.37(9.4)	0.87(22.2)
5/8	3/8	-AM-FT10-RT6	1.91(48.5)	0.56(14.2)	0.37(9.5)	0.69(17.5)
5/8	1/2	-AM-FT10-RT8	2.06(52.3)	0.75(19.1)	0.47(11.9)	0.87(22.2)
3/4	3/4	-AM-FT12-RT12	2.06(52.3)	0.75(19.1)	0.58(14.7)	1.06(27.0)
1	1	-AM-FT16-RT16	2.60(66.0)	0.94(23.9)	0.80(20.3)	1.37(34.9)

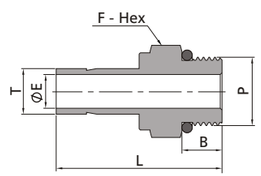
Male Adapters



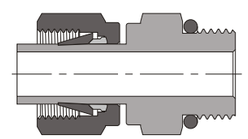
Fractional Tube							ISO Parallel Thread (RS)
T-Tube O.D. (in.)	P-RS Size	Basic Ordering Number	Dimension, in. (mm)				
			L	B	E	F	D
1/8	1/8	-AM-FT2-RS2	1.22(31.0)	0.28(7.1)	0.08(2.0)	0.56(14.3)	0.54(13.7)
1/8	1/4	-AM-FT2-RS4	1.41(35.8)	0.44(11.2)	0.08(2.0)	0.75(19.1)	0.70(17.8)
1/4	1/8	-AM-FT4-RS2	1.31(33.3)	0.28(7.1)	0.16(4.1)	0.56(14.3)	0.54(13.7)
1/4	1/4	-AM-FT4-RS4	1.50(38.1)	0.44(11.2)	0.17(4.3)	0.75(19.1)	0.70(17.8)
3/8	1/8	-AM-FT6-RS2	1.34(34.0)	0.28(7.1)	0.05(1.3)	0.56(14.3)	0.54(13.7)
3/8	1/4	-AM-FT6-RS4	1.57(39.9)	0.44(11.2)	0.23(5.8)	0.75(19.1)	0.70(17.8)
3/8	3/8	-AM-FT6-RS6	1.60(40.6)	0.44(11.2)	0.27(6.9)	0.87(22.2)	0.85(21.6)
3/8	1/2	-AM-FT6-RS8	1.69(42.9)	0.56(14.2)	0.28(7.1)	1.06(27.0)	1.02(25.9)
1/2	1/4	-AM-FT8-RS4	1.79(45.5)	0.44(11.2)	0.23(5.8)	0.75(19.1)	0.70(17.8)
1/2	3/8	-AM-FT8-RS6	1.82(46.2)	0.44(11.2)	0.31(7.9)	0.87(22.2)	0.85(21.6)
1/2	1/2	-AM-FT8-RS8	1.94(49.2)	0.56(14.2)	0.37(9.4)	1.06(27.0)	1.02(25.9)
5/8	1/2	-AM-FT10-RS8	1.97(50.0)	0.56(14.2)	0.47(11.9)	1.06(27.0)	1.02(25.9)
3/4	3/4	-AM-FT12-RS12	2.16(54.9)	0.63(16.0)	0.58(14.7)	1.31(33.3)	1.26(32.0)
1	1	-AM-FT16-RS16	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 (RP)
T-Tube O.D. (in.)	P-RP Size	Basic Ordering Number	Dimension, in. (mm)				
			L	B	E	F	D
1/8	1/8	-AM-FT2-RP2	1.09(27.7)	0.28(7.1)	0.05(1.3)	0.56(14.3)	0.54(13.7)
1/8	1/4	-AM-FT2-RP4	1.31(33.3)	0.44(11.2)	0.05(1.3)	0.75(19.1)	0.70(17.8)
1/4	1/8	-AM-FT4-RP2	1.19(30.2)	0.28(7.1)	0.16(4.1)	0.56(14.3)	0.54(13.7)
1/4	1/4	-AM-FT4-RP4	1.50(38.1)	0.44(11.2)	0.18(4.6)	0.75(19.1)	0.70(17.8)
3/8	1/8	-AM-FT6-RP2	1.34(34.0)	0.28(7.1)	0.05(1.3)	0.75(19.1)	0.54(13.7)
3/8	1/4	-AM-FT6-RP4	1.47(37.3)	0.44(11.2)	0.25(6.4)	0.75(19.1)	0.70(17.8)
3/8	3/8	-AM-FT6-RP6	1.50(38.1)	0.44(11.2)	0.28(7.1)	0.87(22.2)	0.85(21.6)
3/8	1/2	-AM-FT6-RP8	1.69(42.9)	0.56(14.2)	0.28(7.1)	1.06(27.0)	1.02(25.9)
1/2	1/4	-AM-FT8-RP4	1.69(42.9)	0.44(11.2)	0.25(6.4)	0.75(19.1)	0.70(17.8)
1/2	3/8	-AM-FT8-RP6	1.72(43.7)	0.44(11.2)	0.31(7.9)	0.87(22.2)	0.85(21.6)
1/2	1/2	-AM-FT8-RP8	1.94(49.3)	0.56(14.2)	0.39(9.9)	1.06(27.0)	1.02(25.9)
5/8	1/2	-AM-FT10-RP8	1.97(50.0)	0.56(14.2)	0.47(11.9)	1.06(27.0)	1.02(25.9)
3/4	3/4	-AM-FT12-RP12	2.09(53.1)	0.63(16.0)	0.58(14.7)	1.32(33.5)	1.26(32.0)
1	1	-AM-FT16-RP16	2.49(63.3)	0.72(18.3)	0.80(20.3)	1.63(41.3)	1.53(38.9)



1" and below

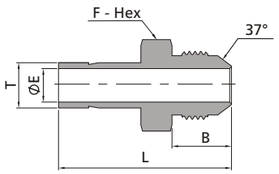


1 1/4" and above

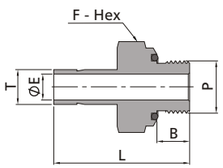
Adapt to straight thread boss of SAE J1926-1, ISO 11926-1 and MS 16142.

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	-AM-FT2-ST5	1.20(30.5)	0.30(7.6)	0.08(2.0)	0.44(11.1)	
1/4	7/16-20	-AM-FT4-ST7	1.39(35.3)	0.36(9.1)	0.17(4.3)	0.56(14.3)	
3/8	7/16-20	-AM-FT6-ST7	1.46(37.1)	0.36(9.1)	0.20(5.1)	0.56(14.3)	
3/8	9/16-18	-AM-FT6-ST9	1.52(38.6)	0.39(9.9)	0.27(6.9)	0.69(17.5)	
3/8	3/4-16	-AM-FT6-ST12	1.60(40.6)	0.44(11.2)	0.27(6.9)	0.87(22.2)	
1/2	9/16-18	-AM-FT8-ST9	1.74(44.2)	0.39(9.9)	0.28(7.1)	0.69(17.5)	
1/2	3/4-16	-AM-FT8-ST12	1.82(46.2)	0.44(11.2)	0.37(9.4)	0.87(22.2)	
5/8	7/8-14	-AM-FT10-ST14	1.94(49.3)	0.50(12.7)	0.47(11.9)	1.00(25.4)	
3/4	1 1/16-12	-AM-FT12-ST17	2.10(53.3)	0.59(15.0)	0.58(14.7)	1.25(31.8)	
1	1 5/16-12	-AM-FT16-ST21	2.41(61.2)	0.59(15.0)	0.80(20.3)	1.50(38.1)	
1 1/4	1 5/8-12	-AM-FT20-ST26	2.81(71.4)	0.59(15.0)	1.02(25.9)	1.87(47.6)	
1 1/2	1 7/8-12	-AM-FT24-ST30	3.28(83.3)	0.59(15.0)	1.25(31.8)	2.13(54.0)	

Male Adapters

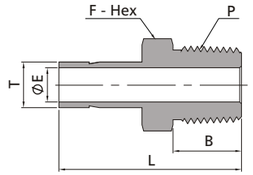


Fractional Tube						37° Flare (AN)
T-Tube O.D. (in.)	AN Tube Flare Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/4	1/4	-AM-FT4-AN4	1.46(37.1)	0.55(14.0)	0.17(4.3)	0.50(12.7)
3/8	1/4	-AM-FT6-AN4	1.53(38.9)	0.55(14.0)	0.17(4.3)	0.50(12.7)
3/8	3/8	-AM-FT6-AN6	1.56(39.6)	0.56(14.2)	0.27(6.9)	0.63(15.9)
1/2	1/2	-AM-FT8-AN8	1.91(48.5)	0.66(16.8)	0.37(9.4)	0.81(20.6)
3/4	3/4	-AM-FT12-AN12	2.21(56.1)	0.86(21.8)	0.58(14.7)	1.13(28.6)
1	1	-AM-FT16-AN16	2.58(65.5)	0.91(23.1)	0.80(20.3)	1.37(34.9)

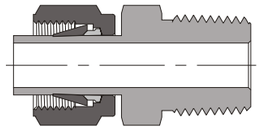


Fractional Tube						O-Seal with SAE/MS Straight Thread
T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/8	5/16-24	-AM-FT2-OST5	1.28(32.5)	0.34(8.6)	0.08(2.0)	0.56(14.3)
3/16	3/8-24	-AM-FT3-OST6	1.38(35.1)	0.38(9.7)	0.12(3.0)	0.63(15.9)
1/4	7/16-20	-AM-FT4-OST7	1.54(39.1)	0.41(10.4)	0.17(4.3)	0.75(19.1)
5/16	1/2-20	-AM-FT5-OST8	1.64(41.7)	0.44(11.2)	0.22(5.6)	0.87(22.2)
3/8	9/16-18	-AM-FT6-OST9	1.70(43.2)	0.47(11.9)	0.27(6.9)	0.94(23.8)
1/2	3/4-16	-AM-FT8-OST12	1.95(49.5)	0.47(11.9)	0.37(9.4)	1.13(28.6)

Male Adapters



25 mm and below

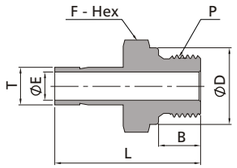


28 mm and above

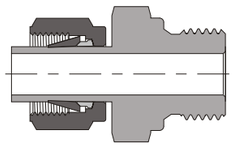
Metric Tube						NPT Thread
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
3	1/8	-AM-MT3-NS2	29.4(1.16)	9.7(0.38)	1.8(0.07)	12.0(0.47)
4	1/8	-AM-MT4-NS2	29.4(1.16)	9.7(0.38)	2.0(0.08)	12.0(0.47)
6	1/8	-AM-MT6-NS2	32.8(1.29)	9.7(0.38)	4.1(0.16)	12.0(0.47)
6	1/4	-AM-MT6-NS4	38.1(1.50)	14.2(0.56)	4.1(0.16)	14.0(0.55)
6	3/8	-AM-MT6-NS6	39.2(1.54)	14.2(0.56)	4.1(0.16)	18.0(0.71)
6	1/2	-AM-MT6-NS8	42.1(1.66)	19.1(0.75)	4.1(0.16)	22.0(0.87)
8	1/4	-AM-MT8-NS4	39.1(1.54)	14.2(0.56)	5.6(0.22)	14.0(0.55)
8	3/8	-AM-MT8-NS6	39.9(1.57)	14.2(0.56)	5.6(0.22)	19.0(0.75)
10	1/4	-AM-MT10-NS4	39.9(1.57)	14.2(0.56)	7.1(0.28)	14.0(0.55)
10	3/8	-AM-MT10-NS6	40.6(1.60)	14.2(0.56)	7.1(0.28)	18.0(0.71)
10	1/2	-AM-MT10-NS8	46.2(1.82)	19.1(0.75)	7.1(0.28)	22.0(0.87)
12	1/4	-AM-MT12-NS4	46.5(1.83)	14.2(0.56)	7.1(0.28)	14.0(0.55)
12	3/8	-AM-MT12-NS6	46.2(1.82)	14.2(0.56)	8.8(0.35)	18.0(0.71)
12	1/2	-AM-MT12-NS8	52.1(2.05)	19.1(0.75)	8.8(0.35)	22.0(0.87)
16	1/2	-AM-MT16-NS8	50.8(2.00)	19.1(0.75)	12.7(0.50)	22.0(0.87)
16	3/4	-AM-MT16-NS12	51.6(2.03)	19.1(0.75)	12.7(0.50)	27.0(1.06)
18	1/2	-AM-MT18-NS8	50.8(2.00)	19.1(0.75)	12.7(0.50)	27.0(1.06)
18	3/4	-AM-MT18-NS12	51.6(2.03)	19.1(0.75)	14.0(0.55)	27.0(1.06)
20	1/2	-AM-MT20-NS8	51.8(2.04)	19.1(0.75)	11.9(0.47)	22.0(0.87)
20	3/4	-AM-MT20-NS12	52.4(2.06)	19.1(0.75)	15.1(0.59)	27.0(1.06)
25	1	-AM-MT25-NS16	65.9(2.59)	23.9(0.94)	19.8(0.78)	35.0(1.38)
28	1	-AM-MT28-NS16	74.4(2.93)	23.9(0.94)	22.2(0.87)	35.0(1.38)
28	1 1/4	-AM-MT28-NS20	76.2(3.00)	23.9(0.94)	22.5(0.89)	46.0(1.81)
30	1	-AM-MT30-NS16	79.2(3.12)	23.9(0.94)	22.2(0.87)	41.0(1.61)
30	1 1/4	-AM-MT30-NS20	80.0(3.15)	23.9(0.94)	24.3(0.96)	46.0(1.81)
32	1 1/4	-AM-MT32-NS20	81.0(3.19)	23.9(0.94)	26.5(1.04)	46.0(1.81)
38	1 1/2	-AM-MT38-NS24	92.2(3.63)	26.2(1.03)	31.6(1.24)	55.0(2.17)

Metric Tube						ISO Tapered Thread (RT)
T-Tube O.D. (mm)	P-RT Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
3	1/8	-AM-MT3-RT2	29.4(1.16)	9.7(0.38)	1.8(0.07)	12.0(0.47)
4	1/8	-AM-MT4-RT2	29.4(1.16)	9.7(0.38)	2.0(0.08)	12.0(0.47)
6	1/8	-AM-MT6-RT2	32.8(1.29)	9.7(0.38)	4.1(0.16)	12.0(0.47)
6	1/4	-AM-MT6-RT4	38.1(1.50)	14.2(0.56)	4.1(0.16)	14.0(0.55)
8	1/4	-AM-MT8-RT4	39.1(1.54)	14.2(0.56)	5.6(0.22)	14.0(0.55)
8	3/8	-AM-MT8-RT6	39.9(1.57)	14.2(0.56)	5.6(0.22)	18.0(0.71)
10	1/4	-AM-MT10-RT4	39.9(1.57)	14.2(0.56)	7.1(0.28)	14.0(0.55)
10	3/8	-AM-MT10-RT6	40.6(1.60)	14.2(0.56)	7.1(0.28)	18.0(0.71)
10	1/2	-AM-MT10-RT8	44.5(1.75)	19.1(0.75)	7.5(0.30)	22.0(0.87)
12	1/4	-AM-MT12-RT4	46.5(1.83)	14.2(0.56)	7.1(0.28)	16.0(0.63)
12	3/8	-AM-MT12-RT6	46.2(1.82)	14.2(0.56)	8.8(0.35)	18.0(0.71)
12	1/2	-AM-MT12-RT8	51.8(2.04)	19.1(0.75)	8.8(0.35)	22.0(0.87)
16	1/2	-AM-MT16-RT8	50.8(2.00)	19.1(0.75)	12.7(0.50)	22.0(0.87)
18	3/4	-AM-MT18-RT12	51.6(2.03)	19.1(0.75)	14.0(0.55)	27.0(1.06)
20	3/4	-AM-MT20-RT12	52.4(2.06)	19.1(0.75)	15.1(0.59)	27.0(1.06)
25	1	-AM-MT25-RT16	65.9(2.59)	23.9(0.94)	19.8(0.78)	35.0(1.38)
28	1	-AM-MT28-RT16	74.7(2.94)	23.9(0.94)	22.2(0.87)	35.0(1.38)
28	1 1/4	-AM-MT28-RT20	76.2(3.00)	23.9(0.94)	22.5(0.89)	46.0(1.81)
30	1 1/4	-AM-MT30-RT20	80.0(3.15)	23.9(0.94)	24.3(0.96)	46.0(1.81)
32	1 1/4	-AM-MT32-RT20	81.0(3.19)	23.9(0.94)	26.5(1.04)	46.0(1.81)
38	1 1/2	-AM-MT38-RT24	92.2(3.63)	26.2(1.03)	31.6(1.24)	55.0(2.17)

Male Adapters

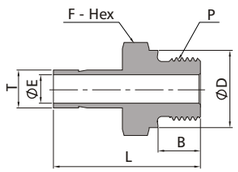


25 mm and below

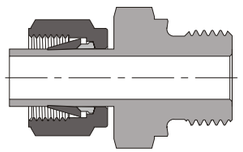


28 mm and above

Metric Tube							ISO Parallel Thread (RS)
T-Tube O.D. (mm)	P-RS Size	Basic Ordering Number	Dimension, mm (in.)				
			L	B	E	F	D
3	1/8	-AM-MT3-RS2	31.0(1.22)	7.1(0.28)	1.8(0.07)	14.0(0.55)	13.7(0.54)
4	1/8	-AM-MT4-RS2	31.8(1.25)	7.1(0.28)	2.0(0.08)	14.0(0.55)	13.7(0.54)
6	1/8	-AM-MT6-RS2	34.3(1.35)	7.1(0.28)	4.0(0.16)	14.0(0.55)	13.7(0.54)
6	1/4	-AM-MT6-RS4	39.1(1.54)	11.2(0.44)	4.1(0.16)	19.0(0.75)	17.8(0.70)
8	1/4	-AM-MT8-RS4	40.1(1.58)	11.2(0.44)	5.6(0.22)	19.0(0.75)	17.8(0.70)
10	1/4	-AM-MT10-RS4	40.9(1.61)	11.2(0.44)	5.9(0.23)	19.0(0.75)	17.8(0.70)
10	3/8	-AM-MT10-RS6	41.7(1.64)	11.2(0.44)	7.1(0.28)	22.0(0.87)	21.6(0.85)
10	1/2	-AM-MT10-RS8	44.7(1.76)	14.2(0.56)	7.1(0.28)	27.0(1.06)	25.9(1.02)
12	1/4	-AM-MT12-RS4	46.7(1.84)	11.2(0.44)	5.9(0.23)	19.0(0.75)	17.8(0.70)
12	3/8	-AM-MT12-RS6	47.2(1.86)	11.2(0.44)	7.9(0.31)	22.0(0.87)	21.6(0.85)
12	1/2	-AM-MT12-RS8	50.5(1.99)	14.2(0.56)	8.8(0.35)	27.0(1.06)	25.9(1.02)
16	1/2	-AM-MT16-RS8	50.8(2.00)	14.2(0.56)	11.9(0.47)	27.0(1.06)	25.9(1.02)
18	3/4	-AM-MT18-RS12	55.9(2.20)	16.0(0.63)	13.9(0.55)	35.0(1.38)	32.0(1.26)
20	3/4	-AM-MT20-RS12	57.0(2.24)	16.0(0.63)	15.1(0.59)	35.0(1.38)	32.0(1.26)
25	1	-AM-MT25-RS16	65.1(2.56)	18.3(0.72)	19.8(0.78)	41.0(1.61)	38.9(1.53)
28	1	-AM-MT28-RS16	72.9(2.87)	18.3(0.72)	19.8(0.78)	41.0(1.61)	38.9(1.53)
28	1 1/4	-AM-MT28-RS20	77.0(3.03)	19.8(0.78)	22.5(0.89)	50.0(1.97)	49.0(1.93)
30	1 1/4	-AM-MT30-RS20	80.8(3.18)	19.8(0.78)	24.3(0.96)	50.0(1.97)	49.0(1.93)
32	1 1/4	-AM-MT32-RS20	81.8(3.22)	19.8(0.78)	26.5(1.04)	50.0(1.97)	49.0(1.93)
38	1 1/2	-AM-MT38-RS24	94.5(3.72)	22.1(0.87)	31.6(1.24)	55.0(2.17)	54.7(2.15)



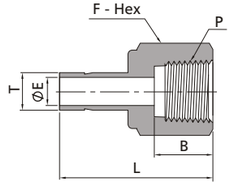
25 mm and below



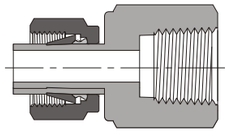
28 mm and above

Metric Tube							ISO Parallel Thread (RP)
T-Tube O.D. (mm)	P-RP Size	Basic Ordering Number	Dimension, mm (in.)				
			L	B	E	F	D
3	1/8	-AM-MT3-RP2	31.0(1.22)	7.1(0.28)	1.8(0.07)	14.0(0.55)	13.7(0.54)
4	1/8	-AM-MT4-RP2	31.8(1.25)	7.1(0.28)	2.0(0.08)	14.0(0.55)	13.7(0.54)
6	1/8	-AM-MT6-RP2	33.3(1.31)	7.1(0.28)	4.0(0.16)	14.0(0.55)	13.7(0.54)
6	1/4	-AM-MT6-RP4	38.1(1.50)	11.2(0.44)	4.0(0.16)	19.0(0.75)	17.8(0.70)
8	1/4	-AM-MT8-RP4	38.9(1.53)	11.2(0.44)	6.4(0.25)	19.0(0.75)	17.8(0.70)
10	1/4	-AM-MT10-RP4	38.9(1.53)	11.2(0.44)	6.4(0.25)	19.0(0.75)	17.8(0.70)
10	3/8	-AM-MT10-RP6	39.7(1.56)	11.2(0.44)	7.5(0.30)	22.0(0.87)	21.6(0.85)
10	1/2	-AM-MT10-RP8	42.9(1.69)	14.2(0.56)	7.5(0.30)	27.0(1.06)	25.9(1.02)
12	1/4	-AM-MT12-RP4	43.7(1.72)	11.2(0.44)	6.4(0.25)	19.0(0.75)	17.8(0.70)
12	3/8	-AM-MT12-RP6	44.5(1.75)	11.2(0.44)	7.9(0.31)	22.0(0.87)	21.6(0.85)
12	1/2	-AM-MT12-RP8	49.2(1.94)	14.2(0.56)	9.1(0.36)	27.0(1.06)	25.9(1.02)
16	1/2	-AM-MT16-RP8	50.8(2.00)	14.2(0.56)	11.9(0.47)	27.0(1.06)	25.9(1.02)
18	3/4	-AM-MT18-RP12	53.2(2.09)	16.0(0.63)	14.0(0.55)	33.0(1.30)	32.0(1.26)
20	3/4	-AM-MT20-RP12	54.0(2.13)	16.0(0.63)	15.1(0.59)	33.0(1.30)	32.0(1.26)
25	1	-AM-MT25-RP16	65.1(2.56)	18.3(0.72)	19.8(0.78)	41.0(1.61)	38.9(1.53)
28	1	-AM-MT28-RP16	72.7(2.86)	18.3(0.72)	19.8(0.78)	41.0(1.61)	38.9(1.53)
28	1 1/4	-AM-MT28-RP20	77.3(3.04)	19.8(0.78)	22.5(0.89)	50.0(1.97)	49.0(1.93)
30	1 1/4	-AM-MT30-RP20	80.8(3.18)	19.8(0.78)	24.3(0.96)	50.0(1.97)	49.0(1.93)
32	1 1/4	-AM-MT32-RP20	82.1(3.23)	19.8(0.78)	26.5(1.04)	50.0(1.97)	49.0(1.93)
38	1 1/2	-AM-MT38-RP24	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

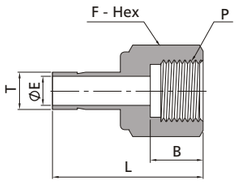


1 1/4" and above

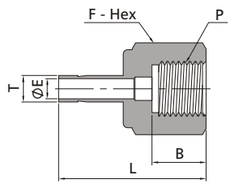
Fractional Tube						NPT Thread
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/16	1/8	-AF-FT1-NS2	1.07(27.2)	0.41(10.4)	0.03(0.8)	0.56(14.3)
1/8	1/8	-AF-FT2-NS2	1.24(31.5)	0.41(10.4)	0.08(2.0)	0.56(14.3)
1/8	1/4	-AF-FT2-NS4	1.39(35.3)	0.59(15.0)	0.08(2.0)	0.75(19.1)
3/16	1/8	-AF-FT3-NS2	1.25(31.8)	0.41(10.4)	0.11(2.9)	0.56(14.3)
3/16	1/4	-AF-FT3-NS4	1.41(35.8)	0.59(15.0)	0.12(3.0)	0.75(19.1)
1/4	1/8	-AF-FT4-NS2	1.30(33.0)	0.41(10.4)	0.17(4.3)	0.56(14.3)
1/4	1/4	-AF-FT4-NS4	1.46(37.1)	0.59(15.0)	0.17(4.3)	0.75(19.1)
1/4	3/8	-AF-FT4-NS6	1.55(39.4)	0.59(15.0)	0.17(4.3)	0.87(22.2)
1/4	1/2	-AF-FT4-NS8	1.79(45.5)	0.78(19.8)	0.17(4.3)	1.06(27.0)
5/16	1/8	-AF-FT5-NS2	1.34(34.0)	0.41(10.4)	0.22(5.6)	0.56(14.3)
5/16	1/4	-AF-FT5-NS4	1.48(37.6)	0.59(15.0)	0.22(5.6)	0.75(19.1)
5/16	3/8	-AF-FT5-NS6	1.59(40.4)	0.59(15.0)	0.22(5.6)	0.87(22.2)
3/8	1/8	-AF-FT6-NS2	1.35(34.3)	0.41(10.4)	0.27(6.9)	0.56(14.3)
3/8	1/4	-AF-FT6-NS4	1.50(38.1)	0.59(15.0)	0.27(6.9)	0.75(19.1)
3/8	3/8	-AF-FT6-NS6	1.59(40.4)	0.59(15.0)	0.27(6.9)	0.87(22.2)
3/8	1/2	-AF-FT6-NS8	1.84(46.7)	0.78(19.8)	0.27(6.9)	1.06(27.0)
1/2	1/4	-AF-FT8-NS4	1.71(43.4)	0.59(15.0)	0.37(9.4)	0.75(19.1)
1/2	3/8	-AF-FT8-NS6	1.79(45.5)	0.59(15.0)	0.37(9.4)	0.87(22.2)
1/2	1/2	-AF-FT8-NS8	2.04(51.8)	0.78(19.8)	0.37(9.4)	1.06(27.0)
5/8	3/8	-AF-FT10-NS6	1.86(47.2)	0.59(15.0)	0.47(11.9)	0.87(22.2)
5/8	1/2	-AF-FT10-NS8	2.09(53.1)	0.78(19.8)	0.47(11.9)	1.06(27.0)
3/4	1/2	-AF-FT12-NS8	2.08(52.8)	0.78(19.8)	0.58(14.7)	1.06(27.0)
3/4	3/4	-AF-FT12-NS12	2.16(54.9)	0.81(20.6)	0.58(14.7)	1.31(33.3)
3/4	1	-AF-FT12-NS16	2.30(58.4)	1.00(25.4)	0.58(14.7)	1.63(41.3)
7/8	3/4	-AF-FT14-NS12	2.22(56.4)	0.81(20.6)	0.58(14.7)	1.31(33.3)
1	3/4	-AF-FT16-NS12	2.39(60.7)	0.81(20.6)	0.80(20.3)	1.31(33.3)
1	1	-AF-FT16-NS16	2.53(64.3)	1.00(25.4)	0.80(20.3)	1.63(41.3)
1 1/4	1 1/4	-AF-FT20-NS20	3.06(77.7)	1.00(25.4)	1.02(25.9)	2.13(54.0)
1 1/2	1 1/2	-AF-FT24-NS24	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	-AF-FT4-RT2	1.30(33.0)	0.41(10.4)	0.17(4.3)	0.56(14.3)
1/4	1/4	-AF-FT4-RT4	1.45(36.8)	0.59(15.0)	0.17(4.3)	0.75(19.1)
3/8	1/4	-AF-FT6-RT4	1.50(38.1)	0.59(15.0)	0.27(6.9)	0.75(19.1)
3/8	3/8	-AF-FT6-RT6	1.59(40.4)	0.59(15.0)	0.27(6.9)	0.87(22.2)
1/2	1/4	-AF-FT8-RT4	1.71(43.4)	0.59(15.0)	0.37(9.4)	0.75(19.1)
1/2	3/8	-AF-FT8-RT6	1.80(45.7)	0.59(15.0)	0.37(9.4)	0.87(22.2)
1/2	1/2	-AF-FT8-RT8	2.05(52.1)	0.78(19.8)	0.37(9.4)	1.06(27.0)

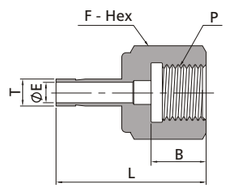
Female Adapters



Fractional Tube						ISO Parallel Thread (RP)
T-Tube O.D. (in.)	P-RP Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/8	1/8	-AF-FT2-RP2	1.17(29.7)	0.40(10.2)	0.08(2.0)	0.56(14.3)
1/4	1/8	-AF-FT4-RP2	1.25(31.8)	0.40(10.2)	0.17(4.3)	0.56(14.3)
1/4	1/4	-AF-FT4-RP4	1.50(38.1)	0.60(15.2)	0.17(4.3)	0.75(19.1)
3/8	1/4	-AF-FT6-RP4	1.55(39.4)	0.60(15.2)	0.27(6.9)	0.75(19.1)
3/8	3/8	-AF-FT6-RP6	1.57(39.9)	0.60(15.2)	0.27(6.9)	0.94(23.8)
1/2	3/8	-AF-FT8-RP6	1.78(45.2)	0.60(15.2)	0.38(9.7)	0.94(23.8)
1/2	1/2	-AF-FT8-RP8	1.95(49.5)	0.72(18.2)	0.38(9.7)	1.06(27.0)

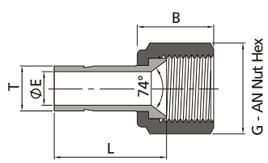


Fractional Tube						ISO Parallel Thread (RG)
T-Tube O.D. (in.)	P-RG Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/4	1/4	-AF-FT4-RG4	1.39(35.3)	0.51(12.9)	0.17(4.3)	0.75(19.1)
3/8	3/8	-AF-FT6-RG6	1.55(39.4)	0.56(14.2)	0.26(6.6)	0.94(23.8)
1/2	1/2	-AF-FT8-RG8	1.80(45.7)	0.74(18.8)	0.28(7.1)	1.06(27.0)



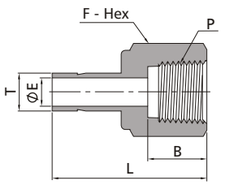
Adapt to Japanese gauge stud.

Fractional Tube						ISO Parallel Thread (RJ)
T-Tube O.D. (in.)	P-RJ Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/4	1/4	-AF-FT4-RJ4	1.39(35.3)	0.51(12.9)	0.17(4.3)	0.75(19.1)
3/8	3/8	-AF-FT6-RJ6	1.55(39.4)	0.56(14.2)	0.26(6.6)	0.94(23.8)
1/2	1/2	-AF-FT8-RJ8	1.94(49.3)	0.74(18.8)	0.28(7.1)	1.06(27.0)



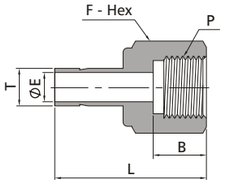
Fractional Tube						AN Thread
T-Tube O.D. (in.)	AN Tube Flare Size(in.)	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/8	1/8	-AF-FT2-AN2	0.88(22.4)	0.55(14.0)	0.09(2.4)	0.37(9.5)
1/8	1/4	-AF-FT2-AN4	0.88(22.4)	0.62(15.8)	0.09(2.4)	0.56(14.3)
1/4	1/4	-AF-FT4-AN4	0.96(24.4)	0.62(15.8)	0.18(4.6)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

Female Adapters



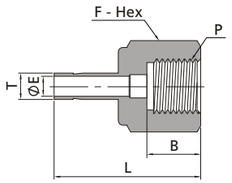
Metric Tube						NPT Thread
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
3	1/8	-AF-MT3-NS2	28.8(1.13)	10.4(0.41)	1.3(0.05)	14.0(0.55)
4	1/8	-AF-MT4-NS2	33.3(1.31)	10.4(0.41)	2.0(0.08)	14.0(0.55)
6	1/8	-AF-MT6-NS2	32.5(1.28)	10.4(0.41)	4.1(0.16)	14.0(0.55)
6	1/4	-AF-MT6-NS4	37.1(1.46)	15.0(0.59)	4.1(0.16)	19.0(0.75)
8	1/8	-AF-MT8-NS2	35.1(1.38)	10.4(0.41)	6.4(0.25)	14.0(0.55)
8	1/4	-AF-MT8-NS4	37.6(1.48)	15.0(0.59)	5.6(0.22)	19.0(0.75)
8	3/8	-AF-MT8-NS6	36.5(1.44)	15.0(0.59)	6.4(0.25)	22.0(0.87)
10	1/4	-AF-MT10-NS4	38.1(1.50)	15.0(0.59)	7.1(0.28)	19.0(0.75)
10	3/8	-AF-MT10-NS6	40.1(1.58)	15.0(0.59)	7.1(0.28)	22.0(0.87)
10	1/2	-AF-MT10-NS8	46.5(1.83)	19.8(0.78)	7.1(0.28)	27.0(1.06)
12	1/4	-AF-MT12-NS4	43.7(1.72)	15.0(0.59)	8.8(0.35)	19.0(0.75)
12	3/8	-AF-MT12-NS6	42.9(1.69)	15.0(0.59)	9.1(0.36)	22.0(0.87)
12	1/2	-AF-MT12-NS8	52.3(2.06)	19.8(0.78)	8.8(0.35)	27.0(1.06)
16	1/2	-AF-MT16-NS8	49.2(1.94)	19.8(0.78)	12.7(0.50)	27.0(1.06)
18	3/4	-AF-MT18-NS12	52.4(2.06)	20.6(0.81)	14.0(0.55)	32.0(1.26)
20	1/2	-AF-MT20-NS8	50.0(1.97)	19.8(0.78)	15.0(0.59)	27.0(1.06)
20	3/4	-AF-MT20-NS12	53.2(2.09)	20.6(0.81)	15.1(0.59)	32.0(1.26)
25	1	-AF-MT25-NS16	66.7(2.63)	25.4(1.00)	19.8(0.78)	41.0(1.61)

Metric Tube						ISO Tapered Thread (RT)
T-Tube O.D. (mm)	P-RT Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
3	1/8	-AF-MT3-RT2	27.8(1.09)	10.4(0.41)	1.8(0.07)	14.0(0.55)
4	1/8	-AF-MT4-RT2	28.6(1.13)	10.4(0.41)	2.0(0.08)	14.0(0.55)
6	1/8	-AF-MT6-RT2	33.0(1.30)	10.4(0.41)	4.1(0.16)	14.0(0.55)
8	1/4	-AF-MT8-RT4	37.6(1.48)	15.0(0.59)	5.6(0.22)	19.0(0.75)
10	1/4	-AF-MT10-RT4	38.1(1.50)	15.0(0.59)	7.1(0.28)	19.0(0.75)
10	3/8	-AF-MT10-RT6	36.5(1.44)	15.0(0.59)	7.5(0.30)	22.0(0.87)
10	1/2	-AF-MT10-RT8	41.3(1.63)	19.8(0.78)	7.5(0.30)	27.0(1.06)
12	1/4	-AF-MT12-RT4	40.5(1.59)	15.0(0.59)	9.1(0.36)	19.0(0.75)
12	3/8	-AF-MT12-RT6	43.7(1.72)	15.0(0.59)	9.1(0.36)	22.0(0.87)
12	1/2	-AF-MT12-RT8	46.8(1.84)	19.8(0.78)	9.1(0.36)	27.0(1.06)
16	1/2	-AF-MT16-RT8	48.4(1.91)	19.8(0.78)	12.7(0.50)	27.0(1.06)
18	3/4	-AF-MT18-RT12	52.4(2.06)	20.6(0.81)	14.0(0.55)	32.0(1.26)
20	3/4	-AF-MT20-RT12	53.2(2.09)	20.6(0.81)	15.1(0.59)	32.0(1.26)
25	1	-AF-MT25-RT16	66.7(2.63)	25.4(1.00)	19.8(0.78)	41.0(1.61)

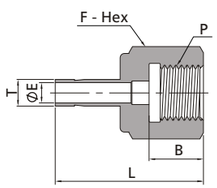


Metric Tube						ISO Parallel Thread (RP)
T-Tube O.D. (mm)	P-RP Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
6	1/8	-AF-MT6-RP2	32.0(1.26)	10.2(0.40)	4.1(0.16)	14.0(0.55)
6	1/4	-AF-MT6-RP4	37.8(1.49)	15.2(0.60)	4.1(0.16)	19.0(0.75)
12	1/2	-AF-MT12-RP8	49.8(1.96)	18.8(0.74)	8.8(0.35)	27.0(1.06)

Female Adapters



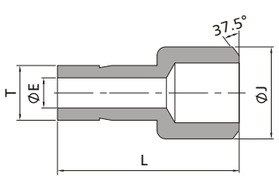
Metric Tube						ISO Parallel Thread (RG)
T-Tube O.D. (mm)	P-RG Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
3	1/8	-AF-MT3-RG2	28.6(1.13)	6.5(0.26)	1.6(0.06)	14.0(0.55)
3	1/4	-AF-MT3-RG4	33.5(1.32)	10.2(0.40)	1.9(0.07)	19.0(0.75)
4	1/8	-AF-MT4-RG2	29.4(1.16)	6.5(0.26)	2.0(0.08)	14.0(0.55)
6	1/8	-AF-MT6-RG2	31.0(1.22)	6.5(0.26)	4.1(0.16)	14.0(0.55)
6	1/4	-AF-MT6-RG4	35.3(1.39)	10.2(0.40)	4.1(0.16)	19.0(0.75)
6	3/8	-AF-MT6-RG6	38.4(1.51)	14.2(0.56)	4.1(0.16)	24.0(0.94)
6	1/2	-AF-MT6-RG8	42.9(1.69)	18.0(0.71)	4.1(0.16)	27.0(1.06)
8	1/4	-AF-MT8-RG4	33.0(1.30)	10.2(0.40)	5.5(0.22)	19.0(0.75)
8	3/8	-AF-MT8-RG6	38.9(1.53)	14.2(0.56)	5.6(0.22)	24.0(0.94)
8	1/2	-AF-MT8-RG8	43.7(1.72)	18.0(0.71)	5.6(0.22)	27.0(1.06)
10	1/4	-AF-MT10-RG4	34.5(1.36)	10.2(0.40)	5.5(0.22)	19.0(0.75)
10	3/8	-AF-MT10-RG6	36.1(1.42)	14.2(0.56)	6.5(0.26)	24.0(0.94)
10	1/2	-AF-MT10-RG8	41.1(1.62)	18.0(0.71)	7.1(0.28)	27.0(1.06)
12	1/4	-AF-MT12-RG4	41.1(1.62)	10.2(0.40)	5.5(0.22)	19.0(0.75)
12	3/8	-AF-MT12-RG6	44.7(1.76)	14.2(0.56)	6.5(0.26)	24.0(0.94)
12	1/2	-AF-MT12-RG8	48.8(1.92)	18.0(0.71)	7.0(0.28)	27.0(1.06)
16	1/2	-AF-MT16-RG8	49.0(1.93)	18.0(0.71)	7.0(0.28)	27.0(1.06)
18	1/2	-AF-MT18-RG8	49.3(1.94)	18.0(0.71)	7.0(0.28)	27.0(1.06)



Adapt to Japanese gauge stud.

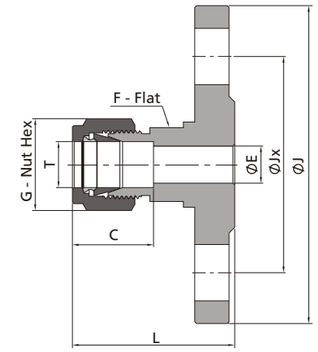
Metric Tube						ISO Parallel Thread (RJ)
T-Tube O.D. (mm)	P-RJ Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
6	1/4	-AF-MT6-RJ4	35.3(1.39)	10.2(0.40)	4.1(0.16)	19.0(0.75)
6	3/8	-AF-MT6-RJ6	38.6(1.52)	15.8(0.62)	4.1(0.16)	24.0(0.94)
6	1/2	-AF-MT6-RJ8	42.9(1.69)	18.0(0.71)	4.1(0.16)	27.0(1.06)
8	1/4	-AF-MT8-RJ4	33.0(1.30)	10.2(0.40)	5.5(0.22)	19.0(0.75)
8	3/8	-AF-MT8-RJ6	39.4(1.55)	15.8(0.62)	5.6(0.22)	24.0(0.94)
8	1/2	-AF-MT8-RJ8	43.7(1.72)	18.0(0.71)	5.6(0.22)	27.0(1.06)
10	1/4	-AF-MT10-RJ4	34.5(1.36)	10.2(0.40)	5.5(0.22)	19.0(0.75)
10	3/8	-AF-MT10-RJ6	36.1(1.42)	15.8(0.62)	6.5(0.26)	24.0(0.94)
10	1/2	-AF-MT10-RJ8	41.1(1.62)	18.0(0.71)	7.1(0.28)	27.0(1.06)
12	1/4	-AF-MT12-RJ4	40.1(1.58)	10.2(0.40)	5.5(0.22)	19.0(0.75)
12	3/8	-AF-MT12-RJ6	44.7(1.76)	15.8(0.62)	6.5(0.26)	24.0(0.94)
12	1/2	-AF-MT12-RJ8	48.8(1.92)	18.0(0.71)	7.0(0.28)	27.0(1.06)

Weld Adapters



Fractional Tube					Pipe Weld
T-Tube O.D. (in.)	Pipe Weld Size	Basic Ordering Number	Dimension, in. (mm)		
			L	J	E
1/4	1/4	-AW-FT4-PB4	1.14(29.0)	0.54(13.7)	0.17(4.3)
3/8	1/2	-AW-FT6-PB8	1.46(37.1)	0.84(21.3)	0.27(6.9)
1/2	1/2	-AW-FT8-PB8	1.66(42.2)	0.84(21.3)	0.37(9.4)
1/2	3/4	-AW-FT8-PB12	1.68(42.7)	1.05(26.7)	0.37(9.4)
3/4	3/4	-AW-FT12-PB12	1.87(47.5)	1.05(26.7)	0.58(14.7)

Flange Adapters

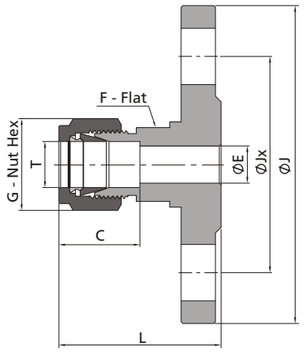


- Integrally forged body.
- ANSI flanges comply with ANSI B16.5.
- DIN flanges comply with DIN 2501/2526.
- GB flanges comply with GB/T 9123.1.
- EN flanges comply with EN 1092-1.
- JIS flanges comply with JIS B 2220.

ANSI Flanges											
T-Tube O.D. (in.)	ANSI Flange NPS	Class	Basic Ordering Number Raised Face Flange	Dimension, in. (mm)						
				L	J	Jx	E	C	G	F
1/4	1/2	150	-FA-FL4-F8-150	1.61(40.9)	3.50(88.9)	2.38(60.5)	0.19(4.8)	0.60(15.2)	0.56(14.3)	0.81(20.6)
3/8	1/2	300	-FA-FL6-F8-300	1.79(45.5)	3.75(95.3)	2.62(66.5)	0.28(7.1)	0.66(16.8)	0.69(17.5)	0.81(20.6)
1/2	1/2	150	-FA-FL8-F8-150	1.78(45.2)	3.50(88.9)	2.38(60.5)	0.41(10.4)	0.90(22.9)	0.87(22.2)	0.81(20.6)
1/2	1	150	-FA-FL8-F16-150	1.90(48.3)	4.25(108.0)	3.12(79.2)	0.41(10.4)	0.90(22.9)	0.87(22.2)	0.81(20.6)
1/2	2	150	-FA-FL8-F32-150	2.09(53.1)	6.00(152.4)	4.76(121.0)	0.41(10.4)	0.90(22.9)	0.87(22.2)	0.81(20.6)
3/4	1	150	-FA-FL12-F16-150	1.98(50.3)	4.25(108.0)	3.12(79.2)	0.62(15.7)	0.96(24.4)	1.13(28.6)	1.25(31.8)
1	1	150	-FA-FL16-F16-150	2.38(60.5)	4.25(108.0)	3.12(79.2)	0.88(22.4)	1.23(31.2)	1.50(38.1)	1.37(34.9)

DIN/GB Flanges, Pressure Class PN 40									
T-Tube O.D. (mm)	ANSI Flange Size DN	Basic Ordering Number Raised Face Flange	Dimension, mm (in.)						
			L	J	Jx	E	C	G	F
6	25	-FA-ML6-F25-40B1	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	-FA-ML12-F15-40B1	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	-FA-ML12-F25-40B1	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	-FA-ML12-F50-40B1	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	-FA-ML18-F15-40B1	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	-FA-ML18-F25-40B1	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	-FA-ML25-F25-40B1	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)

Flange Adapters



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

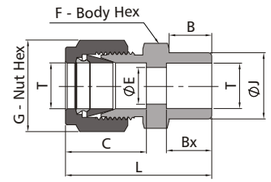
EN Flanges, Pressure Class PN 40

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	-FA-ML6-F25E-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	-FA-ML12-F15E-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	-FA-ML12-F25E-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	-FA-ML12-F50E-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	-FA-ML18-F15E-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	-FA-ML18-F25E-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	-FA-ML25-F25E-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

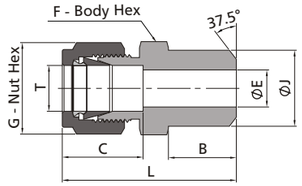
T-Tube O.D.	JIS Flange Size DN	Basic Ordering Number Raised Face Flange	Dimension, in. (mm)						
			L	J	Jx	E	C	G	F
1/4"	15	-FA-FL4-F15-10KRF	1.66(42.2)	3.74(95.0)	2.76(70.1)	0.19(4.8)	0.60(15.2)	0.56(14.3)	0.81(20.6)
3/8"	15	-FA-FL6-F15-10KRF	1.72(43.7)	3.74(95.0)	2.76(70.1)	0.28(7.1)	0.66(16.8)	0.69(17.5)	0.81(20.6)
1/2"	15	-FA-FL8-F15-10KRF	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	-FA-FL12-F15-10KRF	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	-FA-FL16-F25-10KRF	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	-FA-ML12-F15-10KRF	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	-FA-ML18-F15-10KRF	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(32.0)
25mm	25	-FA-ML25-F25-10KRF	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)

Weld Connectors



Fractional Tube — Tube Socket Weld

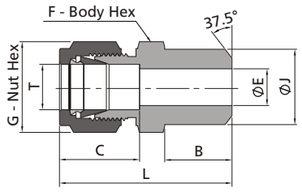
T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)							
		L	C	G	F	B	E	Bx	J
1/8	-CW-FL2-TS2	1.14(29.0)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.34(8.6)	0.09(2.3)	0.10(2.5)	0.31(7.9)
3/16	-CW-FL3-TS3	1.17(29.7)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.37(9.5)	0.13(3.3)	0.19(4.8)	0.42(10.7)
1/4	-CW-FL4-TS4	1.32(33.5)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.41(10.4)	0.19(4.8)	0.28(7.1)	0.44(11.2)
3/8	-CW-FL6-TS6	1.48(37.6)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.47(11.9)	0.28(7.1)	0.31(7.9)	0.62(15.7)
1/2	-CW-FL8-TS8	1.62(41.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.47(11.9)	0.41(10.4)	0.38(9.7)	0.75(19.1)
5/8	-CW-FL10-TS10	1.65(41.9)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.47(11.9)	0.50(12.7)	0.41(10.4)	0.92(23.4)
3/4	-CW-FL12-TS12	1.71(43.4)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.47(11.9)	0.62(15.7)	0.44(11.1)	1.05(26.7)
1	-CW-FL16-TS16	2.07(52.6)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.56(14.2)	0.88(22.4)	0.62(15.7)	1.31(33.3)



Fractional Tube — Pipe Butt Weld

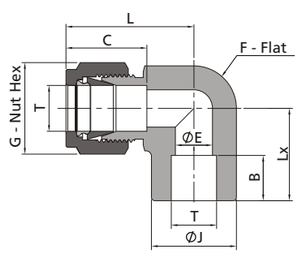
T-Tube O.D. (in.)	Pipe Weld Size	Basic Ordering Number	Dimension, in. (mm)						
			L	C	G	F	E	B	J
1/8	1/8	-CW-FL2-PB2	1.20(30.5)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.09(2.3)	0.38(9.7)	0.41(10.3)
3/16	1/8	-CW-FL3-PB2	1.23(31.2)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.12(3.0)	0.38(9.7)	0.41(10.3)
1/4	1/8	-CW-FL4-PB2	1.29(32.8)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.38(9.7)	0.41(10.3)
1/4	1/4	-CW-FL4-PB4	1.49(37.8)	0.60(15.2)	0.56(14.3)	0.56(14.3)	0.19(4.8)	0.56(14.2)	0.54(13.7)
5/16	1/8	-CW-FL5-PB2	1.34(34.0)	0.64(16.3)	0.63(15.9)	0.56(14.3)	0.21(5.3)	0.38(9.7)	0.41(10.3)
5/16	1/4	-CW-FL5-PB4	1.52(38.6)	0.64(16.3)	0.63(15.9)	0.56(14.3)	0.25(6.4)	0.56(14.2)	0.54(13.7)
3/8	1/4	-CW-FL6-PB4	1.57(39.9)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)	0.56(14.2)	0.54(13.7)
3/8	3/8	-CW-FL6-PB6	1.57(39.9)	0.66(16.8)	0.69(17.5)	0.69(17.5)	0.28(7.1)	0.56(14.2)	0.67(17.1)
3/8	1/2	-CW-FL6-PB8	1.82(46.2)	0.66(16.8)	0.69(17.5)	0.87(22.2)	0.28(7.1)	0.75(19.1)	0.84(21.3)
3/8	3/4	-CW-FL6-PB12	1.88(47.8)	0.66(16.8)	0.69(17.5)	1.06(27.0)	0.28(7.1)	0.75(19.1)	1.05(26.7)
1/2	3/8	-CW-FL8-PB6	1.71(43.4)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)	0.56(14.2)	0.67(17.1)
1/2	1/2	-CW-FL8-PB8	1.93(49.0)	0.90(22.9)	0.87(22.2)	0.87(22.2)	0.41(10.4)	0.75(19.1)	0.84(21.3)
1/2	3/4	-CW-FL8-PB12	1.99(50.5)	0.90(22.9)	0.87(22.2)	1.06(27.0)	0.41(10.4)	0.75(19.1)	1.05(26.7)
5/8	1/2	-CW-FL10-PB8	1.93(49.0)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.50(12.7)	0.75(19.1)	0.84(21.3)
3/4	1/2	-CW-FL12-PB8	1.99(50.5)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.55(14.0)	0.75(19.1)	0.84(21.3)
3/4	3/4	-CW-FL12-PB12	1.99(50.5)	0.96(24.4)	1.10(28.0)	1.06(27.0)	0.62(15.7)	0.75(19.1)	1.05(26.7)
1	1	-CW-FL16-PB16	2.45(62.2)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.88(22.4)	0.94(23.9)	1.31(33.4)
1 1/4	1 1/4	-CW-FL20-PB20	3.04(77.2)	1.62(41.1)	1.87(47.6)	1.75(44.5)	1.09(27.7)	0.94(23.9)	1.66(42.2)
1 1/2	1 1/2	-CW-FL24-PB24	3.50(88.9)	1.97(50.0)	2.25(57.2)	2.13(54.0)	1.34(34.0)	1.03(26.2)	1.90(48.3)

Weld Connectors



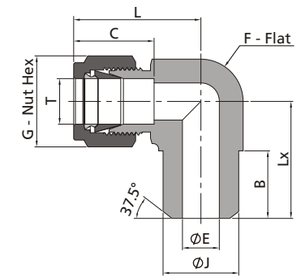
Metric Tube									Pipe Butt Weld
T-Tube O.D. (mm)	Pipe Weld Size	Basic Ordering Number	Dimension, mm (in.)						
			L	C	G	F	E	B	J
3	1/8	-CW-ML3-PB2	30.5(1.20)	12.9(0.51)	12.0(0.47)	12.0(0.47)	2.4(0.09)	9.7(0.38)	10.3(0.41)
4	1/8	-CW-ML4-PB2	31.5(1.24)	13.7(0.54)	12.0(0.47)	12.0(0.47)	2.4(0.09)	9.7(0.38)	10.3(0.41)
6	1/8	-CW-ML6-PB2	32.8(1.29)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)	9.7(0.38)	10.3(0.41)
6	1/4	-CW-ML6-PB4	37.9(1.49)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)	14.2(0.56)	13.7(0.54)
8	1/8	-CW-ML8-PB2	34.2(1.35)	16.2(0.64)	16.0(0.63)	15.0(0.59)	5.4(0.21)	9.7(0.38)	10.3(0.41)
8	1/4	-CW-ML8-PB4	38.7(1.52)	16.2(0.64)	16.0(0.63)	15.0(0.59)	6.4(0.25)	14.2(0.56)	13.7(0.54)
8	1/2	-CW-ML8-PB8	45.6(1.80)	16.2(0.64)	16.0(0.63)	22.0(0.87)	6.4(0.25)	19.1(0.75)	21.3(0.84)
10	1/4	-CW-ML10-PB4	40.9(1.60)	17.2(0.70)	19.0(0.75)	18.0(0.71)	7.5(0.30)	14.2(0.56)	13.7(0.54)
10	3/8	-CW-ML10-PB6	40.9(1.60)	17.2(0.70)	19.0(0.75)	18.0(0.71)	7.9(0.31)	14.2(0.56)	17.1(0.67)
10	1/2	-CW-ML10-PB8	46.5(1.80)	17.2(0.70)	19.0(0.75)	22.0(0.87)	7.9(0.31)	19.1(0.75)	21.3(0.84)
12	1/4	-CW-ML12-PB4	43.4(1.70)	22.8(0.90)	22.0(0.87)	22.0(0.87)	7.5(0.30)	14.2(0.56)	13.7(0.54)
12	3/8	-CW-ML12-PB6	43.4(1.70)	22.8(0.90)	22.0(0.87)	22.0(0.87)	9.5(0.37)	14.2(0.56)	17.1(0.67)
12	1/2	-CW-ML12-PB8	49.0(1.90)	22.8(0.90)	22.0(0.87)	22.0(0.87)	9.5(0.37)	19.1(0.75)	21.3(0.84)
14	3/8	-CW-ML14-PB6	44.1(1.70)	24.4(1.00)	25.0(0.98)	24.0(0.94)	10.7(0.42)	14.2(0.56)	17.1(0.67)
15	1/2	-CW-ML15-PB8	49.0(1.90)	24.4(1.00)	25.0(0.98)	24.0(0.94)	11.9(0.47)	19.1(0.75)	21.3(0.84)
16	1/2	-CW-ML16-PB8	49.0(1.90)	24.4(1.00)	25.0(0.98)	24.0(0.94)	12.7(0.50)	19.1(0.75)	21.3(0.84)
18	1/2	-CW-ML18-PB8	50.5(2.00)	24.4(1.00)	30.0(1.18)	27.0(1.06)	13.9(0.55)	19.1(0.75)	21.3(0.84)
30	1 1/4	-CW-ML30-PB20	77.2(3.00)	39.6(1.60)	50.0(1.97)	46.0(1.81)	26.2(1.03)	23.9(0.94)	42.2(1.66)
32	1 1/4	-CW-ML32-PB20	79.6(3.10)	42.0(1.70)	50.0(1.97)	46.0(1.81)	28.6(1.13)	23.9(0.94)	42.2(1.66)
38	1 1/2	-CW-ML38-PB24	91.6(3.60)	49.4(1.90)	60.0(2.36)	55.0(2.17)	33.7(1.33)	26.2(1.03)	48.3(1.9)

Weld Elbows



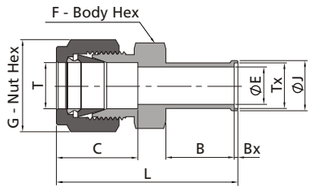
Fractional Tube										Tube Socket Weld
T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)								
		L	C	G	F	B	E	Lx	J	
1/8	-LW-FL2-TS2	0.66(16.8)	0.50(12.7)	0.44(11.1)	0.37(9.5)	0.10(2.5)	0.09(2.3)	0.63(16.0)	0.38(9.7)	
3/16	-LW-FL3-TS3	0.72(18.3)	0.54(13.7)	0.50(12.7)	0.44(11.1)	0.19(4.8)	0.13(3.3)	0.69(17.5)	0.44(11.2)	
1/4	-LW-FL4-TS4	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.28(7.1)	0.19(4.8)	0.77(19.6)	0.50(12.7)	
3/8	-LW-FL6-TS6	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.31(7.9)	0.28(7.1)	0.91(23.1)	0.62(15.7)	
1/2	-LW-FL8-TS8	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.38(9.7)	0.41(10.4)	1.02(25.9)	0.81(20.6)	
5/8	-LW-FL10-TS10	1.16(29.5)	0.96(24.4)	1.00(25.4)	1.06(27.0)	0.41(10.4)	0.50(12.7)	1.16(29.5)	0.94(23.9)	
3/4	-LW-FL12-TS12	1.57(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.44(11.2)	0.62(15.7)	1.17(29.7)	1.06(26.9)	
1	-LW-FL16-TS16	1.93(49.0)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.62(15.7)	0.88(22.4)	1.45(36.8)	1.38(35.1)	

Weld Elbows



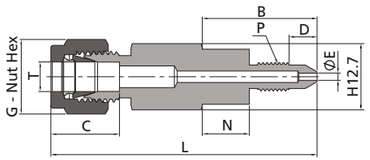
Fractional Tube										Pipe Butt Weld
T-Tube O.D. (in.)	Pipe Weld Size	Basic Ordering Number	Dimension, in. (mm)							
			L	C	G	F	B	E	Lx	J
1/8	1/8	-LW-FL2-PB2	0.92(23.4)	0.50(12.7)	0.44(11.1)	0.44(11.1)	0.38(9.7)	0.09(2.3)	0.72(18.3)	0.41(10.3)
3/16	1/8	-LW-FL3-PB2	1.01(25.7)	0.54(13.7)	0.50(12.7)	0.50(12.7)	0.38(9.7)	0.13(3.3)	0.74(18.8)	0.41(10.3)
1/4	1/8	-LW-FL4-PB2	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.38(9.7)	0.19(4.8)	0.74(18.8)	0.41(10.3)
1/4	1/4	-LW-FL4-PB4	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.56(14.2)	0.19(4.8)	0.92(23.4)	0.54(13.7)
3/8	1/4	-LW-FL6-PB4	1.20(30.5)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.56(14.2)	0.28(7.1)	1.00(25.4)	0.54(13.7)
1/2	3/8	-LW-FL8-PB6	1.37(34.8)	0.90(22.9)	0.87(22.2)	0.75(19.1)	0.56(14.2)	0.41(10.4)	1.13(28.8)	0.67(17.1)
1/2	1/2	-LW-FL8-PB8	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.75(19.1)	0.41(10.4)	1.30(33.0)	0.84(21.3)
5/8	1/2	-LW-FL10-PB8	1.57(36.3)	0.96(24.4)	1.00(25.4)	0.94(23.8)	0.75(19.1)	0.50(12.7)	1.38(35.1)	0.84(21.3)
3/4	3/4	-LW-FL12-PB12	1.94(39.9)	0.96(24.4)	1.13(28.6)	1.06(27.0)	0.75(19.1)	0.62(15.7)	1.45(36.8)	1.05(26.7)
1	3/4	-LW-FL16-PB12	1.94(49.3)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.75(19.1)	0.88(22.4)	1.65(41.9)	1.05(26.7)
1	1	-LW-FL16-PB16	1.94(49.3)	1.23(31.2)	1.50(38.1)	1.37(34.9)	0.81(20.6)	0.88(22.4)	1.84(46.7)	1.31(33.4)

Automatic Tube Weld Connectors



Fractional Tube										Automatic Tube Weld
T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)							
			L	C	G	F	B	E	Bx	J
1/4	1/4	-CW-FL4-TB4A	1.74(44.2)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.75(19.1)	0.18(4.5)	0.02(0.5)	0.29(7.4)
3/8	3/8	-CW-FL6-TB6A	1.84(46.7)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.75(19.1)	0.31(7.8)	0.03(0.8)	0.41(10.4)
1/2	1/2	-CW-FL8-TB8A	1.99(50.5)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.75(19.1)	0.41(10.4)	0.04(1.0)	0.55(14.0)

Calibration Fittings



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

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)							Transmitter Type
			L	B	C	D	E	G	N	
1/4	1/4-28	-FC-FL4-1428	1.69(42.9)	0.78(19.8)	0.60(15.2)	0.43(10.9)	0.06(1.5)	0.56(14.3)	-	Honeywell
1/4	5/16-24	-FC-FL4-51624	2.32(58.9)	1.41(35.8)	0.60(15.2)	0.40(10.2)	0.06(1.5)	0.56(14.3)	0.41(10.4)	Rosemount/Foxboro

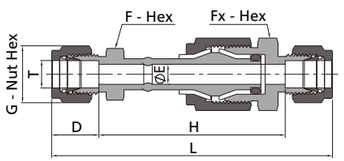
Dielectric Fittings

Materials

Component	Material
Insulator	Polyamide-imide
O-Ring	70 Durometer FKM
Backup Ring	Virgin PTFE

Technical Date

◎ Electrical Resistance of Insulators at 70°F (20°C): $10\times10^{6}\Omega$ at 10 V.
◎ Maximum working pressure: 5000 psig (344 bar) at 70°F (21°C).
◎ Temperature range: -40°F (-40°C) to 200°F (93°C).

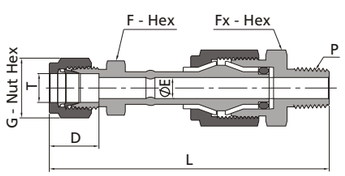


Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)						
		L	D	G	H	E	F	Fx
1/4	-DF-FL4	3.77(95.7)	0.60(15.2)	0.56(14.3)	2.57(65.3)	0.19(4.8)	0.50(12.7)	0.81(20.6)
3/8	-DF-FL6	3.92(99.6)	0.66(16.8)	0.69(17.5)	2.59(65.8)	0.28(7.1)	0.63(15.9)	0.81(20.6)
1/2	-DF-FL8	4.17(106.0)	0.90(22.9)	0.87(22.2)	2.37(60.2)	0.28(7.1)	0.81(20.6)	0.81(20.6)

Metric Tube

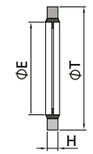
T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)						
		L	D	G	H	E	F	Fx
12	-DF-ML12	107.0(4.21)	22.8(0.90)	22.0(0.87)	61.7(2.43)	7.1(0.28)	22.0(0.87)	22.0(0.87)



Fractional Tube — **NPT Thread**

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)					
			L	D	G	E	F	Fx
3/8	1/4	-DF-FL6-NS4	3.73(94.7)	0.66(16.8)	0.69(17.5)	0.28(7.1)	0.63(15.9)	0.87(22.2)

RS Gaskets



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

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

Metric Thread Size	Basic Ordering Number	Dimension, mm (in.)		
		T	E	H
M8 x 1	-RS-M8	13.0(0.51)	8.7(0.34)	1.0(0.04)
M10 x 1	-RS-M10	16.0(0.63)	10.7(0.42)	1.5(0.06)
M12 x 1.5	-RS-M12	18.0(0.63)	12.7(0.42)	
M14 x 1.5	-RS-M14	22.0(0.71)	14.7(0.50)	
M16 x 1.5	-RS-M16	24.0(0.87)	16.7(0.66)	
M18 x 1.5	-RS-M18	26.0(0.94)	18.7(0.74)	
M20 x 1.5	-RS-M20	28.0(1.02)	20.7(0.81)	
M22 x 1.5	-RS-M22	30.0(1.10)	22.7(0.89)	2.0(0.08)
M24 x 1.5	-RS-M24	32.0(1.20)	24.7(1.00)	
M27 x 2	-RS-M27	36.0(1.30)	27.2(1.10)	
M30 x 2	-RS-M30	39.0(1.40)	30.7(1.20)	
M33 x 2	-RS-M33	42.0(1.50)	33.7(1.30)	
M36 x 2	-RS-M36	48.0(1.70)	37.0(1.50)	2.5(0.10)
M39 x 2	-RS-M39	51.0(1.90)	40.0(1.60)	
M42 x 2	-RS-M42	53.0(2.00)	42.7(1.70)	
M45 x 2	-RS-M45	57.0(2.10)	46.0(1.80)	3.0(0.12)
M48 x 2	-RS-M48	59.0(2.20)	48.7(1.90)	

Ordering Information

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

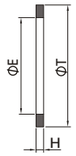
Ring		Designator
Outer	Inner	
Stainless Steel	FKM	SSF
Carbon Steel	FKM	CSF
	Buna-N	CSB

Example:

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

RS gasket can be used with RS fitting only.

RP Gaskets



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

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

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

RG Gaskets

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

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

RG Gaskets

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

RJ Gaskets

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

ISO Parallel Thread Size	Basic Ordering Number	Dimension, in. (mm)		
		T	E	H
1/4	-RJ-4	0.43(10.9)	0.22(5.6)	0.04(1.0)
3/8	-RJ-6	0.55(13.9)	0.22(5.6)	0.04(1.0)
1/2	-RJ-8	0.70(17.8)	0.22(5.6)	0.04(1.0)

Ordering Information

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

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

Vulcanized Fibre and PTFE cannot be used for RP gasket.

Example:

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

O-rings

O-rings for Fittings with SAE/MS Straight Threads

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

O-rings for Fittings with O-Seal Pipe Threads

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

O-rings for Adjustable Fittings with ISO Parallel Threads

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

O-rings for Fittings with O-Seal Straight Threads

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

O-rings for Fittings with Metric Threads

SAE/MS Thread Size	Ordering Number	Material
M14 x 1.5	BN9-M14	90 Durometer NBR
M20 x 1.5	BN9-M20	

Part Number Description

SS – CM – ML12 – NS8 – □ – □ – □

Material

SS	316 SS
S4	304 SS
S1	321 SS
904L	904L SS
TI	Titanium
D5	Duplex 2205
D7	Duplex 2507
A20	Alloy 20
M	Alloy 400
INC	Alloy 600
A65	Alloy 625
HC	Alloy C-276
CS	Carbon Steel
AL	Aluminum
B	Brass
PA	Nylon
T	PTFE

Fitting Type

CM	Male Connector
BCM	Bulkhead Male Connector
TCM	Thermocouple Connector
CF	Female Connector
BCF	Bulkhead Female Connector
U	Union
BU	Bulkhead Union
LM	Male Elbow
VM	45° Male Elbow
VP	45° Adjustable Male Elbow
LP	Positionable Male Elbow
LF	Female Elbow
LU	Union Elbow
TMT	Male Run Tee
TTM	Male Branch Tee
TPT	Positionable Male Run Tee
TTP	Positionable Male Branch Tee
TFT	Female Run Tee
TTF	Female Branch Tee
TTT	Union Tee
C	Union Cross
TC	Cap
TP	Plug
R	Reducer
P	Port Connector
AM	Male Adapter
AF	Female Adapter
CW	Weld Connector
LW	Weld Elbow
DF	Dielectric Fitting

P1 Type

ML	Metric Ferrule
FL	Fractional Ferrule
MT	Metric Tube
FT	Fractional Tube

P1 Size

1	1/16"
2	1/8" or 2 mm
3	3/16" or 3 mm
4	1/4" or 4 mm
5	5/16"
6	3/8" or 6 mm
8	1/2" or 8 mm
10	5/8" or 10 mm
12	3/4" or 12 mm
14	7/8" or 14 mm
15	15 mm
16	1" or 16 mm
18	1 1/8" or 18 mm
20	1 1/4" or 20 mm
22	22 mm
24	1 1/2" or 24 mm
25	25 mm
28	28 mm
30	30 mm
32	2" or 32 mm
38	38 mm
50	50 mm

P2 Type

Except the same as the P1, the other type follows:

NS	NPT Thread
ONS	O-ring with NPT Thread
RT	ISO Tapered Thread
RS	ISO Parallel Thread
RP	ISO Parallel Thread
RG	ISO Parallel Thread (Gauge)
RJ	ISO Parallel Thread (Japanese Gauge)
PP	Positionable, ISO Parallel Thread
ST	SAE/MS Straight Thread
OST	O-ring with SAE/MS Straight Thread
AN	37° Flare
MS	Male Metric Thread
TS	Fractional Tube Socket Weld
PB	Pipe Butt Weld

P2 Size

Except the same as the P1, the other size follows:

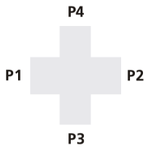
5	M5 x 0.8 or 5/16-24
6	M6 x 1 or 3/8-24
7	7/16-20
8	M8 x 1 or 1/2-20
9	9/16-18
10	M10 x 1
12	M12 x 1.5 or 3/4-16
14	M14 x 1.5 or 7/8-14
16	M16 x 1.5
17	1 1/16-12
18	M18 x 1.5
19	1 3/16-12
20	M20 x 1.5
21	1 5/16-12
22	M22 x 1.5
24	M24 x 1.5
26	1 5/8-12
27	M27 x 2
30	1 7/8-12

P3 and P4

Specify in the same way as the P2

Cleaning and Packaging

	FC-01
F2	FC-02



Note: "Part Number Description" is used for composition rules of product model, Not suitable for specific product part number selection, not random combinations.

P1, P2, P3 and P4 shall be described in the following orders:

- Ferrule - Tube - NPT Thread - ISO Tapered Thread - ISO Parallel Thread - SAE/MS Straight Thread - 37° Flare - Pipe Butt Weld - Fractional Tube Socket Weld - Others
- Describe in descending order as per size if the end connection types are the same
- Describe the end of P1 if all end connections are the same

Cleaning and Packaging:

FC-01: Standard cleaning and packaging for general industrial procedures

FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement as stated in ASTM G93 Level C

37° Flared Tube Fittings

Contents

Tube cap assembly - TCA A-90

Nuts - N A-90

Male Connectors - CM A-90

Female Connectors - CF A-92

Unions - U A-93

Large Hex Unions - HU A-93

Reducing Adapters - RA A-93

Sleeves - SL A-93

Bulkhead Unions - BU A-94

Bulkhead Lock Nuts - BN A-94

Tube Caps - TC A-94

Tube Plugs - TP A-94

Male Elbows - LM A-95

Adjustable Male Elbows - LP A-95

45° Male Elbows - VM A-96

Female Elbows - LF A-96

Union Elbows - LU A-97

Male Branch Tees - TTM A-98

Adjustable Male Branch Tees - TTP A-98

Male Run Tees - TMT A-99

Female Branch Tees - TTF A-99

Female Run Tees - TFT A-100

Union Tees - TTT A-100

Union Crosses - C A-101

Features

- Fittings are designed and manufactured in compliance with SAE J514.
- The hardened threads with smooth surface finish avoid galling and help to extend the fitting service life.
- Radius junction design with elbows provides smooth flow path.
- Stainless steel nut threads are silver-plated to minimize the friction with the body threads.
- Every fitting is stamped with size, material and heat code.
- Fittings are easy to disconnect and retighten.
- All male threads are protected by plastic caps.

Technical Date

- Size range from 1/8" to 2" and 3 to 50 mm.
- Thread Specification:

Thread Type	Reference Specification
NPT	ASME B1.20.1, SAE AS71051
Unified (SAE)	ASME B1.1, SAE J475

- The working temperature of 37° flare tube fittings is the same as that of 6 series tube fittings.
- Working Pressure:

Nom. SAE Dash Size	Nom. Tube O.D. Size (in.)	37° Flare St. Thread	Nom. Pipe Size	SAE St. Thread Union and Bulkhead (psig/bar)	Fittings with Pipe Threads (psig/bar)
2	1/8	5/16-24	1/8	5000 (345)	5000 (345)
3	3/16	3/8-24	1/8	5000 (345)	5000 (345)
4	1/4	7/16-20	1/8	5000 (345)	5000 (345)
5	5/16	1/2-20	1/8	5000 (345)	5000 (345)
6	3/8	9/16-18	1/4	5000 (345)	4000 (276)
8	1/2	3/4-16	3/8	4500 (310)	3000 (207)
10	5/8	7/8-14	1/2	3500 (241)	3000 (207)
12	3/4	1 1/16-12	3/4	3500 (241)	2500 (172)
14	7/8	1 3/16-12	3/4	3000 (207)	2500 (172)
16	1	1 5/16-12	1	3000 (207)	2000 (138)
20	1 1/4	1 5/8-12	1 1/4	2500 (172)	1150 (79)
24	1 1/2	1 7/8-12	1 1/2	2000 (138)	1000 (69)
32	2	2 1/2-12	2	1500 (103)	1000 (69)

1. Working pressures given are for carbon steel only. Contact the authorized representative for working pressure of other materials.
2. Four times safety factor applied for above working pressure.

Materials

Material	Bar Stock	Forging	Designator
316 Stainless Steel	ASTM A276 ASME SA479, EN 1.4401	ASTM A182, ASME SA182, EN 1.4401	SS
Aluminum	ASTM B211	ASTM B247	AL
Brass	ASTM B16/B453	ASTM B283	B
Carbon Steel	ASTM A108	ASTM A105	CS

Ordering Information

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

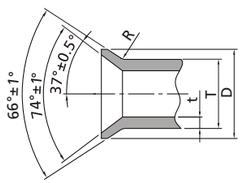
For example:

1. Male connector with 1/4" tube, 1/4 NPT thread and 316 stainless steel material, the complete ordering number is **SS-CM-AN4-NS4.**
2. Sleeve with 6 mm tube and 316 stainless steel material, the complete ordering number is **SS-SL-AN6M.**

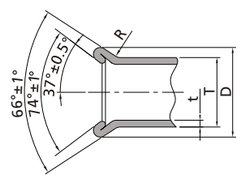
Flaring Operation

Tube flaring is carried out in two different ways, single wall flare on thick wall tubes and double wall flare on thin wall tubes to reinforce same. Refer to below table:

Thick Tubes



Thin Tubes



Fractional Tubing

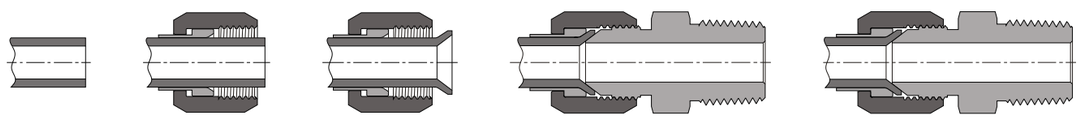
T-Tube O.D. in	Dimension		
	D (mm)	t (in.)	R (mm)
1/4	8.6-9.1	0.020-0.065	0.8
5/16	10.2-10.9	0.020-0.065	0.8
3/8	11.6-12.4	0.020-0.065	1.0
1/2	16.0-16.7	0.028-0.083	1.5
5/8	19.3-20.0	0.035-0.095	1.5
3/4	23.3-24.1	0.035-0.109	2.0
7/8	26.4-27.1	0.035-0.109	2.0
1	29.7-30.4	0.035-0.120	2.3
1 1/4	37.5-38.3	0.049-0.120	2.3
1 1/2	43.2-43.9	0.049-0.120	2.8
2	59.2-59.9	0.065-0.134	2.8

Metric Tubing

T-Tube O.D. (mm)	Dimension		
	D (mm)	t (mm)	R (mm)
6	8.4-9.2	0.5-1.5	0.8
8	10.1-10.8	0.5-1.5	0.8
10	12.0-12.5	0.5-1.5	1.0
12	16.0-16.7	1.0-2.0	1.5
14	18.8-19.5	1.0-2.5	1.5
15	19.4-20.0	1.0-2.5	1.5
16	19.4-20.0	1.0-2.5	1.5
18	23.5-24.0	1.0-3.0	2.0
20	24.0-24.5	1.0-3.0	2.0
22	26.2-27.2	1.0-3.0	2.0
25	29.5-30.2	1.0-3.0	2.3
30	37.4-38.0	1.5-3.0	2.3
32	37.6-38.3	1.5-3.0	2.3
38	43.5-44.5	1.5-3.0	2.8
50	58.9-59.6	1.5-3.5	2.8

Installation Instructions

1. Cut the tube to the proper length.
2. Insert the tube into the nut and sleeve.
3. Form the flare to 37° dimension according to SAE J533. See flaring operation.
4. Finger-tighten the nut.
5. Tighten the nut 1/4 turn with wrench while holding steady the body of the fitting.

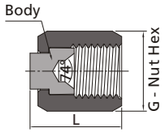


Step 1 Step 2 Step 3 Step 4 Step 5

Cautions:

◎ Do not loosen or tighten fittings when system is pressurized.
◎ Please use proper thread sealants on tapered pipe threads.

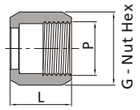
Tube cap assembly



SAE 070112A

T-Tube O.D.		Basic Ordering Number	Dimension, in. (mm)	
in.	mm		L	G
1/8	3	-TCA-AN2	0.60 (15.3)	0.37 (9.5)
3/16	4	-TCA-AN3	0.66 (16.8)	0.44 (11.1)
1/4	6	-TCA-AN4	0.67 (17.1)	0.56 (14.3)
5/16	8	-TCA-AN5	0.77 (19.5)	0.63 (15.9)
3/8	10	-TCA-AN6	0.81 (20.5)	0.69 (17.5)
1/2	12	-TCA-AN8	0.94 (23.9)	0.87 (22.2)
5/8	16	-TCA-AN10	1.07 (27.1)	1.00 (25.4)
3/4	10	-TCA-AN12	1.24 (31.6)	1.25 (31.8)
7/8	22	-TCA-AN14	1.26 (32.0)	1.37 (34.9)
1	25	-TCA-AN16	1.29 (32.8)	1.50 (38.1)
1 1/4	32	-TCA-AN20	1.39 (35.4)	2.00 (50.8)
1 1/2	38	-TCA-AN24	1.70 (43.2)	2.25 (57.2)
2	50	-TCA-AN32	2.07 (52.6)	2.87 (73.0)

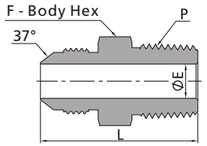
Nuts



SAE 070110

Tube O.D.		P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)	
in.	mm			L	G
1/8	3	5/16-24	-N-AN2	0.55 (14.0)	0.37 (9.5)
3/16	4	3/8-24	-N-AN3	0.61 (15.5)	0.44 (11.1)
1/4	6	7/16-20	-N-AN4	0.62 (15.8)	0.56 (14.3)
5/16	8	1/2-20	-N-AN5	0.68 (17.3)	0.63 (15.9)
3/8	10	9/16-18	-N-AN6	0.73 (18.5)	0.69 (17.5)
1/2	12	3/4-16	-N-AN8	0.85 (21.6)	0.87 (22.2)
5/8	16	7/8-14	-N-AN10	0.98 (24.9)	1.00 (25.4)
3/4	18	1 1/16-12	-N-AN12	1.03 (26.2)	1.25 (31.8)
7/8	22	1 3/16-12	-N-AN14	1.09 (27.7)	1.37 (34.9)
1	25	1 5/16-12	-N-AN16	1.13 (28.7)	1.50 (38.1)
1 1/4	32	1 5/8-12	-N-AN20	1.23 (31.2)	2.00 (50.8)
1 1/2	38	1 7/8-12	-N-AN24	1.42 (36.1)	2.25 (57.2)
2	50	2 1/2-12	-N-AN32	1.75 (44.5)	2.87 (73.0)

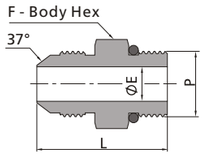
Male Connectors



SAE 070102

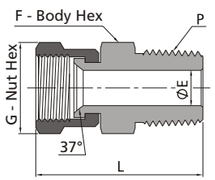
Tube O.D.		P-NPT Size	Basic Ordering Number	Dimension, in. (mm)		
in.	mm			L	E	F
1/8	3	1/8	-CM-AN2-NS2	1.11 (28.2)	0.06 (1.6)	0.44 (11.1)
3/16	4	1/8	-CM-AN3-NS2	1.14 (29.0)	0.13 (3.2)	0.44 (11.1)
1/4	6	1/8	-CM-AN4-NS2	1.22 (31.0)	0.17 (4.4)	0.50 (12.7)
1/4	6	1/4	-CM-AN4-NS4	1.42 (36.0)	0.17 (4.4)	0.56 (14.3)
1/4	6	1/2	-CM-AN4-NS8	1.68 (42.7)	0.17 (4.4)	0.87 (22.2)
5/16	8	1/8	-CM-AN5-NS2	1.22 (31.0)	0.19 (4.8)	0.56 (14.3)
5/16	8	1/4	-CM-AN5-NS4	1.42 (36.1)	0.24 (6.0)	0.56 (14.3)
3/8	10	1/8	-CM-AN6-NS2	1.25 (31.8)	0.19 (4.8)	0.63 (15.9)
3/8	10	1/4	-CM-AN6-NS4	1.43 (36.3)	0.28 (7.1)	0.63 (15.9)
3/8	10	3/8	-CM-AN6-NS6	1.43 (36.3)	0.30 (7.5)	0.75 (19.1)
3/8	10	1/2	-CM-AN6-NS8	1.67 (42.5)	0.30 (7.5)	0.87 (22.2)
1/2	12	1/4	-CM-AN8-NS4	1.53 (38.9)	0.28 (7.1)	0.81 (20.6)
1/2	12	3/8	-CM-AN8-NS6	1.53 (38.9)	0.39 (9.9)	0.81 (20.6)
1/2	12	1/2	-CM-AN8-NS8	1.79 (45.5)	0.39 (9.9)	0.87 (22.2)
1/2	12	3/4	-CM-AN8-NS12	1.85 (47.0)	0.39 (9.9)	1.13 (28.6)
5/8	16	3/8	-CM-AN10-NS6	1.70 (43.1)	0.38 (9.6)	0.94 (23.8)
5/8	16	1/2	-CM-AN10-NS8	1.89 (48.0)	0.48 (12.3)	0.94 (23.8)
5/8	16	3/4	-CM-AN10-NS12	1.95 (49.5)	0.48 (12.3)	1.13 (28.6)
3/4	18	3/4	-CM-AN12-NS12	2.06 (52.3)	0.61 (15.5)	1.13 (28.6)
3/4	18	1	-CM-AN12-NS16	2.25 (57.1)	0.61 (15.5)	1.37 (34.9)
7/8	22	3/4	-CM-AN14-NS12	2.09 (53.1)	0.62 (15.7)	1.25 (31.8)
1	25	3/4	-CM-AN16-NS12	2.11 (53.5)	0.62 (15.7)	1.37 (34.9)
1	25	1	-CM-AN16-NS16	2.30 (58.4)	0.85 (21.5)	1.37 (34.9)
1 1/4	32	1	-CM-AN20-NS16	2.42 (61.5)	0.88 (22.4)	1.69 (42.9)
1 1/4	32	1 1/4	-CM-AN20-NS20	2.45 (62.2)	1.08 (27.5)	1.69 (42.9)
1 1/2	38	1 1/4	-CM-AN24-NS20	2.68 (68.1)	1.13 (28.6)	2.00 (50.8)
1 1/2	38	1 1/2	-CM-AN24-NS24	2.68 (68.1)	1.30 (33.0)	2.00 (50.8)
2	50	2	-CM-AN32-NS32	3.11 (79.0)	1.77 (45.0)	2.63 (66.7)

Male Connectors



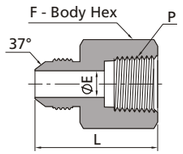
SAE 070120

Tube O.D. in.	Tube O.D. mm	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm) L	E	F
1/8	3	5/16-24	-CM-AN2-ST5	1.06 (26.9)	0.06 (1.6)	0.44 (11.1)
3/16	4	3/8-24	-CM-AN3-ST6	1.10 (27.9)	0.13 (3.2)	0.50 (12.7)
1/4	6	7/16-20	-CM-AN4-ST7	1.23 (31.2)	0.17 (4.4)	0.56 (14.3)
1/4	6	1/2-20	-CM-AN4-ST8	1.23 (31.2)	0.17 (4.4)	0.63 (15.9)
1/4	6	9/16-18	-CM-AN4-ST9	1.30 (33.0)	0.17 (4.4)	0.69 (17.5)
1/4	6	3/4-16	-CM-AN4-ST12	1.37 (34.8)	0.17 (4.4)	0.87 (22.2)
5/16	8	1/2-20	-CM-AN5-ST8	1.23 (31.2)	0.24 (6.0)	0.63 (15.9)
3/8	10	9/16-18	-CM-AN6-ST9	1.30 (33.0)	0.30 (7.5)	0.69 (17.5)
3/8	10	3/4-16	-CM-AN6-ST12	1.38 (35.1)	0.30 (7.5)	0.87 (22.2)
3/8	10	7/8-14	-CM-AN6-ST14	1.50 (38.1)	0.30 (7.5)	1.00 (25.4)
1/2	12	9/16-18	-CM-AN8-ST9	1.44 (36.6)	0.30 (7.5)	0.81 (20.6)
1/2	12	3/4-16	-CM-AN8-ST12	1.48 (37.6)	0.39 (9.9)	0.87 (22.2)
1/2	12	7/8-14	-CM-AN8-ST14	1.60 (40.6)	0.39 (9.9)	1.00 (25.4)
1/2	12	1 1/16-12	-CM-AN8-ST17	1.76 (44.7)	0.39 (9.9)	1.25 (31.8)
5/8	16	3/4-16	-CM-AN10-ST12	1.60 (40.6)	0.42 (10.7)	0.94 (23.8)
5/8	16	7/8-14	-CM-AN10-ST14	1.70 (43.2)	0.48 (12.3)	1.00 (25.4)
5/8	16	1 1/16-12	-CM-AN10-ST17	1.86 (47.2)	0.48 (12.3)	1.25 (31.8)
3/4	18	3/4-16	-CM-AN12-ST12	1.78 (45.2)	0.42 (10.7)	1.13 (28.6)
3/4	18	7/8-14	-CM-AN12-ST14	1.83 (46.4)	0.50 (12.7)	1.13 (28.6)
3/4	18	1 1/16-12	-CM-AN12-ST17	1.97 (50.0)	0.61 (15.5)	1.25 (31.8)
3/4	18	1 5/16-12	-CM-AN12-ST21	2.00 (50.8)	0.61 (15.5)	1.50 (38.1)
7/8	22	1 3/16-12	-CM-AN14-ST19	1.99 (50.5)	0.72 (18.3)	1.37 (34.9)
7/8	22	1 5/16-12	-CM-AN14-ST21	2.02 (51.3)	0.72 (18.3)	1.50 (38.1)
1	25	1 1/16-12	-CM-AN16-ST17	2.01 (51.1)	0.66 (16.7)	1.37 (34.9)
1	25	1 3/16-12	-CM-AN16-ST19	2.04 (51.8)	0.72 (18.3)	1.37 (34.9)
1	25	1 5/16-12	-CM-AN16-ST21	2.04 (51.8)	0.85 (21.5)	1.50 (38.1)



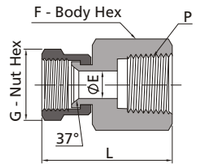
Tube O.D. in.	Tube O.D. mm	P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	E	G	F
1/8	3	1/8	-CM-AS2-NS2	1.18 (30.0)	0.06 (1.6)	0.44 (11.1)	0.44 (11.1)
3/16	4	1/8	-CM-AS3-NS2	1.26 (32.0)	0.13 (3.2)	0.50 (12.7)	0.44 (11.1)
1/4	6	1/8	-CM-AS4-NS2	1.35 (34.2)	0.17 (4.4)	0.56 (14.3)	0.50 (12.7)
5/16	8	1/8	-CM-AS5-NS2	1.38 (35.0)	0.24 (6.0)	0.63 (15.9)	0.56 (14.3)
3/8	10	1/4	-CM-AS6-NS4	1.58 (40.2)	0.30 (7.5)	0.69 (17.5)	0.63 (15.9)
1/2	12	3/8	-CM-AS8-NS6	1.68 (42.7)	0.39 (9.9)	0.87 (22.2)	0.81 (20.6)
5/8	16	1/2	-CM-AS10-NS8	2.02 (51.3)	0.48 (12.3)	1.00 (25.4)	0.94 (23.8)
3/4	18	3/4	-CM-AS12-NS12	2.15 (54.5)	0.61 (15.5)	1.25 (31.8)	1.13 (28.6)
7/8	22	3/4	-CM-AS14-NS12	2.20 (56.0)	0.71 (18.0)	1.37 (34.9)	1.25 (31.8)
1	25	1	-CM-AS16-NS16	2.51 (63.7)	0.85 (21.5)	1.50 (38.1)	1.37 (34.9)
1 1/4	32	1 1/4	-CM-AS20-NS20	2.71 (68.9)	1.08 (27.5)	2.00 (50.8)	1.69 (42.9)
1 1/2	38	1 1/2	-CM-AS24-NS24	3.06 (77.6)	1.30 (33.0)	2.25 (57.2)	2.00 (50.8)
2	50	2	-CM-AS32-NS32	3.66 (92.9)	1.77 (45.0)	2.87 (73.0)	2.63 (66.7)

Female Connectors



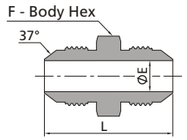
SAE 070103

Tube O.D. in.	Tube O.D. mm	P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	E	F
1/8	3	1/8	-CF-AN2-NS2	1.12 (28.4)	0.06 (1.6)	0.56 (14.3)
3/16	4	1/8	-CF-AN3-NS2	1.13 (28.7)	0.13 (3.2)	0.56 (14.3)
1/4	6	1/8	-CF-AN4-NS2	1.19 (30.2)	0.17 (4.4)	0.56 (14.3)
1/4	6	1/4	-CF-AN4-NS4	1.39 (35.3)	0.17 (4.4)	0.75 (19.1)
5/16	8	1/8	-CF-AN5-NS2	1.17 (29.7)	0.24 (6.0)	0.56 (14.3)
5/16	8	1/4	-CF-AN5-NS4	1.39 (35.3)	0.24 (6.0)	0.75 (19.1)
3/8	10	1/4	-CF-AN6-NS4	1.40 (35.6)	0.30 (7.5)	0.75 (19.1)
3/8	10	3/8	-CF-AN6-NS6	1.46 (37.1)	0.30 (7.5)	0.87 (22.2)
1/2	12	3/8	-CF-AN8-NS6	1.56 (39.6)	0.39 (9.9)	0.87 (22.2)
1/2	12	1/2	-CF-AN8-NS8	1.80 (45.6)	0.39 (9.9)	1.13 (28.6)
5/8	16	1/2	-CF-AN10-NS8	1.89 (48.0)	0.48 (12.3)	1.13 (28.6)
3/4	18	1/2	-CF-AN12-NS8	2.05 (52.1)	0.61 (15.5)	1.13 (28.6)
3/4	18	3/4	-CF-AN12-NS12	2.06 (52.3)	0.61 (15.5)	1.37 (34.9)
7/8	22	3/4	-CF-AN14-NS12	2.06 (52.3)	0.72 (18.3)	1.37 (34.9)
1	25	1	-CF-AN16-NS16	2.35 (59.7)	0.85 (21.5)	1.63 (41.3)
1 1/4	32	1 1/4	-CF-AN20-NS20	2.49 (63.2)	1.08 (27.5)	2.00 (50.8)
2	38	1 1/2	-CF-AN24-NS24	2.62 (66.5)	1.30 (33.0)	2.37 (60.3)
2	50	2	-CF-AN32-NS32	2.97 (75.4)	1.77 (45.0)	2.87 (73.0)



Tube O.D. in.	Tube O.D. mm	P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	E	G	F
1/8	3	1/8	-CF-AS2-NS2	1.42 (36.1)	0.06 (1.6)	0.44 (11.1)	0.56 (14.3)
3/16	4	1/8	-CF-AS3-NS2	1.47 (37.3)	0.13 (3.2)	0.50 (12.7)	0.56 (14.3)
1/4	6	1/8	-CF-AS4-NS2	1.56 (39.7)	0.17 (4.4)	0.56 (14.3)	0.56 (14.3)
5/16	8	1/8	-CF-AS5-NS2	1.59 (40.5)	0.24 (6.0)	0.63 (15.9)	0.56 (14.3)
3/8	10	1/4	-CF-AS6-NS4	1.80 (45.8)	0.30 (7.5)	0.69 (17.5)	0.75 (19.1)
1/2	12	3/8	-CF-AS8-NS6	1.85 (47.0)	0.39 (9.9)	0.87 (22.2)	0.87 (22.2)
5/8	16	1/2	-CF-AS10-NS8	2.03 (51.6)	0.48 (12.3)	1.00 (25.4)	1.13 (28.6)
3/4	18	3/4	-CF-AS12-NS12	2.62 (66.6)	0.61 (15.5)	1.25 (31.8)	1.37 (34.9)
7/8	22	3/4	-CF-AS14-NS12	2.67 (67.8)	0.71 (18.0)	1.37 (34.9)	1.37 (34.9)
1	25	1	-CF-AS16-NS16	2.89 (73.5)	0.85 (21.5)	1.50 (38.1)	1.63 (41.3)
1 1/4	32	1 1/4	-CF-AS20-NS20	3.07 (78.1)	1.08 (27.5)	2.00 (50.8)	2.00 (50.8)
1 1/2	38	1 1/2	-CF-AS24-NS24	3.41 (86.7)	1.30 (33.0)	2.37 (60.3)	2.37 (60.3)
2	50	2	-CF-AS32-NS32	3.52 (89.3)	1.77 (45.0)	2.87 (73.0)	2.63 (66.7)

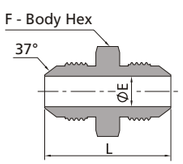
Unions



SAE 070101

Tube O.D. in.	Tube O.D. mm	Basic Ordering Number	Dimension, in. (mm) L	E	F
1/8	3	-U-AN2	1.17 (29.7)	0.06 (1.6)	0.44 (11.1)
3/16	4	-U-AN3	1.23 (31.2)	0.13 (3.2)	0.44 (11.1)
1/4	6	-U-AN4	1.37 (34.8)	0.17 (4.4)	0.50 (12.7)
5/16	8	-U-AN5	1.37 (34.8)	0.24 (6.0)	0.56 (14.3)
3/8	10	-U-AN6	1.41 (35.8)	0.30 (7.5)	0.63 (15.9)
1/2	12	-U-AN8	1.62 (41.1)	0.39 (9.9)	0.81 (20.6)
5/8	16	-U-AN10	1.88 (47.8)	0.48 (12.3)	0.94 (23.8)
3/4	18	-U-AN12	2.16 (54.9)	0.61 (15.5)	1.13 (28.6)
7/8	22	-U-AN14	2.21 (56.1)	0.72 (18.3)	1.25 (31.8)
1	25	-U-AN16	2.25 (57.2)	0.85 (21.5)	1.37 (34.9)
1 1/4	32	-U-AN20	2.43 (61.7)	1.08 (27.5)	1.69 (42.9)
1 1/2	38	-U-AN24	2.75 (69.8)	1.30 (33.0)	2.00 (50.8)
2	50	-U-AN32	3.40 (86.4)	1.77 (45.0)	2.63 (66.7)

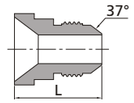
Large Hex Unions



SAE 070119

Tube O.D. in.	Tube O.D. mm	Basic Ordering Number	Dimension, in. (mm) L	E	F
1/8	3	-HU-AN2	1.17 (29.7)	0.06 (1.6)	0.56 (14.3)
3/16	4	-HU-AN3	1.23 (31.2)	0.13 (3.2)	0.63 (15.9)
1/4	6	-HU-AN4	1.37 (34.8)	0.17 (4.4)	0.69 (17.5)
5/16	8	-HU-AN5	1.37 (34.8)	0.24 (6.0)	0.75 (19.1)
3/8	10	-HU-AN6	1.41 (35.8)	0.30 (7.5)	0.81 (20.6)
1/2	12	-HU-AN8	1.62 (41.1)	0.39 (9.9)	1.00 (25.4)
5/8	16	-HU-AN10	1.88 (47.8)	0.48 (12.3)	1.13 (28.6)
3/4	18	-HU-AN12	2.16 (54.9)	0.61 (15.5)	1.37 (34.9)
7/8	22	-HU-AN14	2.21 (56.1)	0.72 (18.3)	1.50 (38.1)
1	25	-HU-AN16	2.25 (57.2)	0.85 (21.5)	1.63 (41.3)
1 1/4	32	-HU-AN20	2.43 (61.7)	1.08 (27.5)	1.87 (47.6)
1 1/2	38	-HU-AN24	2.75 (69.8)	1.30 (33.0)	2.13 (54.0)
2	50	-HU-AN32	3.40 (86.4)	1.77 (45.0)	2.63 (69.7)

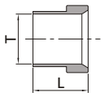
Reducing Adapters



SAE 070123

Tube O.D. in.-mm	Tube O.D. in.-mm	Basic Ordering Number	L in.(mm)
3/8-10	1/4-6	-RA-AN6-AN4	0.97 (24.6)
1/2-12	1/4-6	-RA-AN8-AN4	1.00 (25.4)
1/2-12	3/8-10	-RA-AN8-AN6	1.00 (25.4)
5/8-16	1/4-6	-RA-AN10-AN4	1.03 (26.2)
5/8-16	3/8-10	-RA-AN10-AN6	1.03 (26.2)
3/4-18	1/4-6	-RA-AN12-AN4	1.09 (27.7)
3/4-18	3/8-10	-RA-AN12-AN6	1.09 (27.7)
3/4-18	1/2-12	-RA-AN12-AN8	1.19 (30.2)
7/8-22	3/8-10	-RA-AN14-AN6	1.13 (28.7)
7/8-22	5/8-16	-RA-AN14-AN10	1.33 (33.7)
1-25	1/4-6	-RA-AN16-AN4	1.22 (31.0)
1-25	3/8-10	-RA-AN16-AN6	1.22 (31.0)
1-25	1/2-12	-RA-AN16-AN8	1.27 (32.3)
1-25	5/8-16	-RA-AN16-AN10	1.38 (35.1)
1-25	3/4-18	-RA-AN16-AN12	1.47 (37.3)
1 1/4-32	3/4-18	-RA-AN20-AN12	1.53 (38.8)
1 1/4-32	1-25	-RA-AN20-AN16	1.59 (40.3)
1 1/2-38	1/2-12	-RA-AN24-AN8	1.56 (39.6)
1 1/2-38	3/4-18	-RA-AN24-AN12	1.63 (41.4)
1 1/2-38	1-25	-RA-AN24-AN16	1.63 (41.4)
2-50	1 1/2-38	-RA-AN32-AN24	1.91 (48.5)

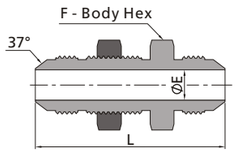
Sleeves



SAE 070115

T-Tube O.D. in.	T-Tube O.D. mm	Basic Ordering Number in.	Basic Ordering Number mm	L in.(mm)
1/8	3	-SL-AN2	-SL-AN3M	0.34 (8.6)
3/16	4	-SL-AN3	-SL-AN4M	0.34 (8.6)
1/4	6	-SL-AN4	-SL-AN6M	0.41 (10.4)
5/16	8	-SL-AN5	-SL-AN8M	0.44 (11.2)
3/8	10	-SL-AN6	-SL-AN10M	0.50 (12.7)
1/2	12	-SL-AN8	-SL-AN12M	0.56 (14.2)
5/8	16	-SL-AN10	-SL-AN16M	0.66 (16.8)
3/4	18	-SL-AN12	-SL-AN18M	0.68 (17.3)
7/8	22	-SL-AN14	-SL-AN22M	0.76 (19.3)
1	25	-SL-AN16	-SL-AN25M	0.78 (19.8)
1 1/4	32	-SL-AN20	-SL-AN32M	0.91 (23.1)
1 1/2	38	-SL-AN24	-SL-AN38M	1.12 (28.4)
2	50	-SL-AN32	-SL-AN50M	1.19 (30.2)

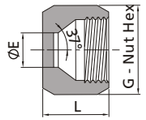
Bulkhead Unions



SAE 070601

Tube O.D. in.	Tube O.D. mm	Basic Ordering Number	Dimension, in. (mm) L	E	F
3/16	4	-BU-AN3	1.90 (48.3)	0.13 (3.2)	0.63 (15.9)
1/4	6	-BU-AN4	2.07 (52.6)	0.17 (4.4)	0.69 (17.5)
5/16	8	-BU-AN5	2.07 (52.6)	0.24 (6.0)	0.75 (19.1)
3/8	10	-BU-AN6	2.18 (55.4)	0.30 (7.5)	0.81 (20.6)
1/2	12	-BU-AN8	2.44 (62.0)	0.39 (9.9)	1.00 (25.4)
5/8	16	-BU-AN10	2.74 (69.6)	0.48 (12.3)	1.13 (28.6)
3/4	18	-BU-AN12	3.09 (78.5)	0.61 (15.5)	1.37 (34.9)
7/8	22	-BU-AN14	3.12 (79.2)	0.72 (18.3)	1.50 (38.1)
1	25	-BU-AN16	3.14 (79.8)	0.85 (21.5)	1.63 (41.3)
1 1/4	32	-BU-AN20	3.31 (84.1)	1.08 (27.5)	1.87 (47.6)
1 1/2	38	-BU-AN24	3.52 (89.4)	1.30 (33.0)	2.13 (54.0)
2	50	-BU-AN32	4.20 (106.7)	1.77 (45.0)	2.75 (69.9)

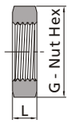
Tube Caps



SAE 070112

Tube O.D. in.	Tube O.D. mm	Basic Ordering Number	Dimension, in. (mm) L	E	G
1/8	3	-TC-AN2	0.50 (12.7)	0.06 (1.6)	0.37 (9.5)
3/16	4	-TC-AN3	0.56 (14.3)	0.13 (3.2)	0.44 (11.1)
1/4	6	-TC-AN4	0.59 (15.1)	0.17 (4.4)	0.56 (14.3)
5/16	8	-TC-AN5	0.61 (15.5)	0.24 (6.0)	0.63 (15.9)
3/8	10	-TC-AN6	0.63 (15.9)	0.30 (7.5)	0.69 (17.5)
1/2	12	-TC-AN8	0.75 (19.1)	0.39 (9.9)	0.87 (22.2)
5/8	16	-TC-AN10	0.84 (21.4)	0.48 (12.3)	1.00 (25.4)
3/4	18	-TC-AN12	0.91 (23.0)	0.61 (15.5)	1.25 (31.8)
7/8	22	-TC-AN14	0.97 (24.6)	0.72 (18.3)	1.37 (34.9)
1	25	-TC-AN16	1.02 (25.8)	0.85 (21.5)	1.50 (38.1)
1 1/4	32	-TC-AN20	1.06 (27.0)	1.08 (27.5)	2.00 (50.8)
1 1/2	38	-TC-AN24	1.19 (30.2)	1.30 (33.0)	2.25 (57.2)
2	50	-TC-AN32	1.44 (36.5)	1.77 (45.0)	2.87 (73.0)

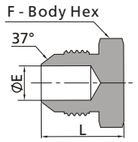
Bulkhead Lock Nuts



SAE 070118

Tube O.D. in.	Tube O.D. mm	Basic Ordering Number	Dimension, in. (mm) L	G
3/16	4	-BN-AN3	0.22 (5.6)	0.63 (15.9)
1/4	6	-BN-AN4	0.28 (7.1)	0.69 (17.5)
5/16	8	-BN-AN5	0.28 (7.1)	0.75 (19.1)
3/8	10	-BN-AN6	0.27 (6.9)	0.81 (20.6)
1/2	12	-BN-AN8	0.31 (7.9)	1.00 (25.4)
5/8	16	-BN-AN10	0.36 (9.1)	1.13 (28.6)
3/4	18	-BN-AN12	0.41 (10.4)	1.37 (34.9)
7/8	22	-BN-AN14	0.41 (10.4)	1.50 (38.1)
1	25	-BN-AN16	0.41 (10.4)	1.63 (41.3)
1 1/4	32	-BN-AN20	0.41 (10.4)	1.87 (47.6)
1 1/2	38	-BN-AN24	0.41 (10.4)	2.13 (54.0)
2	50	-BN-AN32	0.41 (10.4)	2.75 (69.9)

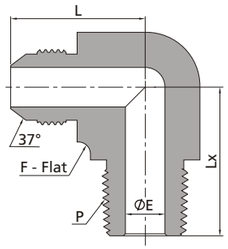
Tube Plugs



SAE 070109

Tube O.D. in.	Tube O.D. mm	Basic Ordering Number	Dimension, in. (mm) L	E	F
1/8	3	-TP-AN2	0.70 (17.8)	0.06 (1.6)	0.44 (11.1)
3/16	4	-TP-AN3	0.73 (18.5)	0.13 (3.2)	0.44 (11.1)
1/4	6	-TP-AN4	0.80 (20.3)	0.17 (4.4)	0.50 (12.7)
5/16	8	-TP-AN5	0.80 (20.3)	0.24 (6.0)	0.56 (14.3)
3/8	10	-TP-AN6	0.84 (21.3)	0.30 (7.5)	0.63 (15.9)
1/2	12	-TP-AN8	0.94 (23.9)	0.39 (9.9)	0.81 (20.6)
5/8	16	-TP-AN10	1.10 (27.9)	0.48 (12.3)	0.94 (23.8)
3/4	18	-TP-AN12	1.28 (32.5)	0.61 (15.5)	1.13 (28.6)
7/8	22	-TP-AN14	1.31 (33.3)	0.72 (18.3)	1.25 (31.8)
1	25	-TP-AN16	1.33 (33.8)	0.85 (21.5)	1.37 (34.9)
1 1/4	32	-TP-AN20	1.45 (36.8)	1.08 (27.5)	1.69 (42.9)
1 1/2	38	-TP-AN24	1.65 (41.9)	1.30 (33.0)	2.00 (50.8)
2	50	-TP-AN32	2.05 (52.1)	1.77 (45.0)	2.63 (66.7)

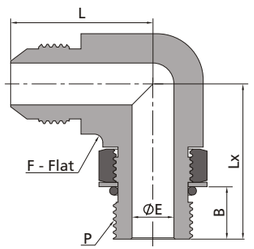
Male Elbows



SAE 070202

Tube O.D. in.	Tube O.D. mm	P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	E	F	Lx
1/8	3	1/8	-LM-AN2-NS2	0.77 (19.6)	0.06 (1.6)	0.44 (11.1)	0.72 (18.3)
3/16	4	1/8	-LM-AN3-NS2	0.83 (21.1)	0.13 (3.2)	0.44 (11.1)	0.72 (18.3)
1/4	6	1/8	-LM-AN4-NS2	0.89 (22.6)	0.17 (4.4)	0.50 (12.7)	0.78 (19.8)
1/4	6	1/4	-LM-AN4-NS4	1.06 (26.9)	0.17 (4.4)	0.56 (14.3)	1.09 (27.7)
5/16	8	1/8	-LM-AN5-NS2	0.95 (24.1)	0.19 (4.8)	0.56 (14.3)	0.78 (19.8)
5/16	8	1/4	-LM-AN5-NS4	1.06 (26.9)	0.24 (6.0)	0.56 (14.3)	1.09 (27.7)
3/8	10	1/8	-LM-AN6-NS2	1.06 (26.9)	0.19 (4.8)	0.56 (14.3)	0.90 (22.8)
3/8	10	1/4	-LM-AN6-NS4	1.06 (26.9)	0.28 (7.1)	0.56 (14.3)	1.09 (27.7)
3/8	10	3/8	-LM-AN6-NS6	1.14 (29.0)	0.30 (7.5)	0.69 (17.5)	1.22 (31.0)
3/8	10	1/2	-LM-AN6-NS8	1.23 (31.2)	0.30 (7.5)	0.81 (20.6)	1.47 (37.3)
1/2	12	1/4	-LM-AN8-NS4	1.25 (31.8)	0.28 (7.1)	0.81 (20.6)	1.22 (31.0)
1/2	12	3/8	-LM-AN8-NS6	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)	1.22 (31.0)
1/2	12	1/2	-LM-AN8-NS8	1.33 (33.7)	0.39 (9.9)	0.81 (20.6)	1.47 (37.3)
1/2	12	3/4	-LM-AN8-NS12	1.42 (36.0)	0.35 (9.0)	1.00 (25.4)	1.59 (40.4)
5/8	16	3/8	-LM-AN10-NS6	1.45 (36.8)	0.39 (9.9)	0.81 (20.6)	1.30 (33.0)
5/8	16	1/2	-LM-AN10-NS8	1.45 (36.8)	0.48 (12.3)	0.81 (20.6)	1.47 (37.3)
5/8	16	3/4	-LM-AN10-NS12	1.53 (38.9)	0.48 (12.3)	1.00 (25.4)	1.59 (40.4)
3/4	18	3/4	-LM-AN12-NS12	1.66 (42.2)	0.61 (15.5)	1.06 (27.0)	1.59 (40.4)
3/4	18	1	-LM-AN12-NS16	1.66 (42.2)	0.61 (15.5)	1.25 (31.8)	1.98 (50.4)
7/8	22	3/4	-LM-AN14-NS12	1.80 (45.7)	0.72 (18.3)	1.25 (31.8)	1.69 (42.9)
1	25	3/4	-LM-AN16-NS12	1.81 (46.0)	0.72 (18.3)	1.37 (34.9)	1.78 (45.2)
1	25	1	-LM-AN16-NS16	1.81 (46.0)	0.85 (21.5)	1.37 (34.9)	1.97 (50.0)
1 1/4	32	1	-LM-AN20-NS16	2.06 (52.3)	0.94 (23.8)	1.69 (42.9)	2.35 (59.6)
1 1/4	32	1 1/4	-LM-AN20-NS20	2.06 (52.3)	1.08 (27.5)	1.69 (42.9)	2.38 (60.5)
1 1/2	38	1 1/2	-LM-AN24-NS24	2.33 (59.2)	1.30 (33.0)	2.00 (50.8)	2.64 (67.1)
2	50	2	-LM-AN32-NS32	3.06 (77.7)	1.77 (45.0)	2.50 (63.5)	3.00 (76.2)

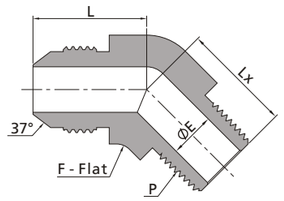
Adjustable Male Elbows



SAE 070220

Tube O.D. in.	Tube O.D. mm	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm) L	E	F	Lx	B
1/8	3	5/16-24	-LP-AN2-ST5	0.77 (19.6)	0.06 (1.6)	0.44 (11.1)	0.94 (23.9)	0.33 (8.4)
3/16	4	3/8-24	-LP-AN3-ST6	0.83 (21.1)	0.13 (3.2)	0.44 (11.1)	0.94 (23.9)	0.33 (8.4)
1/4	6	7/16-20	-LP-AN4-ST7	0.89 (22.6)	0.17 (4.4)	0.50 (12.7)	1.03 (26.2)	0.39 (9.8)
5/16	8	1/2-20	-LP-AN5-ST8	0.95 (24.1)	0.24 (6.0)	0.56 (14.3)	1.13 (28.7)	0.39 (9.8)
3/8	10	9/16-18	-LP-AN6-ST9	1.06 (26.9)	0.30 (7.5)	0.63 (15.9)	1.25 (31.8)	0.43 (11.0)
1/2	12	3/4-16	-LP-AN8-ST12	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)	1.45 (36.8)	0.49 (12.5)
5/8	16	7/8-14	-LP-AN10-ST14	1.45 (36.8)	0.48 (12.3)	0.94 (23.8)	1.70 (43.2)	0.56 (14.2)
3/4	18	1 1/16-12	-LP-AN12-ST17	1.66 (42.2)	0.61 (15.5)	1.25 (31.8)	1.94 (49.3)	0.65 (16.5)
7/8	22	1 3/16-12	-LP-AN14-ST19	1.80 (45.7)	0.72 (18.3)	1.25 (31.8)	2.00 (50.8)	0.65 (16.5)
1	25	1 5/16-12	-LP-AN16-ST21	1.81 (46.0)	0.85 (21.5)	1.37 (34.9)	2.05 (52.1)	0.65 (16.5)
1 1/4	32	1 5/8-12	-LP-AN20-ST26	2.06 (52.3)	1.08 (27.5)	1.69 (42.9)	2.25 (57.2)	0.65 (16.5)
1 1/2	38	1 7/8-12	-LP-AN24-ST30	2.33 (59.2)	1.30 (33.0)	2.00 (50.8)	2.39 (60.7)	0.65 (16.5)
2	50	2 1/2-12	-LP-AN32-ST40	3.06 (77.7)	1.77 (45.0)	2.50 (63.5)	2.89 (73.4)	0.65 (16.5)

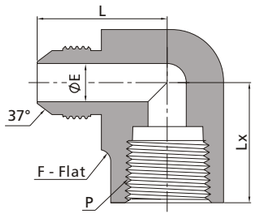
45° Male Elbows



SAE 070302

Tube O.D. in.	Tube O.D. mm	P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	E	F	Lx
1/8	3	1/8	-VM-AN2-NS2	0.69 (17.5)	0.06 (1.6)	0.44 (11.1)	0.52 (13.2)
3/16	4	1/8	-VM-AN3-NS2	0.69 (17.5)	0.13 (3.2)	0.44 (11.1)	0.52 (13.2)
1/4	6	1/8	-VM-AN4-NS2	0.72 (18.3)	0.17 (4.4)	0.50 (12.7)	0.64 (16.3)
5/16	8	1/8	-VM-AN5-NS2	0.77 (19.6)	0.19 (4.8)	0.56 (14.3)	0.64 (16.3)
3/8	10	1/4	-VM-AN6-NS4	0.83 (21.1)	0.28 (7.1)	0.56 (14.3)	0.86 (21.8)
1/2	12	3/8	-VM-AN8-NS6	0.98 (24.9)	0.39 (9.9)	0.69 (17.5)	0.95 (24.1)
5/8	16	1/2	-VM-AN10-NS8	1.11 (28.2)	0.48 (12.3)	0.81 (20.6)	1.17 (29.7)
3/4	18	3/4	-VM-AN12-NS12	1.28 (32.5)	0.61 (15.5)	1.06 (27.0)	1.20 (30.5)
7/8	22	3/4	-VM-AN14-NS12	1.45 (36.8)	0.72 (18.3)	1.25 (31.8)	1.30 (33.0)
1	25	1	-VM-AN16-NS16	1.47 (37.3)	0.85 (21.5)	1.37 (34.9)	1.48 (37.6)
1 1/4	32	1 1/4	-VM-AN20-NS20	1.59 (40.4)	1.08 (27.5)	1.69 (42.9)	1.67 (42.4)
1 1/2	38	1 1/2	-VM-AN24-NS24	1.78 (45.2)	1.30 (33.0)	2.00 (50.8)	1.77 (45.0)
2	50	2	-VM-AN32-NS32	2.22 (56.4)	1.77 (45.0)	2.50 (63.5)	2.11 (53.6)

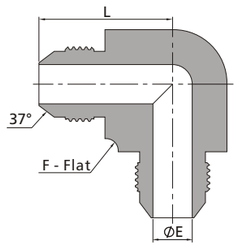
Female Elbows



SAE 070203

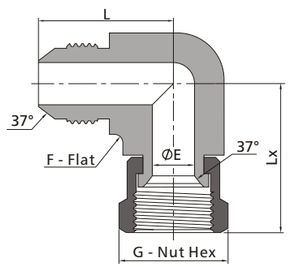
Tube O.D. in.	Tube O.D. mm	P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	E	F	Lx
1/8	3	1/8	-LF-AN2-NS2	1.00 (25.4)	0.06 (1.6)	0.56 (14.3)	0.66 (16.8)
3/16	4	1/8	-LF-AN3-NS2	1.03 (26.2)	0.13 (3.2)	0.56 (14.3)	0.66 (16.8)
1/4	6	1/8	-LF-AN4-NS2	1.08 (27.4)	0.17 (4.4)	0.56 (14.3)	0.66 (16.8)
1/4	6	1/4	-LF-AN4-NS4	1.22 (30.9)	0.17 (4.4)	0.81 (20.6)	0.88 (22.4)
5/16	8	1/8	-LF-AN5-NS2	1.08 (27.4)	0.24 (6.0)	0.56 (14.3)	0.66 (16.8)
5/16	8	1/4	-LF-AN5-NS4	1.22 (30.9)	0.24 (6.0)	0.81 (20.6)	0.88 (22.4)
3/8	10	1/8	-LF-AN6-NS2	1.06 (26.9)	0.30 (7.5)	0.63 (15.9)	0.66 (16.8)
3/8	10	1/4	-LF-AN6-NS4	1.23 (31.2)	0.30 (7.5)	0.81 (20.6)	0.88 (22.4)
3/8	10	3/8	-LF-AN6-NS6	1.31 (33.2)	0.30 (7.5)	0.94 (23.8)	1.02 (25.9)
1/2	12	1/4	-LF-AN8-NS4	1.24 (31.6)	0.39 (9.9)	0.81 (20.6)	0.88 (22.4)
1/2	12	3/8	-LF-AN8-NS6	1.42 (36.1)	0.39 (9.9)	0.94 (23.8)	1.02 (25.9)
1/2	12	1/2	-LF-AN8-NS8	1.42 (36.1)	0.39 (9.9)	1.06 (27.0)	1.23 (31.2)
5/8	16	1/2	-LF-AN10-NS8	1.64 (41.7)	0.48 (12.3)	1.06 (27.0)	1.23 (31.2)
3/4	18	1/2	-LF-AN12-NS8	1.66 (42.1)	0.61 (15.5)	1.25 (31.8)	1.23 (31.2)
3/4	18	3/4	-LF-AN12-NS12	1.89 (48.0)	0.61 (15.5)	1.37 (34.9)	1.36 (34.5)
7/8	22	3/4	-LF-AN14-NS12	1.86 (47.2)	0.72 (18.3)	1.37 (34.9)	1.42 (36.1)
1	25	1	-LF-AN16-NS16	2.17 (55.1)	0.85 (21.5)	1.69 (42.9)	1.62 (41.1)
1 1/4	32	1 1/4	-LF-AN20-NS20	2.33 (59.2)	1.08 (27.5)	2.00 (50.8)	1.70 (43.2)
1 1/2	38	1 1/2	-LF-AN24-NS24	2.89 (73.4)	1.30 (33.0)	2.50 (63.5)	2.08 (52.8)
2	50	2	-LF-AN32-NS32	3.30 (83.8)	1.77 (45.0)	2.50 (63.5)	2.39 (60.7)

Union Elbows



SAE 070201

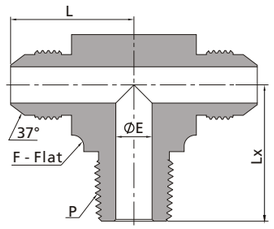
Tube O.D.		Basic Ordering Number	Dimension, in. (mm)		
in.	mm		L	E	F
1/8	3	-LU-AN2	0.77 (19.6)	0.06 (1.6)	0.44 (11.1)
3/16	4	-LU-AN3	0.83 (21.1)	0.13 (3.2)	0.44 (11.1)
1/4	6	-LU-AN4	0.89 (22.6)	0.17 (4.4)	0.50 (12.7)
5/16	8	-LU-AN5	0.95 (24.1)	0.24 (6.0)	0.56 (14.3)
3/8	10	-LU-AN6	1.06 (26.9)	0.30 (7.5)	0.56 (14.3)
1/2	12	-LU-AN8	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)
5/8	16	-LU-AN10	1.45 (36.8)	0.48 (12.3)	0.81 (20.6)
3/4	18	-LU-AN12	1.66 (42.2)	0.61 (15.5)	1.06 (27.0)
7/8	22	-LU-AN14	1.80 (45.7)	0.72 (18.3)	1.25 (31.8)
1	25	-LU-AN16	1.81 (46.0)	0.85 (21.5)	1.37 (34.9)
1 1/4	32	-LU-AN20	2.06 (52.3)	1.08 (27.5)	1.69 (42.9)
1 1/2	38	-LU-AN24	2.33 (59.2)	1.30 (33.0)	2.00 (50.8)
2	50	-LU-AN32	3.06 (77.7)	1.77 (45.0)	2.50 (63.5)



SAE 070221

Tube O.D.		Basic Ordering Number	Dimension, in. (mm)				
in.	mm		L	E	F	Lx	G
1/8	3	-LU-AN2-AS2	0.77 (19.6)	0.06 (1.6)	0.44 (11.1)	0.97 (24.6)	0.44 (11.1)
3/16	4	-LU-AN3-AS3	0.83 (21.1)	0.13 (3.2)	0.44 (11.1)	1.00 (25.4)	0.50 (12.7)
1/4	6	-LU-AN4-AS4	0.89 (22.6)	0.17 (4.4)	0.50 (12.7)	1.00 (25.4)	0.56 (14.3)
5/16	8	-LU-AN5-AS5	0.95 (24.1)	0.24 (6.0)	0.56 (14.3)	1.06 (26.9)	0.63 (15.9)
3/8	10	-LU-AN6-AS6	1.06 (26.9)	0.30 (7.5)	0.56 (14.3)	1.25 (31.8)	0.69 (17.5)
1/2	12	-LU-AN8-AS8	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)	1.38 (35.1)	0.87 (22.2)
5/8	16	-LU-AN10-AS10	1.45 (36.8)	0.48 (12.3)	0.81 (20.6)	1.62 (41.1)	1.00 (25.4)
3/4	18	-LU-AN12-AS12	1.66 (42.2)	0.61 (15.5)	1.06 (27.0)	1.75 (44.4)	1.25 (31.8)
7/8	22	-LU-AN14-AS14	1.80 (45.7)	0.72 (18.3)	1.25 (31.8)	1.78 (45.2)	1.37 (34.9)
1	25	-LU-AN16-AS16	1.81 (46.0)	0.85 (21.5)	1.37 (34.9)	2.00 (50.8)	1.50 (38.1)
1 1/4	32	-LU-AN20-AS20	2.06 (52.3)	1.08 (27.5)	1.69 (42.9)	2.31 (58.7)	2.00 (50.8)
1 1/2	38	-LU-AN24-AS24	2.33 (59.2)	1.30 (33.0)	2.00 (50.8)	2.59 (65.8)	2.37 (60.3)
2	50	-LU-AN32-AS32	3.06 (77.7)	1.77 (45.0)	2.50 (63.5)	3.38 (85.9)	2.87 (73.0)

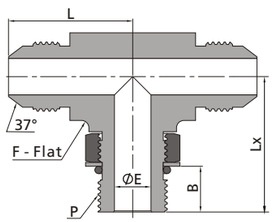
Male Branch Tees



SAE 070425

Tube O.D.		P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			
in.	mm			L	E	F	Lx
1/8	3	1/8	-TTM-AN2-NS2	0.77 (19.6)	0.06 (1.6)	0.44 (11.1)	0.72 (18.3)
3/16	4	1/8	-TTM-AN3-NS2	0.83 (21.1)	0.13 (3.2)	0.44 (11.1)	0.72 (18.3)
1/4	6	1/8	-TTM-AN4-NS2	0.89 (22.6)	0.17 (4.4)	0.50 (12.7)	0.78 (19.8)
1/4	6	1/4	-TTM-AN4-NS4	1.06 (26.9)	0.17 (4.4)	0.56 (14.3)	1.09 (27.7)
5/16	8	1/8	-TTM-AN5-NS2	0.95 (24.1)	0.19 (4.8)	0.56 (14.3)	0.78 (19.8)
5/16	8	1/4	-TTM-AN5-NS4	1.06 (26.9)	0.24 (6.0)	0.56 (14.3)	1.09 (27.7)
3/8	10	1/8	-TTM-AN6-NS2	1.06 (26.9)	0.19 (4.8)	0.56 (14.3)	0.90 (22.8)
3/8	10	1/4	-TTM-AN6-NS4	1.06 (26.9)	0.28 (7.1)	0.56 (14.3)	1.09 (27.7)
3/8	10	3/8	-TTM-AN6-NS6	1.14 (29.0)	0.30 (7.5)	0.69 (17.5)	1.22 (31.0)
3/8	10	1/2	-TTM-AN6-NS8	1.23 (31.2)	0.30 (7.5)	0.81 (20.6)	1.47 (37.3)
1/2	12	1/4	-TTM-AN8-NS4	1.25 (31.8)	0.28 (7.1)	0.81 (20.6)	1.22 (31.0)
1/2	12	3/8	-TTM-AN8-NS6	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)	1.22 (31.0)
1/2	12	1/2	-TTM-AN8-NS8	1.33 (33.7)	0.39 (9.9)	0.81 (20.6)	1.47 (37.3)
1/2	12	3/4	-TTM-AN8-NS12	1.42 (36.0)	0.39 (9.9)	1.00 (25.4)	1.59 (40.4)
5/8	16	3/8	-TTM-AN10-NS6	1.45 (36.8)	0.39 (9.9)	0.81 (20.6)	1.30 (33.0)
5/8	16	1/2	-TTM-AN10-NS8	1.45 (36.8)	0.48 (12.3)	0.81 (20.6)	1.47 (37.3)
5/8	16	3/4	-TTM-AN10-NS12	1.53 (38.9)	0.48 (12.3)	1.00 (25.4)	1.59 (40.4)
3/4	18	3/4	-TTM-AN12-NS12	1.66 (42.2)	0.61 (15.5)	1.06 (27.0)	1.59 (40.4)
3/4	18	1	-TTM-AN12-NS16	1.66 (42.2)	0.61 (15.5)	1.25 (31.8)	1.98 (50.4)
7/8	22	3/4	-TTM-AN14-NS12	1.80 (45.7)	0.72 (18.3)	1.25 (31.8)	1.69 (42.9)
1	25	3/4	-TTM-AN16-NS12	1.81 (46.0)	0.72 (18.3)	1.37 (34.9)	1.78 (45.2)
1	25	1	-TTM-AN16-NS16	1.81 (46.0)	0.85 (21.5)	1.37 (34.9)	1.97 (50.0)
1 1/4	32	1	-TTM-AN20-NS16	2.06 (52.3)	0.94 (23.8)	1.69 (42.9)	2.35 (59.6)
1 1/4	32	1 1/4	-TTM-AN20-NS20	2.06 (52.3)	1.08 (27.5)	1.69 (42.9)	2.38 (60.5)
1 1/2	38	1 1/2	-TTM-AN24-NS24	2.33 (59.2)	1.30 (33.0)	2.00 (50.8)	2.64 (67.1)
2	50	2	-TTM-AN32-NS32	3.06 (77.7)	1.77 (45.0)	2.50 (63.5)	3.00 (76.2)

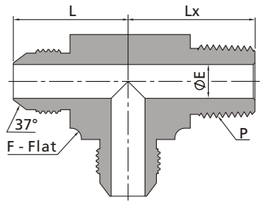
Adjustable Male Branch Tees



SAE 070429

Tube O.D.		P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)				
in.	mm			L	E	F	Lx	B
1/8	3	5/16-24	-TTP-AN2-ST5	0.77 (19.6)	0.06 (1.6)	0.44 (11.1)	0.94 (23.9)	0.33 (8.4)
3/16	4	3/8-24	-TTP-AN3-ST6	0.83 (21.1)	0.13 (3.2)	0.44 (11.1)	0.94 (23.9)	0.33 (8.4)
1/4	6	7/16-20	-TTP-AN4-ST7	0.89 (22.6)	0.17 (4.4)	0.50 (12.7)	1.03 (26.2)	0.39 (9.8)
5/16	8	1/2-20	-TTP-AN5-ST8	0.95 (24.1)	0.24 (6.0)	0.56 (14.3)	1.13 (28.7)	0.39 (9.8)
3/8	10	9/16-18	-TTP-AN6-ST9	1.06 (26.9)	0.30 (7.5)	0.63 (15.9)	1.25 (31.8)	0.43 (11.0)
1/2	12	3/4-16	-TTP-AN8-ST12	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)	1.45 (36.8)	0.49 (12.5)
5/8	16	7/8-14	-TTP-AN10-ST14	1.45 (36.8)	0.48 (12.3)	0.94 (23.8)	1.70 (43.2)	0.56 (14.2)
3/4	18	1 1/16-12	-TTP-AN12-ST17	1.66 (42.2)	0.61 (15.5)	1.25 (31.8)	1.94 (49.3)	0.65 (16.5)
7/8	22	1 3/16-12	-TTP-AN14-ST19	1.80 (45.7)	0.72 (18.3)	1.25 (31.8)	2.00 (50.8)	0.65 (16.5)
1	25	1 5/16-12	-TTP-AN16-ST21	1.81 (46.0)	0.85 (21.5)	1.37 (34.9)	2.05 (52.1)	0.65 (16.5)
1 1/4	32	1 5/8-12	-TTP-AN20-ST26	2.06 (52.3)	1.08 (27.5)	1.69 (42.9)	2.25 (57.2)	0.65 (16.5)
1 1/2	38	1 7/8-12	-TTP-AN24-ST30	2.33 (59.2)	1.30 (33.0)	2.00 (50.8)	2.39 (60.7)	0.65 (16.5)
2	50	2 1/2-12	-TTP-AN32-ST40	3.06 (77.7)	1.77 (45.0)	2.50 (63.5)	2.89 (73.4)	0.65 (16.5)

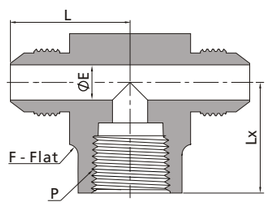
Male Run Tees



SAE 070424

Tube O.D. in.	Tube O.D. mm	P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	E	F	Lx
1/8	3	1/8	-TMT-AN2-NS2	0.77 (19.6)	0.06 (1.6)	0.44 (11.1)	0.72 (18.3)
3/16	4	1/8	-TMT-AN3-NS2	0.83 (21.1)	0.13 (3.2)	0.44 (11.1)	0.72 (18.3)
1/4	6	1/8	-TMT-AN4-NS2	0.89 (22.6)	0.17 (4.4)	0.50 (12.7)	0.78 (19.8)
1/4	6	1/4	-TMT-AN4-NS4	1.06 (26.9)	0.17 (4.4)	0.56 (14.3)	1.09 (27.7)
5/16	8	1/8	-TMT-AN5-NS2	0.95 (24.1)	0.19 (4.8)	0.56 (14.3)	0.78 (19.8)
5/16	8	1/4	-TMT-AN5-NS4	1.06 (26.9)	0.24 (6.0)	0.56 (14.3)	1.09 (27.7)
3/8	10	1/8	-TMT-AN6-NS2	1.06 (26.9)	0.19 (4.8)	0.56 (14.3)	0.90 (22.8)
3/8	10	1/4	-TMT-AN6-NS4	1.06 (26.9)	0.28 (7.1)	0.56 (14.3)	1.09 (27.7)
3/8	10	3/8	-TMT-AN6-NS6	1.14 (29.0)	0.30 (7.5)	0.69 (17.5)	1.22 (31.0)
3/8	10	1/2	-TMT-AN6-NS8	1.23 (31.2)	0.30 (7.5)	0.81 (20.6)	1.47 (37.3)
1/2	12	1/4	-TMT-AN8-NS4	1.25 (31.8)	0.28 (7.1)	0.81 (20.6)	1.22 (31.0)
1/2	12	3/8	-TMT-AN8-NS6	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)	1.22 (31.0)
1/2	12	1/2	-TMT-AN8-NS8	1.33 (33.7)	0.39 (9.9)	0.81 (20.6)	1.47 (37.3)
1/2	12	3/4	-TMT-AN8-NS12	1.42 (36.0)	0.39 (9.9)	1.00 (25.4)	1.59 (40.4)
5/8	16	3/8	-TMT-AN10-NS6	1.45 (36.8)	0.39 (9.9)	0.81 (20.6)	1.30 (33.0)
5/8	16	1/2	-TMT-AN10-NS8	1.45 (36.8)	0.48 (12.3)	0.81 (20.6)	1.47 (37.3)
5/8	16	3/4	-TMT-AN10-NS12	1.53 (38.9)	0.48 (12.3)	1.00 (25.4)	1.59 (40.4)
3/4	18	3/4	-TMT-AN12-NS12	1.66 (42.2)	0.61 (15.5)	1.06 (27.0)	1.59 (40.4)
3/4	18	1	-TMT-AN12-NS16	1.66 (42.2)	0.61 (15.5)	1.25 (31.8)	1.98 (50.4)
7/8	22	3/4	-TMT-AN14-NS12	1.80 (45.7)	0.72 (18.3)	1.25 (31.8)	1.69 (42.9)
1	25	3/4	-TMT-AN16-NS12	1.81 (46.0)	0.72 (18.3)	1.37 (34.9)	1.78 (45.2)
1	25	1	-TMT-AN16-NS16	1.81 (46.0)	0.85 (21.5)	1.37 (34.9)	1.97 (50.0)
1 1/4	32	1	-TMT-AN20-NS16	2.06 (52.3)	0.94 (23.8)	1.69 (42.9)	2.35 (59.6)
1 1/4	32	1 1/4	-TMT-AN20-NS20	2.06 (52.3)	1.08 (27.5)	1.69 (42.9)	2.38 (60.5)
1 1/2	38	1 1/2	-TMT-AN24-NS24	2.33 (59.2)	1.30 (33.0)	2.00 (50.8)	2.64 (67.1)
2	50	2	-TMT-AN32-NS32	3.06 (77.7)	1.77 (45.0)	2.50 (63.5)	3.00 (76.2)

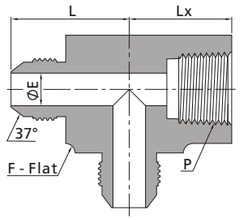
Female Branch Tees



SAE 070427

Tube O.D. in.	Tube O.D. mm	P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	E	F	Lx
1/8	3	1/8	-TTF-AN2-NS2	1.00 (25.4)	0.06 (1.6)	0.56 (14.3)	0.66 (16.8)
3/16	4	1/8	-TTF-AN3-NS2	1.03 (26.2)	0.13 (3.2)	0.56 (14.3)	0.66 (16.8)
1/4	6	1/8	-TTF-AN4-NS2	1.08 (27.4)	0.17 (4.4)	0.56 (14.3)	0.66 (16.8)
1/4	6	1/4	-TTF-AN4-NS4	1.22 (30.9)	0.17 (4.4)	0.81 (20.6)	0.88 (22.4)
5/16	8	1/8	-TTF-AN5-NS2	1.08 (27.4)	0.24 (6.0)	0.56 (14.3)	0.66 (16.8)
5/16	8	1/4	-TTF-AN5-NS4	1.22 (30.9)	0.24 (6.0)	0.81 (20.6)	0.88 (22.4)
3/8	10	1/8	-TTF-AN6-NS2	1.06 (26.9)	0.30 (7.5)	0.63 (15.9)	0.66 (16.8)
3/8	10	1/4	-TTF-AN6-NS4	1.23 (31.2)	0.30 (7.5)	0.81 (20.6)	0.88 (22.4)
3/8	10	3/8	-TTF-AN6-NS6	1.31 (33.2)	0.30 (7.5)	0.94 (23.8)	1.02 (25.9)
1/2	12	1/4	-TTF-AN8-NS4	1.24 (31.6)	0.39 (9.9)	0.81 (20.6)	0.88 (22.4)
1/2	12	3/8	-TTF-AN8-NS6	1.42 (36.1)	0.39 (9.9)	0.94 (23.8)	1.02 (25.9)
1/2	12	1/2	-TTF-AN8-NS8	1.42 (36.1)	0.39 (9.9)	1.06 (27.0)	1.23 (31.2)
5/8	16	1/2	-TTF-AN10-NS8	1.64 (41.7)	0.48 (12.3)	1.06 (27.0)	1.23 (31.2)
3/4	18	1/2	-TTF-AN12-NS8	1.66 (42.1)	0.61 (15.5)	1.25 (31.8)	1.23 (31.2)
3/4	18	3/4	-TTF-AN12-NS12	1.89 (48.0)	0.61 (15.5)	1.37 (34.9)	1.36 (34.5)
7/8	22	3/4	-TTF-AN14-NS12	1.86 (47.2)	0.72 (18.3)	1.37 (34.9)	1.42 (36.1)
1	25	1	-TTF-AN16-NS16	2.17 (55.1)	0.85 (21.5)	1.69 (42.9)	1.62 (41.1)
1 1/4	32	1 1/4	-TTF-AN20-NS20	2.33 (59.2)	1.08 (27.5)	2.00 (50.8)	1.70 (43.2)
1 1/2	38	1 1/2	-TTF-AN24-NS24	2.89 (73.4)	1.30 (33.0)	2.50 (63.5)	2.08 (52.8)
2	50	2	-TTF-AN32-NS32	3.30 (83.8)	1.77 (45.0)	2.50 (63.5)	2.39 (60.7)

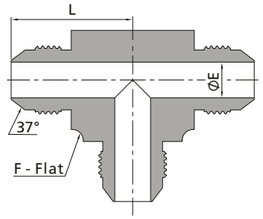
Female Run Tees



SAE 070426

Tube O.D. in.	Tube O.D. mm	P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	E	F	Lx
1/8	3	1/8	-TFT-AN2-NS2	1.00 (25.4)	0.06 (1.6)	0.56 (14.3)	0.66 (16.8)
3/16	4	1/8	-TFT-AN3-NS2	1.03 (26.2)	0.13 (3.2)	0.56 (14.3)	0.66 (16.8)
1/4	6	1/8	-TFT-AN4-NS2	1.08 (27.4)	0.17 (4.4)	0.56 (14.3)	0.66 (16.8)
1/4	6	1/4	-TFT-AN4-NS4	1.22 (30.9)	0.17 (4.4)	0.81 (20.6)	0.88 (22.4)
5/16	8	1/8	-TFT-AN5-NS2	1.08 (27.4)	0.24 (6.0)	0.56 (14.3)	0.66 (16.8)
5/16	8	1/4	-TFT-AN5-NS4	1.22 (30.9)	0.24 (6.0)	0.81 (20.6)	0.88 (22.4)
3/8	10	1/8	-TFT-AN6-NS2	1.06 (26.9)	0.30 (7.5)	0.63 (15.9)	0.66 (16.8)
3/8	10	1/4	-TFT-AN6-NS4	1.23 (31.2)	0.30 (7.5)	0.81 (20.6)	0.88 (22.4)
3/8	10	3/8	-TFT-AN6-NS6	1.31 (33.2)	0.30 (7.5)	0.94 (23.8)	1.02 (25.9)
1/2	12	1/4	-TFT-AN8-NS4	1.24 (31.6)	0.39 (9.9)	0.81 (20.6)	0.88 (22.4)
1/2	12	3/8	-TFT-AN8-NS6	1.42 (36.1)	0.39 (9.9)	0.94 (23.8)	1.02 (25.9)
1/2	12	1/2	-TFT-AN8-NS8	1.42 (36.1)	0.39 (9.9)	1.06 (27.0)	1.23 (31.2)
5/8	16	1/2	-TFT-AN10-NS8	1.64 (41.7)	0.48 (12.3)	1.06 (27.0)	1.23 (31.2)
3/4	18	1/2	-TFT-AN12-NS8	1.66 (42.1)	0.61 (15.5)	1.25 (31.8)	1.23 (31.2)
3/4	18	3/4	-TFT-AN12-NS12	1.89 (48.0)	0.61 (15.5)	1.37 (34.9)	1.36 (34.5)
7/8	22	3/4	-TFT-AN14-NS12	1.86 (47.2)	0.72 (18.3)	1.37 (34.9)	1.42 (36.1)
1	25	1	-TFT-AN16-NS16	2.17 (55.1)	0.85 (21.5)	1.69 (42.9)	1.62 (41.1)
1 1/4	32	1 1/4	-TFT-AN20-NS20	2.33 (59.2)	1.08 (27.5)	2.00 (50.8)	1.70 (43.2)
1 1/2	38	1 1/2	-TFT-AN24-NS24	2.89 (73.4)	1.30 (33.0)	2.50 (63.5)	2.08 (52.8)
2	50	2	-TFT-AN32-NS32	3.30 (83.8)	1.77 (45.0)	2.50 (63.5)	2.39 (60.7)

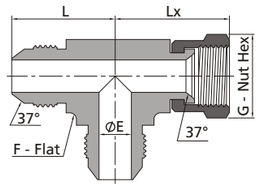
Union Tees



SAE 070401

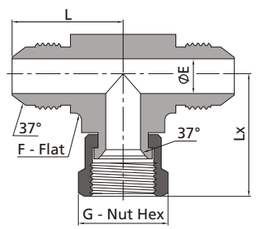
Tube O.D. in.	Tube O.D. mm	Basic Ordering Number	Dimension, in. (mm) L	E	F
1/8	3	-TTT-AN2	0.77 (19.6)	0.06 (1.6)	0.44 (11.1)
3/16	4	-TTT-AN3	0.83 (21.1)	0.13 (3.2)	0.44 (11.1)
1/4	6	-TTT-AN4	0.89 (22.6)	0.17 (4.4)	0.50 (12.7)
5/16	8	-TTT-AN5	0.95 (24.1)	0.24 (6.0)	0.56 (14.3)
3/8	10	-TTT-AN6	1.06 (26.9)	0.30 (7.5)	0.56 (14.3)
1/2	12	-TTT-AN8	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)
5/8	16	-TTT-AN10	1.45 (36.8)	0.48 (12.3)	0.81 (20.6)
3/4	18	-TTT-AN12	1.66 (42.2)	0.61 (15.5)	1.06 (27.0)
7/8	22	-TTT-AN14	1.80 (45.7)	0.72 (18.3)	1.25 (31.8)
1	25	-TTT-AN16	1.81 (46.0)	0.85 (21.5)	1.37 (34.9)
1 1/4	32	-TTT-AN20	2.06 (52.3)	1.08 (27.5)	1.69 (42.9)
1 1/2	38	-TTT-AN24	2.33 (59.2)	1.30 (33.0)	2.00 (50.8)
2	50	-TTT-AN32	3.06 (77.7)	1.77 (45.0)	2.50 (63.5)

Union Tees



SAE 070432

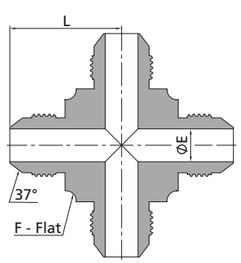
Tube O.D.		Basic Ordering Number	Dimension, in. (mm)				
in.	mm		L	E	F	Lx	G
1/8	3	-TTT-AN2-AS2-AN2	0.77 (19.6)	0.06 (1.6)	0.44 (11.1)	0.97 (24.6)	0.44 (11.1)
3/16	4	-TTT-AN3-AS3-AN3	0.83 (21.1)	0.13 (3.2)	0.44 (11.1)	1.00 (25.4)	0.50 (12.7)
1/4	6	-TTT-AN4-AS4-AN4	0.89 (22.6)	0.17 (4.4)	0.50 (12.7)	1.00 (25.4)	0.56 (14.3)
5/16	8	-TTT-AN5-AS5-AN5	0.95 (24.1)	0.24 (6.0)	0.56 (14.3)	1.06 (26.9)	0.63 (15.9)
3/8	10	-TTT-AN6-AS6-AN6	1.06 (26.9)	0.30 (7.5)	0.56 (14.3)	1.25 (31.8)	0.69 (17.5)
1/2	12	-TTT-AN8-AS8-AN8	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)	1.38 (35.1)	0.87 (22.2)
5/8	16	-TTT-AN10-AS10-AN10	1.45 (36.8)	0.48 (12.3)	0.81 (20.6)	1.62 (41.1)	1.00 (25.4)
3/4	18	-TTT-AN12-AS12-AN12	1.66 (42.2)	0.61 (15.5)	1.06 (27.0)	1.75 (44.4)	1.25 (31.8)
7/8	22	-TTT-AN14-AS14-AN14	1.80 (45.7)	0.72 (18.3)	1.25 (31.8)	1.78 (45.2)	1.37 (34.9)
1	25	-TTT-AN16-AS16-AN16	1.81 (46.0)	0.85 (21.5)	1.37 (34.9)	2.00 (50.8)	1.50 (38.1)
1 1/4	32	-TTT-AN20-AS20-AN20	2.06 (52.3)	1.08 (27.5)	1.69 (42.9)	2.31 (58.7)	2.00 (50.8)
1 1/2	38	-TTT-AN24-AS24-AN24	2.33 (59.2)	1.30 (33.0)	2.00 (50.8)	2.59 (65.8)	2.37 (60.3)
2	50	-TTT-AN32-AS32-AN32	3.06 (77.7)	1.77 (45.0)	2.50 (63.5)	3.38 (85.9)	2.87 (73.0)



SAE 070433

Tube O.D.		Basic Ordering Number	Dimension, in. (mm)				
in.	mm		L	E	F	Lx	G
1/8	3	-TTT-AN2-AN2-AS2	0.77 (19.6)	0.06 (1.6)	0.44 (11.1)	0.97 (24.6)	0.44 (11.1)
3/16	4	-TTT-AN3-AN3-AS3	0.83 (21.1)	0.13 (3.2)	0.44 (11.1)	1.00 (25.4)	0.50 (12.7)
1/4	6	-TTT-AN4-AN4-AS4	0.89 (22.6)	0.17 (4.4)	0.50 (12.7)	1.00 (25.4)	0.56 (14.3)
5/16	8	-TTT-AN5-AN5-AS5	0.95 (24.1)	0.24 (6.0)	0.56 (14.3)	1.06 (26.9)	0.63 (15.9)
3/8	10	-TTT-AN6-AN6-AS6	1.06 (26.9)	0.30 (7.5)	0.56 (14.3)	1.25 (31.8)	0.69 (17.5)
1/2	12	-TTT-AN8-AN8-AS8	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)	1.38 (35.1)	0.87 (22.2)
5/8	16	-TTT-AN10-AN10-AS10	1.45 (36.8)	0.48 (12.3)	0.81 (20.6)	1.62 (41.1)	1.00 (25.4)
3/4	18	-TTT-AN12-AN12-AS12	1.66 (42.2)	0.61 (15.5)	1.06 (27.0)	1.75 (44.4)	1.25 (31.8)
7/8	22	-TTT-AN14-AN14-AS14	1.80 (45.7)	0.72 (18.3)	1.25 (31.8)	1.78 (45.2)	1.37 (34.9)
1	25	-TTT-AN16-AN16-AS16	1.81 (46.0)	0.85 (21.5)	1.37 (34.9)	2.00 (50.8)	1.50 (38.1)
1 1/4	32	-TTT-AN20-AN20-AS20	2.06 (52.3)	1.08 (27.5)	1.69 (42.9)	2.31 (58.7)	2.00 (50.8)
1 1/2	38	-TTT-AN24-AN24-AS24	2.33 (59.2)	1.30 (33.0)	2.00 (50.8)	2.59 (65.8)	2.37 (60.3)
2	50	-TTT-AN32-AN32-AS32	3.06 (77.7)	1.77 (45.0)	2.50 (63.5)	3.38 (85.9)	2.87 (73.0)

Union Crosses



SAE 070501

Tube O.D.		Basic Ordering Number	Dimension, in. (mm)		
in.	mm		L	E	F
1/8	3	-C-AN2	0.77 (19.6)	0.06 (1.6)	0.44 (11.1)
3/16	4	-C-AN3	0.83 (21.1)	0.13 (3.2)	0.44 (11.1)
1/4	6	-C-AN4	0.89 (22.6)	0.17 (4.4)	0.50 (12.7)
5/16	8	-C-AN5	0.95 (24.1)	0.24 (6.0)	0.56 (14.3)
3/8	10	-C-AN6	1.06 (26.9)	0.30 (7.5)	0.56 (14.3)
1/2	12	-C-AN8	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)
5/8	16	-C-AN10	1.45 (36.8)	0.48 (12.3)	0.81 (20.6)
3/4	18	-C-AN12	1.66 (42.2)	0.61 (15.5)	1.06 (27.0)
7/8	22	-C-AN14	1.80 (45.7)	0.72 (18.3)	1.25 (31.8)
1	25	-C-AN16	1.81 (46.0)	0.85 (21.5)	1.37 (34.9)
1 1/4	32	-C-AN20	2.06 (52.3)	1.08 (27.5)	1.69 (42.9)
1 1/2	38	-C-AN24	2.33 (59.2)	1.30 (33.0)	2.00 (50.8)
2	50	-C-AN32	3.06 (77.7)	1.77 (45.0)	2.50 (63.5)

6 Series Pipe Fittings

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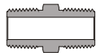
Hex Nipples - PHN  A-105

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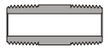
Special Pipe Nipples - PSN  A-110

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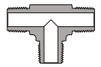
Male Tees - PMT  A-125

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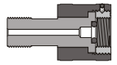
Hand Tight Adapter Fittings - HF  A-131

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Part Number Description A-135

Features

◎ The hardened threads with smooth surface finishing avoid galling and help to extend the fitting service life.
◎ Radius junction design with elbows provides smooth flow path.
◎ Every fitting is stamped with size, material, and heat code.

Technical Data

◎ Sizes range from 1/16 to 2
◎ Thread Specifications:

Thread Type	Specification
NPT	ASME B1.20.1, SAE AS71051
ISO Tapered	IS0 7-1, BS 21, JIS B0203
ISO Parallel	IS0 228, JIS B0202
SAE/MS	ASME B1.1, SAE J475
Metric	ISO 261

◎ Working Temperature:
For the working temperatures of pipe fittings, refer to the 6 series Tube Fittings catalog.

◎ Working Pressure:

1. Catalog working pressures shown are based on ANSI/ASME B31.3 at ambient temperature, to determine working pressures in accordance with ANSI/ASME B31.1 multiply catalog working pressures shown by the factor from the below table.

Material	Factor
Stainless steel	0.94
Carbon steel	0.85
Brass	1.0

2. Use the allowable working pressure at ambient temperature to multiply the elevated temperature factors to get the working pressure at elevated temperature. To locate the elevated temperature factor, please refer to the related information of Tubes and Pipes in page D-14.
3. To get the installation torque for NPT thread and ISO tapered thread, refer to 6 Series Tube Fittings in page A-6.

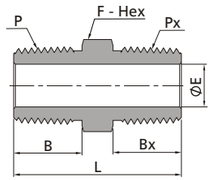
Materials

Material	Bar Stock	Forging	Designator
316 stainless steel	ASTM A276, ASME SA479, EN 1.4401	ASTM A182, ASME SA182, EN 1.4401	SS
304 stainless steel	ASTM A276, ASME SA479, EN 1.4301	ASTM A182, ASME SA182, EN 1.4301	S4
Alloy 400	ASTM B164, ASME SB164	ASTM B564 ASME SB564	M
Alloy 600	ASTM B166, ASME SB166	ASTM B564, ASME SB564	INC
Alloy C-276	ASTM B574	ASTM B564,	HC
Brass	ASME B16/ASTM B453	ASTM B283	B
Carbon steel	ASTM A108	ASTM A105	CS
904L stainless steel	ASTM B649	ASTM A182	904L

Cautions:

◎ Do not loosen or tighten fittings when system is pressurized.
◎ Always use proper thread sealants on tapered pipe threads.
◎ Confirm the sealing type when choosing the straight threads, make sure the construction of the matching threads comply with the sealing type.

Hex Nipples



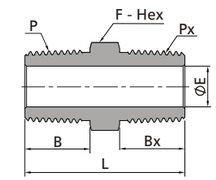
Male NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/16	1/16	-PHN-NS1	1.01 (25.6)	0.31 (7.9)	0.38 (9.7)	0.38 (9.7)	0.12 (3.0)	11000 (757)	5500 (378)
1/8	1/16	-PHN-NS2-NS1	1.01 (25.6)	0.44 (11.1)	0.38 (9.7)	0.38 (9.7)	0.12 (3.0)	11000 (757)	5500 (378)
1/8	1/8	-PHN-NS2	1.01 (25.6)	0.44 (11.1)	0.38 (9.7)	0.38 (9.7)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	1/16	-PHN-NS4-NS1	1.22 (31.0)	0.56 (14.3)	0.56 (14.2)	0.38 (9.7)	0.12 (3.0)	11000 (757)	5500 (378)
1/4	1/8	-PHN-NS4-NS2	1.22 (31.0)	0.56 (14.3)	0.56 (14.2)	0.38 (9.7)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	1/4	-PHN-NS4	1.40 (35.6)	0.56 (14.3)	0.56 (14.2)	0.56 (14.2)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	1/16	-PHN-NS6-NS1	1.25 (31.8)	0.69 (17.5)	0.56 (14.2)	0.38 (9.7)	0.12 (3.0)	11000 (757)	5500 (378)
3/8	1/8	-PHN-NS6-NS2	1.25 (31.8)	0.69 (17.5)	0.56 (14.2)	0.38 (9.7)	0.19 (4.8)	10000 (690)	5000 (344)
3/8	1/4	-PHN-NS6-NS4	1.43 (36.3)	0.69 (17.5)	0.56 (14.2)	0.56 (14.2)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	3/8	-PHN-NS6	1.43 (36.3)	0.69 (17.5)	0.56 (14.2)	0.56 (14.2)	0.38 (9.7)	7800 (537)	3900 (268)
1/2	1/8	-PHN-NS8-NS2	1.47 (37.3)	0.87 (22.2)	0.75 (19.1)	0.38 (9.7)	0.19 (4.8)	7700 (530)	3800 (261)
1/2	1/4	-PHN-NS8-NS4	1.65 (41.9)	0.87 (22.2)	0.75 (19.1)	0.56 (14.2)	0.28 (7.1)	8000 (551)	4000 (275)
1/2	3/8	-PHN-NS8-NS6	1.65 (41.9)	0.87 (22.2)	0.75 (19.1)	0.56 (14.2)	0.38 (9.7)	7800 (537)	3900 (268)
1/2	1/2	-PHN-NS8	1.84 (46.7)	0.87 (22.2)	0.75 (19.1)	0.75 (19.1)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	1/8	-PHN-NS12-NS2	1.59 (40.4)	1.06 (27.0)	0.75 (19.1)	0.38 (9.7)	0.19 (4.8)	10000 (690)	5000 (344)
3/4	1/4	-PHN-NS12-NS4	1.65 (41.9)	1.06 (27.0)	0.75 (19.1)	0.56 (14.2)	0.28 (7.1)	8000 (551)	4000 (275)
3/4	3/8	-PHN-NS12-NS6	1.78 (45.2)	1.06 (27.0)	0.75 (19.1)	0.56 (14.2)	0.38 (9.7)	7800 (537)	3900 (268)
3/4	1/2	-PHN-NS12-NS8	1.84 (46.7)	1.06 (27.0)	0.75 (19.1)	0.75 (19.1)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	3/4	-PHN-NS12	1.84 (46.7)	1.06 (27.0)	0.75 (19.1)	0.75 (19.1)	0.62 (15.7)	7300 (502)	3600 (248)
1	1/8	-PHN-NS16-NS2	1.78 (45.2)	1.37 (34.9)	0.94 (23.9)	0.38 (9.7)	0.19 (4.8)	10000 (690)	5000 (344)
1	1/4	-PHN-NS16-NS4	1.94 (49.3)	1.37 (34.9)	0.94 (23.9)	0.56 (14.2)	0.28 (7.1)	5300 (365)	2600 (179)
1	3/8	-PHN-NS16-NS6	1.97 (50.0)	1.37 (34.9)	0.94 (23.9)	0.56 (14.2)	0.38 (9.7)	7800 (537)	3900 (268)
1	1/2	-PHN-NS16-NS8	2.13 (54.1)	1.37 (34.9)	0.94 (23.9)	0.75 (19.1)	0.47 (11.9)	7700 (530)	3800 (261)
1	3/4	-PHN-NS16-NS12	2.13 (54.1)	1.37 (34.9)	0.94 (23.9)	0.75 (19.1)	0.62 (15.7)	7300 (502)	3600 (248)
1	1	-PHN-NS16	2.32 (58.9)	1.37 (34.9)	0.94 (23.9)	0.94 (23.9)	0.88 (22.4)	5300 (365)	2600 (179)
1 1/4	1	-PHN-NS20-NS16	2.45 (62.2)	1.75 (44.5)	0.94 (23.9)	0.94 (23.9)	0.88 (22.4)	5300 (365)	2600 (179)
1 1/4	1 1/4	-PHN-NS20	2.48 (62.9)	1.75 (44.5)	0.94 (23.9)	0.94 (23.9)	1.13 (28.6)	6000 (410)	3000 (200)
1 1/2	1 1/2	-PHN-NS24	2.61 (66.3)	2.00 (50.8)	1.03 (26.2)	1.03 (26.2)	1.34 (34.0)	5000 (344)	2500 (172)
2	2	-PHN-NS32	3.06 (77.7)	2.75 (69.9)	1.03 (26.2)	1.03 (26.2)	1.77 (45.0)	3900 (268)	1900 (130)
Heavy-Wall Male NPT Threads									
1/4	1/4	-PHN-NS4-10K	1.40 (35.6)	0.56 (14.3)	0.56 (14.2)	0.56 (14.2)	0.23 (5.8)	10000 (690)	/
1/2	1/4	-PHN-NS8-NS4-10K	1.65 (41.9)	0.87 (22.2)	0.75 (19.1)	0.56 (14.2)	0.23 (5.8)	10000 (690)	/
1/2	1/2	-PHN-NS8-10K	1.84 (46.7)	0.87 (22.2)	0.75 (19.1)	0.75 (19.1)	0.39 (9.9)	10000 (690)	/

Male ISO Tapered Threads

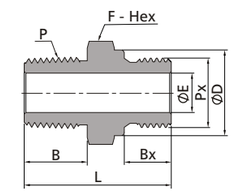
P-RT Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/8	-PHN-RT2	1.01 (25.6)	0.44 (11.1)	0.38 (9.7)	0.38 (9.7)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	1/4	-PHN-RT4	1.40 (35.6)	0.56 (14.3)	0.56 (14.2)	0.56 (14.2)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	3/8	-PHN-RT6	1.43 (36.3)	0.69 (17.5)	0.56 (14.2)	0.56 (14.2)	0.38 (9.7)	7800 (537)	3900 (268)
1/2	1/2	-PHN-RT8	1.84 (46.7)	0.87 (22.2)	0.75 (19.1)	0.75 (19.1)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	3/4	-PHN-RT12	1.84 (46.7)	1.06 (27.0)	0.75 (19.1)	0.75 (19.1)	0.62 (15.7)	7300 (502)	3600 (248)
1	1	-PHN-RT16	2.32 (58.9)	1.37 (34.9)	0.94 (23.9)	0.94 (23.9)	0.88 (22.4)	5300 (365)	2600 (179)

Hex Nipples



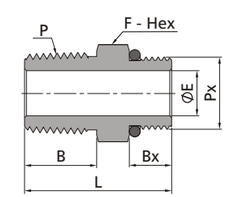
Male NPT Threads — Male ISO Tapered Threads

P-NPT Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/8	-PHN-NS2-RT2	1.01 (25.6)	0.44 (11.1)	0.38 (9.7)	0.38 (9.7)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	1/4	-PHN-NS4-RT4	1.40 (35.6)	0.56 (14.3)	0.56 (14.2)	0.56 (14.2)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	3/8	-PHN-NS6-RT6	1.43 (36.3)	0.69 (17.5)	0.56 (14.2)	0.56 (14.2)	0.38 (9.7)	7800 (537)	3900 (268)
1/2	1/2	-PHN-NS8-RT8	1.84 (46.7)	0.87 (22.2)	0.75 (19.1)	0.75 (19.1)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	3/4	-PHN-NS12-RT12	1.84 (46.7)	1.06 (27.0)	0.75 (19.1)	0.75 (19.1)	0.62 (15.7)	7300 (502)	3600 (248)
1	1	-PHN-NS16-RT16	2.32 (58.9)	1.37 (34.9)	0.94 (23.9)	0.94 (23.9)	0.88 (22.4)	5300 (365)	2600 (179)



Male NPT Threads — Male ISO parallel Threads

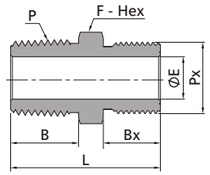
P-NPT Size	Px-RS Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
			L	F	B	Bx	E	D	316 SS, Steel	Brass
1/8	1/8	-PHN-NS2-RS2	1.09 (27.7)	0.56 (14.3)	0.38 (9.7)	0.28 (7.1)	0.16 (4.1)	0.54 (13.7)	11400 (785)	5700 (392)
1/4	1/4	-PHN-NS4-RS4	1.45 (36.8)	0.75 (19.1)	0.56 (14.2)	0.44 (11.2)	0.23 (5.8)	0.71 (18.0)	10300 (709)	5100 (351)
3/8	3/8	-PHN-NS6-RS6	1.48 (37.6)	0.87 (22.2)	0.56 (14.2)	0.44 (11.2)	0.31 (7.9)	0.85 (21.6)	10300 (709)	5100 (351)
1/2	1/2	-PHN-NS8-RS8	1.75 (44.4)	1.06 (27.0)	0.75 (19.1)	0.56 (14.2)	0.47 (11.9)	1.02 (25.9)	7600 (523)	3800 (261)
3/4	3/4	-PHN-NS12-RS12	1.93 (49.0)	1.31 (33.3)	0.75 (19.1)	0.62 (15.7)	0.62 (15.7)	1.26 (32.0)	7300 (502)	3600 (248)
1	1	-PHN-NS16-RS16	2.23 (56.6)	1.63 (41.3)	0.94 (23.9)	0.72 (18.3)	0.78 (19.8)	1.53 (38.9)	7400 (509)	3700 (254)



Male NPT Threads — Male SAE/MS Straight Threads

P-NPT Size	Px-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	F	B	Bx	E	316 SS, Steel
1/4	7/16-20	-PHN-NS4-ST7	1.20 (30.5)	0.56 (14.3)	0.56 (14.2)	0.36 (9.1)	0.20 (5.1)	4500 (310)
3/8	9/16-18	-PHN-NS6-ST9	1.26 (32.0)	0.69 (17.5)	0.56 (14.2)	0.36 (9.1)	0.28 (7.1)	4500 (310)
1/2	3/4-16	-PHN-NS8-ST12	1.53 (38.9)	0.87 (22.2)	0.75 (19.1)	0.44 (11.2)	0.42 (10.7)	4500 (310)
3/4	1 1/16-12	-PHN-NS12-ST17	1.75 (44.4)	1.25 (31.8)	0.75 (19.1)	0.59 (15.0)	0.62 (15.7)	3600 (248)
1	1 5/16-12	-PHN-NS16-ST21	2.00 (50.8)	1.50 (38.1)	0.94 (23.9)	0.59 (15.0)	0.88 (22.4)	2900 (199)

Hex Nipples

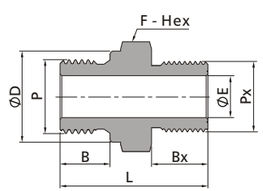


Male NPT Threads — Male Metric Threads

P-NPT Size	Px-Metric Size	Basic Ordering Number	Dimension, mm (in.) L	F	B	Bx	E	Working Pressure psig (bar) 316 SS, Steel
1/8	M20 x 1.5	-PHN-NS2-MS20	32.7 (1.29)	22.2 (0.87)	9.7 (0.38)	16.0 (0.63)	5.0 (0.20)	7700 (530)
1/4	M8 x 1	-PHN-NS4-MS8	29.0 (1.14)	14.3 (0.56)	14.2 (0.56)	9.0 (0.35)	3.2 (0.13)	8000 (551)
1/4	M14 x 1.5	-PHN-NS4-MS14	34.2 (1.35)	15.9 (0.63)	14.2 (0.56)	13.0 (0.51)	7.0 (0.28)	8000 (551)
1/4	M16 x 1.5	-PHN-NS4-MS16	35.2 (1.39)	17.5 (0.69)	14.2 (0.56)	14.0 (0.55)	7.1 (0.28)	7800 (537)
1/4	M20 x 1.5	-PHN-NS4-MS20	37.2 (1.46)	22.2 (0.87)	14.2 (0.56)	16.0 (0.63)	7.1 (0.28)	7700 (530)
3/8	M14 x 1.5	-PHN-NS6-MS14	34.2 (1.35)	17.5 (0.69)	14.2 (0.56)	13.0 (0.51)	7.0 (0.28)	7800 (537)
3/8	M20 x 1.5	-PHN-NS6-MS20	37.2 (1.46)	22.2 (0.87)	14.2 (0.56)	16.0 (0.63)	9.5 (0.37)	7700 (530)
3/8	M24 x 1.5	-PHN-NS6-MS24	38.2 (1.50)	25.4 (1.00)	14.2 (0.56)	17.0 (0.67)	9.5 (0.37)	7400 (509)
1/2	M14 x 1.5	-PHN-NS8-MS14	39.1 (1.54)	22.2 (0.87)	19.1 (0.75)	13.0 (0.51)	7.2 (0.28)	7700 (530)
1/2	M20 x 1.5	-PHN-NS8-MS20	42.0 (1.65)	22.2 (0.87)	19.1 (0.75)	16.0 (0.63)	10.0 (0.39)	7700 (530)
1/2	M24 x 1.5	-PHN-NS8-MS24	43.5 (1.71)	25.4 (1.00)	19.1 (0.75)	17.0 (0.67)	11.9 (0.47)	7400 (509)
3/4	M20 x 1.5	-PHN-NS12-MS20	42.1 (1.66)	27.0 (1.06)	19.1 (0.75)	16.0 (0.63)	10.8 (0.43)	7300 (502)
3/4	M27 x 2	-PHN-NS12-MS27	46.7 (1.84)	31.8 (1.25)	19.1 (0.75)	18.0 (0.71)	15.8 (0.62)	6100 (420)
1	M30 x 2	-PHN-NS16-MS30	56.3 (2.22)	34.9 (1.37)	23.9 (0.94)	20.0 (0.79)	19.4 (0.76)	6100 (420)

Male ISO Tapered Threads — Male Metric Threads

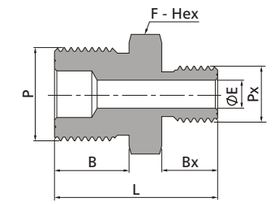
P-RT Size	Px-Metric Size	Basic Ordering Number	Dimension, mm (in.) L	F	B	Bx	E	Working Pressure psig (bar) 316 SS, Steel
1/8	M20 x 1.5	-PHN-RT2-MS20	32.7 (1.29)	22.2 (0.87)	9.7 (0.38)	16.0 (0.63)	5.0 (0.20)	7700 (530)
1/4	M12 x 1.5	-PHN-RT4-MS12	33.4 (1.31)	14.3 (0.56)	14.2 (0.56)	12.0 (0.47)	6.0 (0.24)	8000 (551)
1/4	M20 x 1.5	-PHN-RT4-MS20	37.2 (1.46)	22.2 (0.87)	14.2 (0.56)	16.0 (0.63)	7.0 (0.28)	7700 (530)
3/8	M20 x 1.5	-PHN-RT6-MS20	37.2 (1.46)	22.2 (0.87)	14.2 (0.56)	16.0 (0.63)	9.5 (0.37)	7700 (530)
1/2	M20 x 1.5	-PHN-RT8-MS20	42.0 (1.65)	22.2 (0.87)	19.1 (0.75)	16.0 (0.63)	10.0 (0.39)	7700 (530)



Male ISO Parallel Threads — Male Metric Threads

P-RS Size	Px-Metric Size	Basic Ordering Number	Dimension, mm (in.) L	F	B	Bx	E	D	Working Pressure psig (bar) 316 SS, Steel
1/8	M20 x 1.5	-PHN-RS2-MS20	32.6 (1.28)	22.2 (0.87)	7.1 (0.28)	16.0 (0.63)	4.0 (0.16)	13.7 (0.54)	7700 (530)
1/4	M18 x 1.5	-PHN-RS4-MS18	34.2 (1.35)	20.6 (0.81)	11.2 (0.44)	15.0 (0.59)	5.9 (0.23)	18.0 (0.71)	7800 (537)
1/4	M20 x 1.5	-PHN-RS4-MS20	37.2 (1.46)	22.2 (0.87)	11.2 (0.44)	16.0 (0.63)	5.9 (0.23)	18.0 (0.71)	7700 (530)
3/8	M20 x 1.5	-PHN-RS6-MS20	37.2 (1.46)	22.2 (0.87)	11.2 (0.44)	16.0 (0.63)	7.9 (0.31)	21.6 (0.85)	7700 (530)
1/2	M20 x 1.5	-PHN-RS8-MS20	40.2 (1.58)	27.0 (1.06)	14.0 (0.55)	16.0 (0.63)	11.9 (0.47)	25.9 (1.02)	7700 (530)

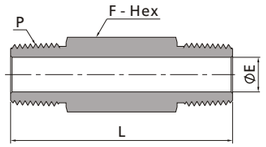
Hex Nipples



Male Metric Threads

P-Metric Size	Px-Metric Size	Basic Ordering Number	Dimension, mm (in.) L	F	B	Bx	E	Working Pressure psig (bar) 316 SS, Steel
M20 x 1.5	M10 x 1	-PHN-MS20-MS10	34.0 (1.34)	22.0 (0.87)	16.0 (0.63)	11.0 (0.43)	4.0 (0.16)	10000 (690)
M20 x 1.5	M12 x 1.5	-PHN-MS20-MS12	35.0 (1.38)	22.0 (0.87)	16.0 (0.63)	12.0 (0.47)	6.0 (0.24)	9000 (620)
M20 x 1.5	M14 x 1.5	-PHN-MS20-MS14	36.0 (1.42)	22.0 (0.87)	16.0 (0.63)	13.0 (0.51)	7.2 (0.28)	8000 (551)
M20 x 1.5	M16 x 1.5	-PHN-MS20-MS16	37.0 (1.46)	22.0 (0.87)	16.0 (0.63)	14.0 (0.55)	9.0 (0.35)	7800 (537)
M20 x 1.5	M20 x 1.5	-PHN-MS20	39.0 (1.54)	22.0 (0.87)	16.0 (0.63)	16.0 (0.63)	10.8 (0.43)	7700 (530)
M27 x 2	M27 x 2	-PHN-MS27	44.5 (1.75)	30.0 (1.18)	18.0 (0.71)	18.0 (0.71)	16.1 (0.63)	7300 (502)

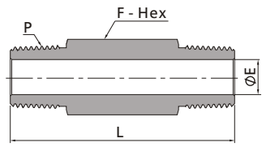
Hex Long Nipples



Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	F	E	Working Pressure psig (bar) 316 SS, Steel	Brass
1/8	-PLN-NS2-1.5	1.50 (38.1)	0.44 (11.1)	0.19 (4.8)	10000 (690)	5000 (344)
1/8	-PLN-NS2-2	2.00 (50.8)	0.44 (11.1)	0.19 (4.8)	10000 (690)	5000 (344)
1/8	-PLN-NS2-2.5	2.50 (63.5)	0.44 (11.1)	0.19 (4.8)	10000 (690)	5000 (344)
1/8	-PLN-NS2-3	3.00 (76.2)	0.44 (11.1)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	-PLN-NS4-1.5	1.50 (38.1)	0.56 (14.3)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PLN-NS4-2	2.00 (50.8)	0.56 (14.3)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PLN-NS4-2.5	2.50 (63.5)	0.56 (14.3)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PLN-NS4-3	3.00 (76.2)	0.56 (14.3)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PLN-NS4-4	4.00 (101.6)	0.56 (14.3)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	-PLN-NS6-1.5	1.50 (38.1)	0.69 (17.5)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PLN-NS6-2	2.00 (50.8)	0.69 (17.5)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PLN-NS6-2.5	2.50 (63.5)	0.69 (17.5)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PLN-NS6-3	3.00 (76.2)	0.69 (17.5)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PLN-NS6-4	4.00 (101.6)	0.69 (17.5)	0.38 (9.7)	7800 (537)	3900 (268)
1/2	-PLN-NS8-2	2.00 (50.8)	0.87 (22.2)	0.47 (11.9)	7700 (530)	3800 (261)
1/2	-PLN-NS8-3	3.00 (76.2)	0.87 (22.2)	0.47 (11.9)	7700 (530)	3800 (261)
1/2	-PLN-NS8-4	4.00 (101.6)	0.87 (22.2)	0.47 (11.9)	7700 (530)	3800 (261)
1/2	-PLN-NS8-6	6.00 (152.4)	0.87 (22.2)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	-PLN-NS12-2	2.00 (50.8)	1.06 (27.0)	0.62 (15.7)	7300 (502)	3600 (248)
3/4	-PLN-NS12-3	3.00 (76.2)	1.06 (27.0)	0.62 (15.7)	7300 (502)	3600 (248)
3/4	-PLN-NS12-4	4.00 (101.6)	1.06 (27.0)	0.62 (15.7)	7300 (502)	3600 (248)
1	-PLN-NS16-3	3.00 (76.2)	1.37 (34.9)	0.88 (22.4)	5300 (365)	2600 (179)
1	-PLN-NS16-4	4.00 (101.6)	1.37 (34.9)	0.88 (22.4)	5300 (365)	2600 (179)

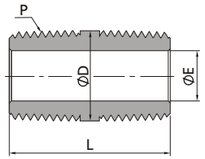
Hex Long Nipples



Male ISO Tapered Threads

P-RT Size	Basic Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)	
		L	F	E	316 SS, Steel	Brass
1/8	-PLN-RT2-1.5	1.50 (38.1)	0.44 (11.1)	0.19 (4.8)	10000 (690)	5000 (344)
1/8	-PLN-RT2-2	2.00 (50.8)	0.44 (11.1)	0.19 (4.8)	10000 (690)	5000 (344)
1/8	-PLN-RT2-2.5	2.50 (63.5)	0.44 (11.1)	0.19 (4.8)	10000 (690)	5000 (344)
1/8	-PLN-RT2-3	3.00 (76.2)	0.44 (11.1)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	-PLN-RT4-1.5	1.50 (38.1)	0.56 (14.3)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PLN-RT4-2	2.00 (50.8)	0.56 (14.3)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PLN-RT4-2.5	2.50 (63.5)	0.56 (14.3)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PLN-RT4-3	3.00 (76.2)	0.56 (14.3)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PLN-RT4-4	4.00 (101.6)	0.56 (14.3)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	-PLN-RT6-1.5	1.50 (38.1)	0.69 (17.5)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PLN-RT6-2	2.00 (50.8)	0.69 (17.5)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PLN-RT6-2.5	2.50 (63.5)	0.69 (17.5)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PLN-RT6-3	3.00 (76.2)	0.69 (17.5)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PLN-RT6-4	4.00 (101.6)	0.69 (17.5)	0.38 (9.7)	7800 (537)	3900 (268)
1/2	-PLN-RT8-2	2.00 (50.8)	0.87 (22.2)	0.47 (11.9)	7700 (530)	3800 (261)
1/2	-PLN-RT8-3	3.00 (76.2)	0.87 (22.2)	0.47 (11.9)	7700 (530)	3800 (261)
1/2	-PLN-RT8-4	4.00 (101.6)	0.87 (22.2)	0.47 (11.9)	7700 (530)	3800 (261)
1/2	-PLN-RT8-6	6.00 (152.4)	0.87 (22.2)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	-PLN-RT12-2	2.00 (50.8)	1.06 (27.0)	0.62 (15.7)	7300 (502)	3600 (248)
3/4	-PLN-RT12-3	3.00 (76.2)	1.06 (27.0)	0.62 (15.7)	7300 (502)	3600 (248)
3/4	-PLN-RT12-4	4.00 (101.6)	1.06 (27.0)	0.62 (15.7)	7300 (502)	3600 (248)
1	-PLN-RT16-3	3.00 (76.2)	1.37 (34.9)	0.88 (22.4)	5300 (365)	2600 (179)
1	-PLN-RT16-4	4.00 (101.6)	1.37 (34.9)	0.88 (22.4)	5300 (365)	2600 (179)

Close Nipples



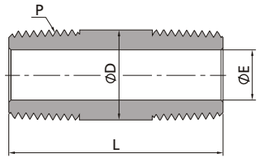
Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)	
		L	D	E	316 SS, Steel	Brass
1/16	-PCN-NS1	0.75 (19.1)	0.31 (7.9)	0.12 (3.0)	11000 (757)	5500 (378)
1/8	-PCN-NS2	0.75 (19.1)	0.41 (10.3)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	-PCN-NS4	1.12 (28.4)	0.54 (13.7)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	-PCN-NS6	1.12 (28.4)	0.67 (17.1)	0.38 (9.6)	7800 (537)	3900 (268)
1/2	-PCN-NS8	1.50 (38.1)	0.84 (21.3)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	-PCN-NS12	1.50 (38.1)	1.05 (26.7)	0.62 (15.7)	7300 (502)	3600 (248)
1	-PCN-NS16	1.88 (47.8)	1.31 (33.4)	0.88 (22.4)	5300 (365)	2600 (179)

Male ISO Tapered Threads

P-RT Size	Basic Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)	
		L	D	E	316 SS, Steel	Brass
1/16	-PCN-RT1	0.75 (19.1)	0.31 (7.9)	0.12 (3.0)	11000 (757)	5500 (378)
1/8	-PCN-RT2	0.75 (19.1)	0.41 (10.3)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	-PCN-RT4	1.12 (28.4)	0.54 (13.7)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	-PCN-RT6	1.12 (28.4)	0.67 (17.1)	0.38 (9.7)	7800 (537)	3900 (268)
1/2	-PCN-RT8	1.50 (38.1)	0.84 (21.3)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	-PCN-RT12	1.50 (38.1)	1.05 (26.7)	0.62 (15.7)	7300 (502)	3600 (248)
1	-PCN-RT16	1.88 (47.8)	1.31 (33.4)	0.88 (22.4)	5300 (365)	2600 (179)

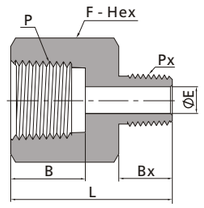
Special Pipe Nipples



Male NPT Threads

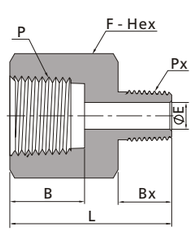
P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)	
		L	D	E	316 SS, Steel	Brass
1/8	-PSN-NS2-1.5	1.50 (38.1)	0.41 (10.3)	0.19 (4.8)	10000 (690)	5000 (344)
1/8	-PSN-NS2-2	2.00 (50.8)	0.41 (10.3)	0.19 (4.8)	10000 (690)	5000 (344)
1/8	-PSN-NS2-2.5	2.50 (63.5)	0.41 (10.3)	0.19 (4.8)	10000 (690)	5000 (344)
1/8	-PSN-NS2-3	3.00 (76.2)	0.41 (10.3)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	-PSN-NS4-1.5	1.50 (38.1)	0.54 (13.7)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PSN-NS4-2	2.00 (50.8)	0.54 (13.7)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PSN-NS4-2.5	2.50 (63.5)	0.54 (13.7)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PSN-NS4-3	3.00 (76.2)	0.54 (13.7)	0.28 (7.1)	8000 (551)	4000 (275)
1/4	-PSN-NS4-4	4.00 (101.6)	0.54 (13.7)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	-PSN-NS6-1.5	1.50 (38.1)	0.67 (17.1)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PSN-NS6-2	2.00 (50.8)	0.67 (17.1)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PSN-NS6-2.5	2.50 (63.5)	0.67 (17.1)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PSN-NS6-3	3.00 (76.2)	0.67 (17.1)	0.38 (9.7)	7800 (537)	3900 (268)
3/8	-PSN-NS6-4	4.00 (101.6)	0.67 (17.1)	0.38 (9.7)	7800 (537)	3900 (268)
1/2	-PSN-NS8-2	2.00 (50.8)	0.84 (21.3)	0.47 (11.9)	7700 (530)	3800 (261)
1/2	-PSN-NS8-3	3.00 (76.2)	0.84 (21.3)	0.47 (11.9)	7700 (530)	3800 (261)
1/2	-PSN-NS8-4	4.00 (101.6)	0.84 (21.3)	0.47 (11.9)	7700 (530)	3800 (261)
1/2	-PSN-NS8-6	6.00 (152.4)	0.84 (21.3)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	-PSN-NS12-2	2.00 (50.8)	1.05 (26.7)	0.62 (15.7)	7300 (502)	3600 (248)
3/4	-PSN-NS12-3	3.00 (76.2)	1.05 (26.7)	0.62 (15.7)	7300 (502)	3600 (248)
3/4	-PSN-NS12-4	4.00 (101.6)	1.05 (26.7)	0.62 (15.7)	7300 (502)	3600 (248)
1	-PSN-NS16-3	3.00 (76.2)	1.31 (33.4)	0.88 (22.4)	5300 (365)	2600 (179)
1	-PSN-NS16-4	4.00 (101.6)	1.31 (33.4)	0.88 (22.4)	5300 (365)	2600 (179)

Adapters



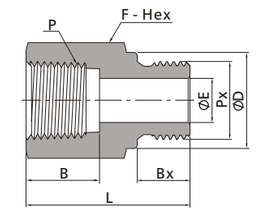
Female NPT Threads								Male NPT Threads	
P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/16	-PA-NS2-NS1	1.09 (27.7)	0.56 (14.3)	0.41 (10.4)	0.38 (9.7)	0.12 (3.0)	6500 (447)	3200 (220)
1/8	1/8	-PA-NS2	1.10 (27.9)	0.56 (14.3)	0.41 (10.4)	0.38 (9.7)	0.19 (4.8)	6500 (447)	3200 (220)
1/4	1/16	-PA-NS4-NS1	1.20 (30.5)	0.75 (19.1)	0.59 (15.0)	0.38 (9.7)	0.12 (3.0)	6600 (454)	3300 (227)
1/4	1/8	-PA-NS4-NS2	1.26 (32.0)	0.75 (19.1)	0.59 (15.0)	0.38 (9.7)	0.19 (4.8)	6600 (454)	3300 (227)
1/4	1/4	-PA-NS4	1.40 (35.6)	0.75 (19.1)	0.59 (15.0)	0.56 (14.2)	0.28 (7.1)	6600 (454)	3300 (227)
3/8	1/16	-PA-NS6-NS1	1.25 (31.8)	0.87 (22.2)	0.59 (15.0)	0.38 (9.7)	0.12 (3.0)	5300 (365)	2600 (179)
3/8	1/8	-PA-NS6-NS2	1.33 (33.8)	0.87 (22.2)	0.59 (15.0)	0.38 (9.7)	0.19 (4.8)	5300 (365)	2600 (179)
3/8	1/4	-PA-NS6-NS4	1.50 (38.1)	0.87 (22.2)	0.59 (15.0)	0.56 (14.2)	0.28 (7.1)	5300 (365)	2600 (179)
3/8	3/8	-PA-NS6	1.51 (38.4)	0.87 (22.2)	0.59 (15.0)	0.56 (14.2)	0.38 (9.6)	5300 (365)	2600 (179)
1/2	1/8	-PA-NS8-NS2	1.58 (40.1)	1.06 (27.0)	0.78 (19.8)	0.38 (9.7)	0.19 (4.8)	4900 (337)	2400 (165)
1/2	1/4	-PA-NS8-NS4	1.76 (44.7)	1.06 (27.0)	0.78 (19.8)	0.56 (14.2)	0.28 (7.1)	4900 (337)	2400 (165)
1/2	3/8	-PA-NS8-NS6	1.75 (44.4)	1.06 (27.0)	0.78 (19.8)	0.56 (14.2)	0.38 (9.6)	4900 (337)	2400 (165)
1/2	1/2	-PA-NS8	1.94 (49.3)	1.06 (27.0)	0.78 (19.8)	0.75 (19.1)	0.47 (11.9)	4900 (337)	2400 (165)
3/4	1/8	-PA-NS12-NS2	1.56 (39.6)	1.31 (33.3)	0.81 (20.6)	0.38 (9.7)	0.19 (4.8)	4600 (316)	2300 (158)
3/4	1/4	-PA-NS12-NS4	1.85 (47.0)	1.31 (33.3)	0.81 (20.6)	0.56 (14.2)	0.28 (7.1)	4600 (316)	2300 (158)
3/4	3/8	-PA-NS12-NS6	1.82 (46.2)	1.31 (33.3)	0.81 (20.6)	0.56 (14.2)	0.38 (9.6)	4600 (316)	2300 (158)
3/4	1/2	-PA-NS12-NS8	2.02 (51.3)	1.31 (33.3)	0.81 (20.6)	0.75 (19.1)	0.47 (11.9)	4600 (316)	2300 (158)
3/4	3/4	-PA-NS12	2.02 (51.3)	1.31 (33.3)	0.81 (20.6)	0.75 (19.1)	0.62 (15.7)	4600 (316)	2300 (158)
1	1/8	-PA-NS16-NS2	1.81 (46.0)	1.63 (41.3)	1.00 (25.4)	0.38 (9.7)	0.19 (4.8)	4400 (303)	2200 (151)
1	1/4	-PA-NS16-NS4	1.96 (49.8)	1.63 (41.3)	1.00 (25.4)	0.56 (14.2)	0.28 (7.1)	4400 (303)	2200 (151)
1	3/8	-PA-NS16-NS6	2.00 (50.8)	1.63 (41.3)	1.00 (25.4)	0.56 (14.2)	0.38 (9.6)	4400 (303)	2200 (151)
1	1/2	-PA-NS16-NS8	2.16 (54.9)	1.63 (41.3)	1.00 (25.4)	0.75 (19.1)	0.47 (11.9)	4400 (303)	2200 (151)
1	3/4	-PA-NS16-NS12	2.17 (55.1)	1.63 (41.3)	1.00 (25.4)	0.75 (19.1)	0.62 (15.7)	4400 (303)	2200 (151)
1	1	-PA-NS16	2.28 (57.9)	1.63 (41.3)	1.00 (25.4)	0.94 (23.9)	0.88 (22.4)	4400 (303)	2200 (151)
1 1/4	1	-PA-NS20-NS16	2.47 (62.7)	2.13 (54.0)	1.00 (25.4)	0.94 (23.9)	0.88 (22.4)	5000 (344)	2500 (172)
Heavy-Wall Female to male NPT Threads									
1/4	1/4	-PA-NS4-10K	1.43 (36.3)	1.00 (25.4)	0.59 (15.0)	0.56 (14.2)	0.23 (5.8)	10000 (690)	/
1/2	1/2	-PA-NS8-10K	2.02 (51.3)	1.50 (38.1)	0.78 (19.8)	0.75 (19.1)	0.39 (9.9)	10000 (690)	/
1/2	1/4	-PA-NS8-NS4-10K	1.81 (46.0)	1.50 (38.1)	0.78 (19.8)	0.56 (14.2)	0.23 (5.8)	10000 (690)	/

Adapters

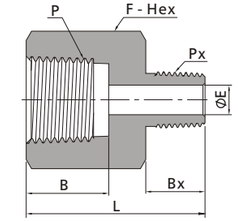


Female NPT Threads								Male ISO Tapered Threads	
P-NPT Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/8	-PA-NS2-RT2	1.09 (27.7)	0.56 (14.3)	0.41 (10.4)	0.38 (9.7)	0.19 (4.8)	6500 (447)	3200 (220)
1/4	1/4	-PA-NS4-RT4	1.42 (36.1)	0.75 (19.1)	0.59 (15.0)	0.56 (14.2)	0.28 (7.1)	6600 (454)	3300 (227)
3/8	3/8	-PA-NS6-RT6	1.50 (38.1)	0.87 (22.2)	0.59 (15.0)	0.56 (14.2)	0.38 (9.6)	5300 (365)	2600 (179)
1/2	1/2	-PA-NS8-RT8	1.94 (49.3)	1.06 (27.0)	0.78 (19.8)	0.75 (19.1)	0.47 (11.9)	4900 (337)	2400 (165)
3/4	3/4	-PA-NS12-RT12	2.02 (51.3)	1.31 (33.3)	0.81 (20.6)	0.75 (19.1)	0.62 (15.7)	4600 (316)	2300 (158)
1	1	-PA-NS16-RT16	2.30 (58.4)	1.63 (41.3)	1.00 (25.4)	0.94 (23.9)	0.88 (22.4)	4400 (303)	2200 (151)

Adapters

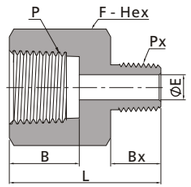


Female NPT Threads									Male ISO Parallel Threads	
P-NPT Size	Px-RS Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
			L	F	B	Bx	D	E	316 SS, Steel	Brass
1/8	1/8	-PA-NS2-RS2	0.99 (25.1)	0.56 (14.3)	0.39 (9.9)	0.28 (7.1)	0.54 (13.7)	0.16 (4.1)	6500 (447)	3200 (220)
1/4	1/4	-PA-NS4-RS4	1.32 (33.5)	0.75 (19.1)	0.41 (10.4)	0.44 (11.2)	0.71 (18.0)	0.23 (5.8)	6600 (454)	3300 (227)
3/8	3/8	-PA-NS6-RS6	1.41 (35.8)	0.87 (22.2)	0.59 (15.0)	0.44 (11.2)	0.85 (21.6)	0.31 (7.9)	5300 (365)	2600 (179)
1/2	1/2	-PA-NS8-RS8	1.74 (44.2)	1.06 (27.0)	0.59 (15.0)	0.56 (14.2)	1.02 (25.9)	0.47 (11.9)	4900 (337)	2400 (165)
3/4	3/4	-PA-NS12-RS12	1.89 (48.0)	1.31 (33.3)	0.81 (20.6)	0.62 (15.7)	1.26 (32.0)	0.62 (15.7)	4600 (316)	2300 (158)
1	1	-PA-NS16-RS16	2.10 (53.3)	1.63 (41.3)	1.00 (25.4)	0.72 (18.3)	1.53 (38.9)	0.78 (19.8)	4400 (303)	2200 (151)

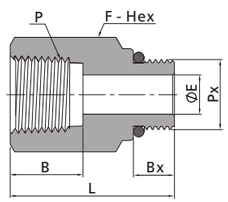


Female ISO Tapered Threads								Male ISO Tapered Threads	
P-RT Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/8	-PA-RT2	1.09 (27.7)	0.56 (14.3)	0.41 (10.4)	0.38 (9.7)	0.19 (4.8)	6500 (447)	3200 (220)
1/4	1/8	-PA-RT4-RT2	1.26 (32.0)	0.75 (19.1)	0.59 (15.0)	0.38 (9.7)	0.19 (4.8)	6600 (454)	3300 (227)
1/4	1/4	-PA-RT4	1.42 (36.1)	0.75 (19.1)	0.59 (15.0)	0.56 (14.2)	0.28 (7.1)	6600 (454)	3300 (227)
3/8	1/4	-PA-RT6-RT4	1.50 (38.1)	0.87 (22.2)	0.59 (15.0)	0.56 (14.2)	0.28 (7.1)	5300 (365)	2600 (179)
3/8	3/8	-PA-RT6	1.50 (38.1)	0.87 (22.2)	0.59 (15.0)	0.56 (14.2)	0.38 (9.7)	5300 (365)	2600 (179)
1/2	1/4	-PA-RT8-RT4	1.76 (44.7)	1.06 (27.0)	0.78 (19.8)	0.56 (14.2)	0.28 (7.1)	4900 (337)	2400 (165)
1/2	3/8	-PA-RT8-RT6	1.75 (44.4)	1.06 (27.0)	0.78 (19.8)	0.56 (14.2)	0.38 (9.7)	4900 (337)	2400 (165)
1/2	1/2	-PA-RT8	1.95 (49.5)	1.06 (27.0)	0.78 (19.8)	0.75 (19.1)	0.47 (11.9)	4900 (337)	2400 (165)
3/4	3/4	-PA-RT12	2.02 (51.3)	1.31 (33.3)	0.81 (20.6)	0.75 (19.1)	0.62 (15.7)	4600 (316)	2300 (158)
1	1	-PA-RT16	2.30 (58.4)	1.63 (41.3)	1.00 (25.4)	0.94 (23.9)	0.88 (22.4)	4400 (303)	2200 (151)

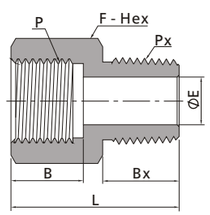
Adapters



Female ISO Tapered Threads								Male NPT Threads	
P-RT Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/8	-PA-RT2-NS2	1.09 (27.7)	0.56 (14.3)	0.41 (10.4)	0.38 (9.7)	0.19 (4.8)	6500 (447)	3200 (220)
1/4	1/4	-PA-RT4-NS4	1.43 (36.3)	0.75 (19.1)	0.59 (15.0)	0.56 (14.2)	0.28 (7.1)	6600 (454)	3300 (227)
3/8	3/8	-PA-RT6-NS6	1.51 (38.4)	0.87 (22.2)	0.59 (15.0)	0.56 (14.2)	0.38 (9.6)	5300 (365)	2600 (179)
1/2	1/2	-PA-RT8-NS8	1.96 (49.8)	1.06 (27.0)	0.78 (19.8)	0.75 (19.1)	0.47 (11.9)	4900 (337)	2400 (165)
3/4	3/4	-PA-RT12-NS12	2.02 (51.3)	1.31 (33.3)	0.81 (20.6)	0.75 (19.1)	0.62 (15.7)	4600 (316)	2300 (158)
1	1	-PA-RT16-NS16	2.30 (58.4)	1.63 (41.3)	1.00 (25.4)	0.94 (23.9)	0.88 (22.4)	4400 (303)	2200 (151)

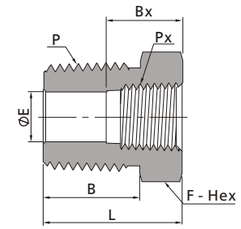


Female NPT Threads								Male SAE/MS Straight Threads
P-NPT Size	Px-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar) 316 SS, Steel
			L	F	B	Bx	E	
1/4	7/16-20	-PA-NS4-ST7	1.32 (33.5)	0.75 (19.1)	0.59 (15.0)	0.36 (9.1)	0.20 (5.1)	4500 (310)
3/8	9/16-18	-PA-NS6-ST9	1.39 (35.3)	0.94 (23.8)	0.59 (15.0)	0.39 (9.9)	0.28 (7.1)	4500 (310)
1/2	3/4-16	-PA-NS8-ST12	1.76 (44.7)	1.06 (27.0)	0.78 (19.8)	0.44 (11.2)	0.42 (10.7)	4500 (310)
3/4	1 1/16-12	-PA-NS12-ST17	1.99 (50.5)	1.37 (34.9)	0.81 (20.6)	0.59 (15.0)	0.66 (16.8)	3600 (248)
1	1 5/16-12	-PA-NS16-ST21	2.12 (53.8)	1.63 (41.3)	1.00 (25.4)	0.59 (15.0)	0.85 (21.5)	2900 (199)



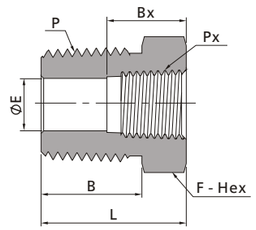
Female ISO Parallel Threads								Male NPT Threads
P-RG Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar) 316 SS, Steel
			L	F	B	Bx	E	
1/8	1/8	-PA-RG2-NS2	0.86 (21.8)	0.56 (14.3)	0.26 (6.5)	0.38 (9.7)	0.18 (4.5)	6100 (420)
1/4	1/4	-PA-RG4-NS4	1.19 (30.2)	0.75 (19.1)	0.51 (12.9)	0.56 (14.2)	0.22 (5.5)	5700 (392)
3/8	3/8	-PA-RG6-NS6	1.27 (32.2)	0.94 (23.8)	0.56 (14.2)	0.56 (14.2)	0.26 (6.5)	5700 (392)
1/2	1/2	-PA-RG8-NS8	1.68 (42.7)	1.06 (27.0)	0.74 (18.8)	0.75 (19.1)	0.28 (7.0)	3900 (268)

Reducing Bushings

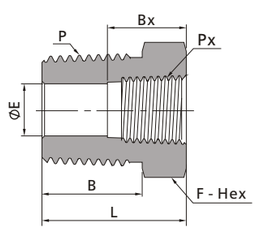


Male NPT Threads								Female NPT Threads	
P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/16	-PRB-NS2-NS1	1.03 (26.2)	0.44 (11.1)	0.38 (9.7)	0.39 (9.9)	0.19 (4.8)	6500 (447)	3200 (220)
1/4	1/16	-PRB-NS4-NS1	0.86 (21.8)	0.56 (14.3)	0.56 (14.2)	0.39 (9.9)	0.19 (4.8)	8000 (551)	4000 (275)
1/4	1/8	-PRB-NS4-NS2	1.06 (26.9)	0.56 (14.3)	0.56 (14.2)	0.41 (10.4)	0.28 (7.1)	6500 (447)	3300 (227)
3/8	1/16	-PRB-NS6-NS1	0.86 (21.8)	0.69 (17.5)	0.56 (14.2)	0.39 (9.9)	0.19 (4.8)	13300 (971)	6600 (454)
3/8	1/8	-PRB-NS6-NS2	0.86 (21.8)	0.69 (17.5)	0.56 (14.2)	0.41 (10.4)	0.34 (8.6)	9200 (633)	4700 (323)
3/8	1/4	-PRB-NS6-NS4	1.19 (30.2)	0.75 (19.1)	0.56 (14.2)	0.59 (15.0)	0.38 (9.6)	6600 (454)	3300 (227)
1/2	1/8	-PRB-NS8-NS2	1.08 (27.4)	0.87 (22.2)	0.75 (19.1)	0.41 (10.4)	0.34 (8.6)	12200 (840)	6200 (427)
1/2	1/4	-PRB-NS8-NS4	1.08 (27.4)	0.87 (22.2)	0.75 (19.1)	0.59 (15.0)	0.45 (11.4)	8300 (571)	4400 (303)
1/2	3/8	-PRB-NS8-NS6	1.41 (35.8)	0.87 (22.2)	0.75 (19.1)	0.59 (15.0)	0.47 (11.9)	5300 (365)	2600 (179)
3/4	1/8	-PRB-NS12-NS2	1.08 (27.4)	1.06 (27.0)	0.75 (19.1)	0.41 (10.4)	0.28 (7.1)	20000(1378)	10000(690)
3/4	1/4	-PRB-NS12-NS4	1.08 (27.4)	1.06 (27.0)	0.75 (19.1)	0.59 (15.0)	0.45 (11.4)	12000 (826)	6000 (410)
3/4	3/8	-PRB-NS12-NS6	1.08 (27.4)	1.06 (27.0)	0.75 (19.1)	0.59 (15.0)	0.59 (15.0)	8200 (564)	4300 (296)
3/4	1/2	-PRB-NS12-NS8	1.63 (41.4)	1.06 (27.0)	0.75 (19.1)	0.78 (19.8)	0.62 (15.7)	4900 (337)	2400 (165)
1	1/8	-PRB-NS16-NS2	1.36 (34.5)	1.37 (34.9)	0.94 (23.9)	0.41 (10.4)	0.28 (7.1)	20000(1378)	10000(690)
1	1/4	-PRB-NS16-NS4	1.37 (34.8)	1.37 (34.9)	0.94 (23.9)	0.59 (15.0)	0.45 (11.4)	14500 (999)	7400 (509)
1	3/8	-PRB-NS16-NS6	1.37 (34.8)	1.37 (34.9)	0.94 (23.9)	0.59 (15.0)	0.59 (15.0)	11600 (799)	5900 (406)
1	1/2	-PRB-NS16-NS8	1.37 (34.8)	1.37 (34.9)	0.94 (23.9)	0.78 (19.8)	0.73 (18.5)	8600 (592)	4300 (296)
1	3/4	-PRB-NS16-NS12	1.85 (47.0)	1.37 (34.9)	0.94 (23.9)	0.81 (20.6)	0.88 (22.4)	5300 (365)	2600 (179)
1 1/4	3/4	-PRB-NS20-NS12	1.47 (37.3)	1.75 (44.5)	0.94 (23.9)	0.81 (20.6)	0.88 (22.4)	7800 (537)	3900 (268)
1 1/4	1	-PRB-NS20-NS16	1.47 (37.3)	1.75 (44.5)	0.94 (23.9)	1.00 (25.4)	0.88 (22.4)	3500 (241)	1750 (120)
1 1/2	1	-PRB-NS24-NS16	1.58 (40.1)	2.00 (50.8)	1.03 (26.2)	1.00 (25.4)	0.88 (22.4)	6600 (454)	3300 (227)
1 1/2	1 1/4	-PRB-NS24-NS20	2.20 (56.0)	2.13 (54.0)	1.03 (26.2)	1.00 (25.4)	1.34 (34.0)	5000 (344)	2500 (172)

Reducing Bushings

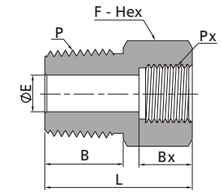


Male NPT Threads								Female ISO Tapered Threads	
P-NPT Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/16	-PRB-NS2-RT1	1.03 (26.2)	0.44 (11.1)	0.38 (9.7)	0.39 (9.9)	0.19 (4.8)	6500 (447)	3200 (220)
1/4	1/16	-PRB-NS4-RT1	0.86 (21.8)	0.56 (14.3)	0.56 (14.2)	0.39 (9.9)	0.19 (4.8)	8000 (551)	4000 (275)
1/4	1/8	-PRB-NS4-RT2	1.06 (26.9)	0.56 (14.3)	0.56 (14.2)	0.41 (10.4)	0.28 (7.1)	6500 (447)	3300 (227)
3/8	1/16	-PRB-NS6-RT1	0.86 (21.8)	0.69 (17.5)	0.56 (14.2)	0.39 (9.9)	0.19 (4.8)	13300 (917)	6600 (454)
3/8	1/8	-PRB-NS6-RT2	0.86 (21.8)	0.69 (17.5)	0.56 (14.2)	0.41 (10.4)	0.28 (7.1)	9200 (633)	4700 (323)
3/8	1/4	-PRB-NS6-RT4	1.19 (30.2)	0.75 (19.1)	0.56 (14.2)	0.59 (15.0)	0.38 (9.7)	6600 (454)	3300 (227)
1/2	1/8	-PRB-NS8-RT2	1.08 (27.4)	0.87 (22.2)	0.75 (19.1)	0.41 (10.4)	0.28 (7.1)	12200 (840)	6200 (427)
1/2	1/4	-PRB-NS8-RT4	1.08 (27.4)	0.87 (22.2)	0.75 (19.1)	0.59 (15.0)	0.41 (10.4)	8300 (571)	4400 (303)
1/2	3/8	-PRB-NS8-RT6	1.41 (35.8)	0.87 (22.2)	0.75 (19.1)	0.59 (15.0)	0.47 (11.9)	5300 (365)	2600 (179)
3/4	1/8	-PRB-NS12-RT2	1.08 (27.4)	1.06 (27.0)	0.75 (19.1)	0.41 (10.4)	0.28 (7.1)	20000 (1378)	10000 (690)
3/4	1/4	-PRB-NS12-RT4	1.08 (27.4)	1.06 (27.0)	0.75 (19.1)	0.59 (15.0)	0.41 (10.4)	12000 (826)	6000 (410)
3/4	3/8	-PRB-NS12-RT6	1.08 (27.4)	1.06 (27.0)	0.75 (19.1)	0.59 (15.0)	0.50 (12.7)	8200 (564)	4300 (296)
3/4	1/2	-PRB-NS12-RT8	1.63 (41.4)	1.06 (27.0)	0.75 (19.1)	0.78 (19.8)	0.62 (15.7)	4900 (337)	2400 (165)
1	1/8	-PRB-NS16-RT2	1.36 (34.5)	1.37 (34.9)	0.94 (23.9)	0.41 (10.4)	0.28 (7.1)	20000 (1378)	10000 (690)
1	1/4	-PRB-NS16-RT4	1.37 (34.8)	1.37 (34.9)	0.94 (23.9)	0.59 (15.0)	0.41 (10.4)	14500 (999)	7400 (509)
1	3/8	-PRB-NS16-RT6	1.37 (34.8)	1.37 (34.9)	0.94 (23.9)	0.59 (15.0)	0.50 (12.7)	11600 (799)	5900 (406)
1	1/2	-PRB-NS16-RT8	1.37 (34.8)	1.37 (34.9)	0.94 (23.9)	0.78 (19.8)	0.62 (15.7)	8600 (592)	4300 (296)
1	3/4	-PRB-NS16-RT12	1.85 (47.0)	1.37 (34.9)	0.94 (23.9)	0.81 (20.6)	0.88 (22.4)	5300 (365)	2600 (179)
1 1/4	3/4	-PRB-NS20-RT12	1.47 (37.3)	1.75 (44.5)	0.94 (23.9)	0.81 (20.6)	0.88 (22.4)	7800 (537)	3900 (268)
1 1/4	1	-PRB-NS20-RT16	1.47 (37.3)	1.75 (44.5)	0.94 (23.9)	1.00 (25.4)	0.88 (22.4)	3500 (241)	1750 (120)
1 1/2	1	-PRB-NS24-RT16	1.58 (40.1)	2.00 (50.8)	1.03 (26.2)	1.00 (25.4)	0.88 (22.4)	6600 (454)	3300 (227)
1 1/2	1 1/4	-PRB-NS24-RT20	2.20 (56.0)	2.13 (54.0)	1.03 (26.2)	1.00 (25.4)	1.34 (34.0)	5000 (344)	2500 (172)

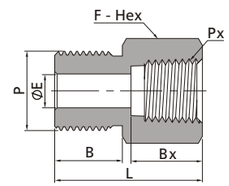


Male ISO Tapered Threads								Female ISO Tapered Threads	
P-RT Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/4	1/8	-PRB-RT4-RT2	1.06 (26.9)	0.56 (14.3)	0.56 (14.2)	0.41 (10.4)	0.28 (7.1)	6500 (447)	3200 (220)
3/8	1/4	-PRB-RT6-RT4	1.19 (30.2)	0.75 (19.1)	0.56 (14.2)	0.59 (15.0)	0.38 (9.6)	6600 (454)	3300 (227)
1/2	1/4	-PRB-RT8-RT4	1.08 (27.4)	0.87 (22.2)	0.75 (19.1)	0.59 (15.0)	0.44 (11.2)	8300 (571)	4400 (303)
1/2	3/8	-PRB-RT8-RT6	1.41 (35.8)	0.87 (22.2)	0.75 (19.1)	0.59 (15.0)	0.47 (11.9)	5300 (365)	2600 (179)

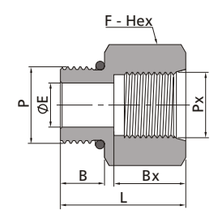
Reducing Bushings



Male NPT Threads								Female ISO Parallel Threads
P-NPT Size	Px-RG Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	F	B	Bx	E	316 SS, Steel
3/8	1/4	-PRB-NS6-RG4	1.19 (30.2)	0.75 (19.1)	0.56 (14.2)	0.51 (12.9)	0.22 (5.6)	5700 (392)
1/2	3/8	-PRB-NS8-RG6	1.41 (35.8)	0.87 (22.2)	0.75 (19.1)	0.56 (14.2)	0.26 (6.6)	5700 (392)
3/4	1/2	-PRB-NS12-RG8	1.63 (41.4)	1.06 (27.0)	0.75 (19.1)	0.74 (18.8)	0.28 (7.1)	3900 (268)

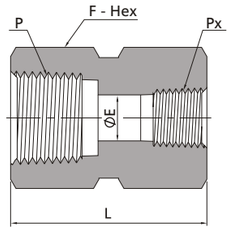


Male ISO Parallel Threads								Female NPT Threads	
P-BP Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/4	1/8	-PRB-BP4-NS2	1.06 (26.9)	0.56 (14.3)	0.51 (12.9)	0.41 (10.4)	0.18 (4.5)	6500 (447)	3200 (220)
3/8	1/4	-PRB-BP6-NS4	1.22 (31.0)	0.75 (19.1)	0.56 (14.2)	0.59 (15.0)	0.28 (7.1)	6600 (454)	3300 (227)
1/2	3/8	-PRB-BP8-NS6	1.41 (35.8)	0.87 (22.2)	0.74 (18.8)	0.59 (15.0)	0.26 (6.6)	5300 (365)	2600 (179)



Male SAE/MS Straight Threads								Female SAE/MS Straight Threads
P-SAE/MS Thread Size	Px-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	F	B	Bx	E	316 SS, Steel
9/16-18	7/16-20	-PRB-ST9-US7	1.12 (28.4)	0.81 (20.6)	0.39 (9.9)	0.55 (14.0)	0.28 (7.1)	4500 (310)
3/4-16	7/16-20	-PRB-ST12-US7	0.98 (24.9)	0.87 (22.2)	0.44 (11.2)	0.55 (14.0)	0.39 (9.9)	4500 (310)
3/4-16	9/16-18	-PRB-ST12-US9	1.19 (30.2)	1.00 (25.4)	0.44 (11.2)	0.63 (16.0)	0.42 (10.7)	4500 (310)
7/8-14	9/16-18	-PRB-ST14-US9	1.10 (27.9)	1.00 (25.4)	0.50 (12.7)	0.63 (16.0)	0.50 (12.7)	3600 (248)
7/8-14	3/4-16	-PRB-ST14-US12	1.42 (36.1)	1.19 (30.2)	0.50 (12.7)	0.71 (18.0)	0.50 (12.7)	3600 (248)
1 1/16-12	3/4-16	-PRB-ST17-US12	1.27 (32.3)	1.25 (31.8)	0.59 (15.0)	0.71 (18.0)	0.65 (16.5)	3600 (248)
1 5/16-12	1 1/16-12	-PRB-ST21-US17	1.61 (40.9)	1.63 (41.3)	0.59 (15.0)	0.94 (24.0)	0.87 (22.1)	2900 (199)
1 5/8-12	1 5/16-12	-PRB-ST26-US21	1.98 (50.3)	2.13 (54.0)	0.59 (15.0)	0.94 (24.0)	1.09 (27.7)	2300 (158)
1 7/8-12	1 5/16-12	-PRB-ST30-US21	1.27 (32.3)	2.13 (54.0)	0.59 (15.0)	0.94 (24.0)	1.23 (31.2)	2300 (158)

Hex Couplings



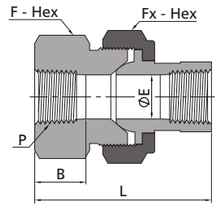
Female NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)	
			L	F	E	316 SS, Steel	Brass
1/16	1/16	-PCG-NS1	0.78 (19.8)	0.44 (11.1)	0.19 (4.8)	6700 (460)	3300 (227)
1/8	1/8	-PCG-NS2	0.81 (20.6)	0.56 (14.3)	0.34 (8.6)	6500 (447)	3200 (220)
1/4	1/8	-PCG-NS4-NS2	1.22 (31.0)	0.75 (19.1)	0.34 (8.6)	6600 (454)	3300 (227)
1/4	1/4	-PCG-NS4	1.19 (30.2)	0.75 (19.1)	0.45 (11.4)	6600 (454)	3300 (227)
3/8	1/4	-PCG-NS6-NS4	1.38 (35.1)	0.87 (22.2)	0.45 (11.4)	5300 (365)	2600 (179)
3/8	3/8	-PCG-NS6	1.31 (33.3)	0.87 (22.2)	0.59 (15.0)	5300 (365)	2600 (179)
1/2	1/8	-PCG-NS8-NS2	1.56 (39.6)	1.06 (27.0)	0.34 (8.6)	4900 (337)	2400 (165)
1/2	1/4	-PCG-NS8-NS4	1.75 (44.4)	1.06 (27.0)	0.45 (11.4)	4900 (337)	2400 (165)
1/2	3/8	-PCG-NS8-NS6	1.78 (45.2)	1.06 (27.0)	0.59 (15.0)	4900 (337)	2400 (165)
1/2	1/2	-PCG-NS8	1.56 (39.6)	1.06 (27.0)	0.73 (18.5)	4900 (337)	2400 (165)
3/4	1/4	-PCG-NS12-NS4	1.81 (46.0)	1.31 (33.3)	0.45 (11.4)	4600 (316)	2300 (158)
3/4	1/2	-PCG-NS12-NS8	2.06 (52.3)	1.31 (33.3)	0.73 (18.5)	4600 (316)	2300 (158)
3/4	3/4	-PCG-NS12	1.62 (41.1)	1.31 (33.3)	0.94 (23.9)	4600 (316)	2300 (158)
1	1/2	-PCG-NS16-NS8	2.19 (55.6)	1.63 (41.3)	0.73 (18.5)	4400 (303)	2200 (151)
1	3/4	-PCG-NS16-NS12	2.25 (57.2)	1.63 (41.3)	0.94 (23.9)	4400 (303)	2200 (151)
1	1	-PCG-NS16	2.00 (50.8)	1.63 (41.3)	1.17 (29.7)	4400 (303)	2200 (151)
Heavy-Wall Female NPT Threads							
1/4	1/4	-PCG-NS4-10K	1.19 (30.2)			10000 (690)	/
1/2	1/2	-PCG-NS8-10K	1.56 (39.6)	1.50 (38.1)	0.73 (18.5)	10000 (690)	/
1/2	1/4	-PCG-NS8-NS4-10K	1.75 (44.4)	1.50 (38.1)	0.45 (11.4)	10000 (690)	/

Female ISO Tapered Threads

P-RT Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)	
			L	F	E	316 SS, Steel	Brass
1/8	1/8	-PCG-RT2	0.81 (20.6)	0.56 (14.3)	0.33 (8.4)	6500 (447)	3200 (220)
1/4	1/4	-PCG-RT4	1.19 (30.2)	0.75 (19.1)	0.44 (11.2)	6600 (454)	3300 (227)
3/8	1/4	-PCG-RT6-RT4	1.38 (35.1)	0.87 (22.2)	0.44 (11.2)	5300 (365)	2600 (179)
3/8	3/8	-PCG-RT6	1.31 (33.3)	0.87 (22.2)	0.58 (14.7)	5300 (365)	2600 (179)
1/2	1/4	-PCG-RT8-RT4	1.75 (44.4)	1.06 (27.0)	0.44 (11.2)	4900 (337)	2400 (165)
1/2	3/8	-PCG-RT8-RT6	1.78 (45.2)	1.06 (27.0)	0.58 (14.7)	4900 (337)	2400 (165)
1/2	1/2	-PCG-RT8	1.56 (39.6)	1.06 (27.0)	0.72 (18.3)	4900 (337)	2400 (165)

Union Ball Joints



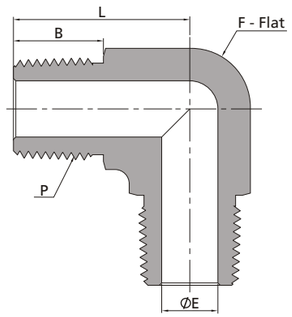
Female NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar) 316 SS, Steel
		L	F	Fx	B	E	
1/8	-UBJ-NS2	1.81 (46.0)	0.94 (23.8)	1.13 (28.6)	0.41 (10.4)	0.27 (6.8)	8400 (578)
1/4	-UBJ-NS4	2.34 (59.4)	1.19 (30.2)	1.37 (34.9)	0.59 (15.0)	0.36 (9.1)	6600 (454)
3/8	-UBJ-NS6	2.50 (63.5)	1.31 (33.3)	1.50 (38.1)	0.59 (15.0)	0.52 (13.2)	5300 (365)
1/2	-UBJ-NS8	2.69 (68.3)	1.63 (41.3)	1.75 (44.5)	0.78 (19.8)	0.62 (15.7)	6000 (410)
3/4	-UBJ-NS12	3.12 (79.2)	1.87 (47.6)	2.13 (54.0)	0.81 (20.6)	0.88 (22.4)	4600 (316)
1	-UBJ-NS16	3.56 (90.4)	2.37 (60.3)	2.50 (63.5)	1.00 (25.4)	1.03 (26.2)	6800 (468)

Female ISO Tapered Threads

P-RT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar) 316 SS, Steel
		L	F	Fx	B	E	
1/8	-UBJ-RT2	1.81 (46.0)	0.94 (23.8)	1.13 (28.6)	0.41 (10.4)	0.27 (6.8)	8400 (578)
1/4	-UBJ-RT4	2.34 (59.4)	1.19 (30.2)	1.37 (34.9)	0.59 (15.0)	0.36 (9.1)	6600 (454)
3/8	-UBJ-RT6	2.50 (63.5)	1.31 (33.3)	1.50 (38.1)	0.59 (15.0)	0.52 (13.2)	5300 (365)
1/2	-UBJ-RT8	2.69 (68.3)	1.63 (41.3)	1.75 (44.5)	0.78 (19.8)	0.62 (15.7)	6000 (410)
3/4	-UBJ-RT12	3.12 (79.2)	1.87 (47.6)	2.13 (54.0)	0.81 (20.6)	0.88 (22.4)	4600 (316)
1	-UBJ-RT16	3.56 (90.4)	2.37 (60.3)	2.50 (63.5)	1.00 (25.4)	1.03 (26.2)	6800 (468)

Male Elbows



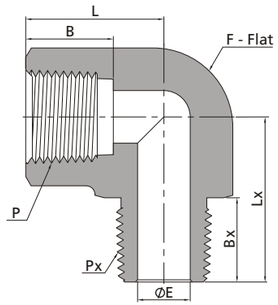
Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)	
		L	F	B	E	316 SS, Steel	Brass
1/16	-PME-NS1	0.72 (18.3)	0.37 (9.5)	0.38 (9.7)	0.12 (3.0)	11000 (757)	5500 (378)
1/8	-PME-NS2	0.88 (22.4)	0.44 (11.1)	0.38 (9.7)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	-PME-NS4	1.05 (26.7)	0.50 (12.7)	0.56 (14.2)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	-PME-NS6	1.17 (29.7)	0.69 (17.5)	0.56 (14.2)	0.38 (9.6)	7800 (537)	3900 (268)
1/2	-PME-NS8	1.45 (36.8)	0.81 (20.6)	0.75 (19.1)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	-PME-NS12	1.59 (40.4)	1.06 (27.0)	0.75 (19.1)	0.62 (15.7)	7300 (502)	3600 (248)
1	-PME-NS16	1.97 (50.0)	1.37 (34.9)	0.94 (23.9)	0.88 (22.4)	5300 (365)	2600 (179)

Male ISO Tapered Threads

P-RT Size	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)	
		L	F	B	E	316 SS, Steel	Brass
1/16	-PME-RT1	0.72 (18.3)	0.37 (9.5)	0.38 (9.7)	0.12 (3.0)	11000 (757)	5500 (378)
1/8	-PME-RT2	0.88 (22.4)	0.44 (11.1)	0.38 (9.7)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	-PME-RT4	1.05 (26.7)	0.50 (12.7)	0.56 (14.2)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	-PME-RT6	1.17 (29.7)	0.69 (17.5)	0.56 (14.2)	0.38 (9.6)	7800 (537)	3900 (268)
1/2	-PME-RT8	1.45 (36.8)	0.81 (20.6)	0.75 (19.1)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	-PME-RT12	1.59 (40.4)	1.06 (27.0)	0.75 (19.1)	0.62 (15.7)	7300 (502)	3600 (248)
1	-PME-RT16	1.97 (50.0)	1.37 (34.9)	0.94 (23.9)	0.88 (22.4)	5300 (365)	2600 (179)

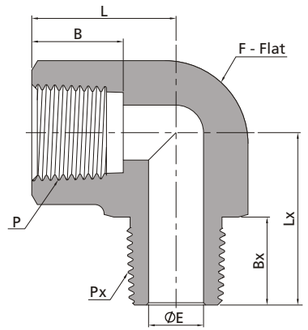
Street Elbows



Female NPT Threads — **Male NPT Threads**

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	-PSE-NS1	0.86 (21.8)	0.44 (11.1)	0.39 (9.9)	0.12 (3.0)	0.88 (22.4)	0.38 (9.7)	9200 (633)	4600 (316)
1/16	1/8	-PSE-NS1-NS2	0.86 (21.8)	0.44 (11.1)	0.39 (9.9)	0.19 (4.8)	0.88 (22.4)	0.38 (9.7)	9200 (633)	4600 (316)
1/16	1/4	-PSE-NS1-NS4	0.88 (22.4)	0.56 (14.3)	0.39 (9.9)	0.19 (4.8)	1.09 (27.7)	0.56 (14.2)	8000 (551)	4000 (275)
1/16	3/8	-PSE-NS1-NS6	0.88 (22.4)	0.69 (17.5)	0.39 (9.9)	0.19 (4.8)	1.17 (29.7)	0.56 (14.2)	7800 (537)	3900 (268)
1/8	1/16	-PSE-NS2-NS1	1.04 (26.4)	0.50 (12.7)	0.41 (10.4)	0.12 (3.0)	0.87 (22.1)	0.38 (9.7)	6200 (426)	3100 (213)
1/8	1/8	-PSE-NS2	1.04 (26.4)	0.50 (12.7)	0.41 (10.4)	0.19 (4.8)	0.87 (22.1)	0.38 (9.7)	6200 (426)	3100 (213)
1/8	1/4	-PSE-NS2-NS4	0.88 (22.4)	0.56 (14.3)	0.41 (10.4)	0.28 (7.1)	1.09 (27.7)	0.56 (14.2)	6500 (447)	3200 (220)
1/8	3/8	-PSE-NS2-NS6	0.88 (22.4)	0.69 (17.5)	0.41 (10.4)	0.28 (7.1)	1.17 (29.7)	0.56 (14.2)	7800 (537)	3900 (268)
1/8	1/2	-PSE-NS2-NS8	0.95 (24.1)	0.81 (20.6)	0.41 (10.4)	0.28 (7.1)	1.45 (36.8)	0.75 (19.1)	7700 (530)	3800 (261)
1/8	3/4	-PSE-NS2-NS12	1.00 (25.4)	1.06 (27.0)	0.41 (10.4)	0.28 (7.1)	1.59 (40.4)	0.75 (19.1)	7300 (502)	3600 (248)
1/8	1	-PSE-NS2-NS16	1.04 (26.4)	1.37 (34.9)	0.41 (10.4)	0.28 (7.1)	1.97 (50.0)	0.94 (23.9)	5300 (365)	2600 (179)
1/4	1/8	-PSE-NS4-NS2	1.17 (29.7)	0.69 (17.5)	0.59 (15.0)	0.19 (4.8)	1.00 (25.4)	0.38 (9.7)	7200 (496)	3600 (248)
1/4	1/4	-PSE-NS4	1.17 (29.7)	0.69 (17.5)	0.59 (15.0)	0.28 (7.1)	1.17 (29.7)	0.56 (14.2)	7200 (496)	3600 (248)
1/4	3/8	-PSE-NS4-NS6	1.17 (29.7)	0.69 (17.5)	0.59 (15.0)	0.34 (8.6)	1.17 (29.7)	0.56 (14.2)	7200 (496)	3600 (248)
1/4	1/2	-PSE-NS4-NS8	1.00 (25.4)	0.81 (20.6)	0.59 (15.0)	0.34 (8.6)	1.45 (36.8)	0.75 (19.1)	7200 (496)	3600 (248)
1/4	3/4	-PSE-NS4-NS12	1.00 (25.4)	1.06 (27.0)	0.59 (15.0)	0.34 (8.6)	1.59 (40.4)	0.75 (19.1)	7300 (502)	3600 (248)
1/4	1	-PSE-NS4-NS16	1.63 (41.4)	1.37 (34.9)	0.59 (15.0)	0.34 (8.6)	1.97 (50.0)	0.94 (23.9)	5300 (365)	2600 (179)
3/8	1/4	-PSE-NS6-NS4	1.42 (36.1)	0.81 (20.6)	0.59 (15.0)	0.28 (7.1)	1.26 (32.0)	0.56 (14.2)	5600 (385)	2800 (192)
3/8	3/8	-PSE-NS6	1.42 (36.1)	0.81 (20.6)	0.59 (15.0)	0.38 (9.6)	1.26 (32.0)	0.56 (14.2)	5600 (385)	2800 (192)
3/8	1/2	-PSE-NS6-NS8	1.42 (36.1)	0.81 (20.6)	0.59 (15.0)	0.47 (11.9)	1.45 (36.8)	0.75 (19.1)	5600 (385)	2800 (192)
3/8	3/4	-PSE-NS6-NS12	1.23 (31.2)	1.06 (27.0)	0.59 (15.0)	0.47 (11.9)	1.59 (40.4)	0.75 (19.1)	7300 (502)	3600 (248)
3/8	1	-PSE-NS6-NS16	1.63 (41.4)	1.37 (34.9)	0.59 (15.0)	0.47 (11.9)	1.97 (50.0)	0.94 (23.9)	5300 (365)	2600 (179)
1/2	1/4	-PSE-NS8-NS4	1.56 (39.6)	1.00 (25.4)	0.78 (19.8)	0.28 (7.1)	1.38 (35.1)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	3/8	-PSE-NS8-NS6	1.56 (39.6)	1.00 (25.4)	0.78 (19.8)	0.38 (9.6)	1.38 (35.1)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	1/2	-PSE-NS8	1.56 (39.6)	1.00 (25.4)	0.78 (19.8)	0.47 (11.9)	1.56 (39.6)	0.75 (19.1)	5600 (385)	2800 (192)
1/2	3/4	-PSE-NS8-NS12	1.23 (31.2)	1.06 (27.0)	0.78 (19.8)	0.62 (15.7)	1.59 (40.4)	0.75 (19.1)	5600 (385)	2800 (192)
1/2	1	-PSE-NS8-NS16	1.63 (41.4)	1.37 (34.9)	0.78 (19.8)	0.62 (15.7)	1.97 (50.0)	0.94 (23.9)	5300 (365)	2600 (179)
3/4	3/4	-PSE-NS12	1.92 (48.8)	1.25 (31.8)	0.81 (20.6)	0.62 (15.7)	1.67 (42.4)	0.75 (19.1)	5100 (351)	2500 (172)
3/4	1	-PSE-NS12-NS16	1.63 (41.4)	1.37 (34.9)	0.81 (20.6)	0.88 (22.4)	1.97 (50.0)	0.94 (23.9)	5100 (351)	2500 (172)
1	1	-PSE-NS16	1.91 (48.5)	1.69 (42.9)	1.00 (25.4)	0.88 (22.4)	1.94 (49.3)	0.94 (23.9)	5300 (365)	2600 (179)
1 1/4	1 1/4	-PSE-NS20	2.38 (60.5)	2.00 (50.8)	1.00 (25.4)	1.25 (31.8)	2.38 (60.5)	0.94 (23.9)	3100 (213)	1600 (110)

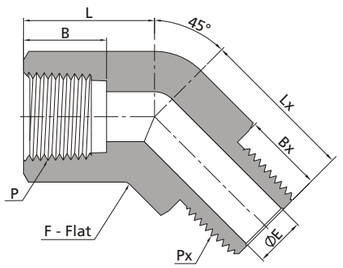
Street Elbows



Female ISO Tapered Threads — **Male ISO Tapered Threads**

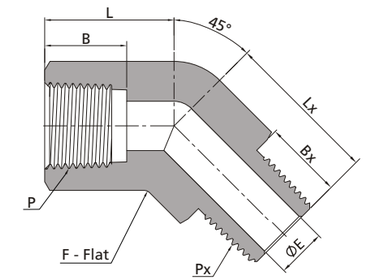
P-RT Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	-PSE-RT1	0.86 (21.8)	0.44 (11.1)	0.39 (9.9)	0.12 (3.0)	0.88 (22.4)	0.38 (9.7)	9200 (633)	4600 (316)
1/16	1/8	-PSE-RT1-RT2	0.86 (21.8)	0.44 (11.1)	0.39 (9.9)	0.19 (4.8)	0.88 (22.4)	0.38 (9.7)	9200 (633)	4600 (316)
1/16	1/4	-PSE-RT1-RT4	0.88 (22.4)	0.56 (14.3)	0.39 (9.9)	0.19 (4.8)	1.09 (27.7)	0.56 (14.2)	8000 (551)	4000 (275)
1/16	3/8	-PSE-RT1-RT6	0.88 (22.4)	0.69 (17.5)	0.39 (9.9)	0.19 (4.8)	1.17 (29.7)	0.56 (14.2)	7800 (537)	3900 (268)
1/8	1/16	-PSE-RT2-RT1	1.04 (26.4)	0.50 (12.7)	0.41 (10.4)	0.12 (3.0)	0.87 (22.1)	0.38 (9.7)	6200 (426)	3100 (213)
1/8	1/8	-PSE-RT2	1.04 (26.4)	0.50 (12.7)	0.41 (10.4)	0.19 (4.8)	0.87 (22.1)	0.38 (9.7)	6200 (426)	3100 (213)
1/8	1/4	-PSE-RT2-RT4	0.88 (22.4)	0.56 (14.3)	0.41 (10.4)	0.28 (7.1)	1.09 (27.7)	0.56 (14.2)	6500 (447)	3200 (220)
1/8	3/8	-PSE-RT2-RT6	0.88 (22.4)	0.69 (17.5)	0.41 (10.4)	0.28 (7.1)	1.17 (29.7)	0.56 (14.2)	7800 (537)	3900 (268)
1/8	1/2	-PSE-RT2-RT8	0.95 (24.1)	0.81 (20.6)	0.41 (10.4)	0.28 (7.1)	1.45 (36.8)	0.75 (19.1)	7700 (530)	3800 (261)
1/8	3/4	-PSE-RT2-RT12	1.00 (25.4)	1.06 (27.0)	0.41 (10.4)	0.28 (7.1)	1.59 (40.4)	0.75 (19.1)	7300 (502)	3600 (248)
1/8	1	-PSE-RT2-RT16	1.04 (26.4)	1.37 (34.9)	0.41 (10.4)	0.28 (7.1)	1.97 (50.0)	0.94 (23.9)	5300 (365)	2600 (179)
1/4	1/8	-PSE-RT4-RT2	1.17 (29.7)	0.69 (17.5)	0.59 (15.0)	0.19 (4.8)	1.00 (25.4)	0.38 (9.7)	7200 (496)	3600 (248)
1/4	1/4	-PSE-RT4	1.17 (29.7)	0.69 (17.5)	0.59 (15.0)	0.28 (7.1)	1.17 (29.7)	0.56 (14.2)	7200 (496)	3600 (248)
1/4	3/8	-PSE-RT4-RT6	1.17 (29.7)	0.69 (17.5)	0.59 (15.0)	0.34 (8.6)	1.17 (29.7)	0.56 (14.2)	7200 (496)	3600 (248)
1/4	1/2	-PSE-RT4-RT8	1.00 (25.4)	0.81 (20.6)	0.59 (15.0)	0.34 (8.6)	1.45 (36.8)	0.75 (19.1)	7200 (496)	3600 (248)
1/4	3/4	-PSE-RT4-RT12	1.00 (25.4)	1.06 (27.0)	0.59 (15.0)	0.34 (8.6)	1.59 (40.4)	0.75 (19.1)	7300 (502)	3600 (248)
1/4	1	-PSE-RT4-RT16	1.63 (41.4)	1.37 (34.9)	0.59 (15.0)	0.34 (8.6)	1.97 (50.0)	0.94 (23.9)	5300 (365)	2600 (179)
3/8	1/4	-PSE-RT6-RT4	1.42 (36.1)	0.81 (20.6)	0.59 (15.0)	0.28 (7.1)	1.26 (32.0)	0.56 (14.2)	5600 (385)	2800 (192)
3/8	3/8	-PSE-RT6	1.42 (36.1)	0.81 (20.6)	0.59 (15.0)	0.38 (9.6)	1.26 (32.0)	0.56 (14.2)	5600 (385)	2800 (192)
3/8	1/2	-PSE-RT6-RT8	1.42 (36.1)	0.81 (20.6)	0.59 (15.0)	0.47 (11.9)	1.45 (36.8)	0.75 (19.1)	5600 (385)	2800 (192)
3/8	3/4	-PSE-RT6-RT12	1.23 (31.2)	1.06 (27.0)	0.59 (15.0)	0.47 (11.9)	1.59 (40.4)	0.75 (19.1)	7300 (502)	3600 (248)
3/8	1	-PSE-RT6-RT16	1.63 (41.4)	1.37 (34.9)	0.59 (15.0)	0.47 (11.9)	1.97 (50.0)	0.94 (23.9)	5300 (365)	2600 (179)
1/2	1/4	-PSE-RT8-RT4	1.56 (39.6)	1.00 (25.4)	0.78 (19.8)	0.28 (7.1)	1.38 (35.1)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	3/8	-PSE-RT8-RT6	1.56 (39.6)	1.00 (25.4)	0.78 (19.8)	0.38 (9.6)	1.38 (35.1)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	1/2	-PSE-RT8	1.56 (39.6)	1.00 (25.4)	0.78 (19.8)	0.47 (11.9)	1.56 (39.6)	0.75 (19.1)	5600 (385)	2800 (192)
1/2	3/4	-PSE-RT8-RT12	1.23 (31.2)	1.06 (27.0)	0.78 (19.8)	0.62 (15.7)	1.59 (40.4)	0.75 (19.1)	5600 (385)	2800 (192)
1/2	1	-PSE-RT8-RT16	1.63 (41.4)	1.37 (34.9)	0.78 (19.8)	0.62 (15.7)	1.97 (50.0)	0.94 (23.9)	5300 (365)	2600 (179)
3/4	3/4	-PSE-RT12	1.92 (48.8)	1.25 (31.8)	0.81 (20.6)	0.62 (15.7)	1.67 (42.4)	0.75 (19.1)	5100 (351)	2500 (172)
3/4	1	-PSE-RT12-RT16	1.63 (41.4)	1.37 (34.9)	0.81 (20.6)	0.88 (22.4)	1.97 (50.0)	0.94 (23.9)	5100 (351)	2500 (172)
1	1	-PSE-RT16	1.91 (48.5)	1.69 (42.9)	1.00 (25.4)	0.88 (22.4)	1.94 (49.3)	0.94 (23.9)	5300 (365)	2600 (179)
1 1/4	1 1/4	-PSE-RT20	2.38 (60.5)	2.00 (50.8)	1.00 (25.4)	1.25 (31.8)	2.38 (60.5)	0.94 (23.9)	3100 (213)	1600 (110)

45° Street Elbows



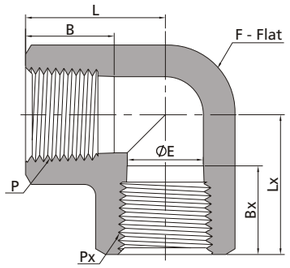
Female NPT Threads										Male NPT Threads
P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	-PSV-NS1	0.66 (16.8)	0.44 (11.1)	0.39 (9.9)	0.12 (3.0)	0.66 (16.8)	0.38 (9.7)	9200 (633)	4600 (316)
1/16	1/8	-PSV-NS1-NS2	0.66 (16.8)	0.44 (11.1)	0.39 (9.9)	0.19 (4.8)	0.66 (16.8)	0.38 (9.7)	9200 (633)	4600 (316)
1/16	1/4	-PSV-NS1-NS4	0.66 (16.8)	0.56 (14.3)	0.39 (9.9)	0.19 (4.8)	0.86 (21.8)	0.56 (14.2)	8000 (551)	4000 (275)
1/16	3/8	-PSV-NS1-NS6	0.88 (22.4)	0.69 (17.5)	0.39 (9.9)	0.19 (4.8)	0.94 (23.8)	0.56 (14.2)	7800 (537)	3900 (268)
1/8	1/16	-PSV-NS2-NS1	0.80 (20.2)	0.50 (12.7)	0.41 (10.4)	0.12 (3.0)	0.68 (17.2)	0.38 (9.7)	6200 (426)	3100 (213)
1/8	1/8	-PSV-NS2	0.80 (20.2)	0.50 (12.7)	0.41 (10.4)	0.19 (4.8)	0.68 (17.2)	0.38 (9.7)	6200 (426)	3100 (213)
1/8	1/4	-PSV-NS2-NS4	0.66 (16.8)	0.56 (14.3)	0.41 (10.4)	0.28 (7.1)	0.86 (21.8)	0.56 (14.2)	6500 (447)	3200 (220)
1/8	3/8	-PSV-NS2-NS6	0.88 (22.4)	0.69 (17.5)	0.41 (10.4)	0.28 (7.1)	0.94 (23.8)	0.56 (14.2)	7800 (537)	3900 (268)
1/8	1/2	-PSV-NS2-NS8	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)	0.28 (7.1)	1.14 (29.0)	0.75 (19.1)	7700 (530)	3800 (261)
1/8	3/4	-PSV-NS2-NS12	1.00 (25.4)	1.06 (27.0)	0.41 (10.4)	0.28 (7.1)	1.20 (30.5)	0.75 (19.1)	7300 (502)	3600 (248)
1/8	1	-PSV-NS2-NS16	1.04 (26.4)	1.37 (34.9)	0.41 (10.4)	0.28 (7.1)	1.94 (49.3)	0.94 (23.9)	5300 (365)	2600 (179)
1/4	1/8	-PSV-NS4-NS2	1.00 (25.4)	0.69 (17.5)	0.59 (15.0)	0.19 (4.8)	0.76 (19.3)	0.38 (9.7)	7200 (496)	3600 (248)
1/4	1/4	-PSV-NS4	1.00 (25.4)	0.69 (17.5)	0.59 (15.0)	0.28 (7.1)	0.76 (19.3)	0.56 (14.2)	7200 (496)	3600 (248)
1/4	3/8	-PSV-NS4-NS6	1.00 (25.4)	0.69 (17.5)	0.59 (15.0)	0.34 (8.6)	0.94 (23.8)	0.56 (14.2)	7200 (496)	3600 (248)
1/4	1/2	-PSV-NS4-NS8	0.87 (22.2)	0.81 (20.6)	0.59 (15.0)	0.34 (8.6)	1.14 (29.0)	0.75 (19.1)	7200 (496)	3600 (248)
1/4	3/4	-PSV-NS4-NS12	1.00 (25.4)	1.06 (27.0)	0.59 (15.0)	0.34 (8.6)	1.20 (30.5)	0.75 (19.1)	7300 (502)	3600 (248)
1/4	1	-PSV-NS4-NS16	1.26 (32.0)	1.37 (34.9)	0.59 (15.0)	0.34 (8.6)	1.48 (37.6)	0.94 (23.9)	5300 (365)	2600 (179)
3/8	1/4	-PSV-NS6-NS4	1.06 (27.0)	0.81 (20.6)	0.59 (15.0)	0.28 (7.1)	0.95 (24.2)	0.56 (14.2)	5600 (385)	2800 (192)
3/8	3/8	-PSV-NS6	1.06 (27.0)	0.81 (20.6)	0.59 (15.0)	0.38 (9.6)	0.95 (24.2)	0.56 (14.2)	5600 (385)	2800 (192)
3/8	1/2	-PSV-NS6-NS8	1.06 (27.0)	0.81 (20.6)	0.59 (15.0)	0.47 (11.9)	1.14 (29.0)	0.75 (19.1)	5600 (385)	2800 (192)
3/8	3/4	-PSV-NS6-NS12	1.06 (27.0)	1.06 (27.0)	0.59 (15.0)	0.47 (11.9)	1.20 (30.5)	0.75 (19.1)	7300 (502)	3600 (248)
3/8	1	-PSV-NS6-NS16	1.26 (32.0)	1.37 (34.9)	0.59 (15.0)	0.47 (11.9)	1.48 (37.6)	0.94 (23.9)	5300 (365)	2600 (179)
1/2	1/4	-PSV-NS8-NS4	1.26 (32.0)	1.00 (25.4)	0.78 (19.8)	0.28 (7.1)	0.99 (25.2)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	3/8	-PSV-NS8-NS6	1.26 (32.0)	1.00 (25.4)	0.78 (19.8)	0.38 (9.6)	0.99 (25.2)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	1/2	-PSV-NS8	1.26 (32.0)	1.00 (25.4)	0.78 (19.8)	0.47 (11.9)	1.26 (32.0)	0.75 (19.1)	5600 (385)	2800 (192)
1/2	3/4	-PSV-NS8-NS12	1.28 (32.5)	1.06 (27.0)	0.78 (19.8)	0.62 (15.7)	1.20 (30.5)	0.75 (19.1)	5600 (385)	2800 (192)
1/2	1	-PSV-NS8-NS16	1.48 (37.6)	1.37 (34.9)	0.78 (19.8)	0.62 (15.7)	1.48 (37.6)	0.94 (23.9)	5300 (365)	2600 (179)
3/4	3/4	-PSV-NS12	1.36 (34.5)	1.25 (31.8)	0.81 (20.6)	0.62 (15.7)	1.36 (34.5)	0.75 (19.1)	5100 (351)	2500 (172)
3/4	1	-PSV-NS12-NS16	1.48 (37.6)	1.49 (37.9)	0.81 (20.6)	0.88 (22.4)	1.48 (37.6)	0.94 (23.9)	5100 (351)	2500 (172)
1	1	-PSV-NS16	1.81 (46.0)	1.69 (42.9)	1.00 (25.4)	0.88 (22.4)	1.81 (46.0)	0.94 (23.9)	5300 (365)	2600 (179)
1 1/4	1 1/4	-PSV-NS20	2.00 (50.8)	2.00 (50.8)	1.00 (25.4)	1.25 (31.8)	2.00 (50.8)	0.94 (23.9)	3100 (213)	1600 (110)

45° Street Elbows



Female ISO Tapered Threads										Male ISO Tapered Threads
P-RT Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	-PSV-RT1	0.66 (16.8)	0.44 (11.1)	0.39 (9.9)	0.12 (3.0)	0.66 (16.8)	0.38 (9.7)	9200 (633)	4600 (316)
1/16	1/8	-PSV-RT1-RT2	0.66 (16.8)	0.44 (11.1)	0.39 (9.9)	0.19 (4.8)	0.66 (16.8)	0.38 (9.7)	9200 (633)	4600 (316)
1/16	1/4	-PSV-RT1-RT4	0.66 (16.8)	0.56 (14.3)	0.39 (9.9)	0.19 (4.8)	0.86 (21.8)	0.56 (14.2)	8000 (551)	4000 (275)
1/16	3/8	-PSV-RT1-RT6	0.88 (22.4)	0.69 (17.5)	0.39 (9.9)	0.19 (4.8)	0.94 (23.8)	0.56 (14.2)	7800 (537)	3900 (268)
1/8	1/16	-PSV-RT2-RT1	0.80 (20.2)	0.50 (12.7)	0.41 (10.4)	0.12 (3.0)	0.68 (17.2)	0.38 (9.7)	6200 (426)	3100 (213)
1/8	1/8	-PSV-RT2	0.80 (20.2)	0.50 (12.7)	0.41 (10.4)	0.19 (4.8)	0.68 (17.2)	0.38 (9.7)	6200 (426)	3100 (213)
1/8	1/4	-PSV-RT2-RT4	0.66 (16.8)	0.56 (14.3)	0.41 (10.4)	0.28 (7.1)	0.86 (21.8)	0.56 (14.2)	6500 (447)	3200 (220)
1/8	3/8	-PSV-RT2-RT6	0.88 (22.4)	0.69 (17.5)	0.41 (10.4)	0.28 (7.1)	0.94 (23.8)	0.56 (14.2)	7800 (537)	3900 (268)
1/8	1/2	-PSV-RT2-RT8	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)	0.28 (7.1)	1.14 (29.0)	0.75 (19.1)	7700 (530)	3800 (261)
1/8	3/4	-PSV-RT2-RT12	1.00 (25.4)	1.06 (27.0)	0.41 (10.4)	0.28 (7.1)	1.20 (30.5)	0.75 (19.1)	7300 (502)	3600 (248)
1/8	1	-PSV-RT2-RT16	1.04 (26.4)	1.37 (34.9)	0.41 (10.4)	0.28 (7.1)	1.94 (49.3)	0.94 (23.9)	5300 (365)	2600 (179)
1/4	1/8	-PSV-RT4-RT2	1.00 (25.4)	0.69 (17.5)	0.59 (15.0)	0.19 (4.8)	0.76 (19.3)	0.38 (9.7)	7200 (496)	3600 (248)
1/4	1/4	-PSV-RT4	1.00 (25.4)	0.69 (17.5)	0.59 (15.0)	0.28 (7.1)	0.76 (19.3)	0.56 (14.2)	7200 (496)	3600 (248)
1/4	3/8	-PSV-RT4-RT6	1.00 (25.4)	0.69 (17.5)	0.59 (15.0)	0.34 (8.6)	0.94 (23.8)	0.56 (14.2)	7200 (496)	3600 (248)
1/4	1/2	-PSV-RT4-RT8	0.87 (22.2)	0.81 (20.6)	0.59 (15.0)	0.34 (8.6)	1.14 (29.0)	0.75 (19.1)	7200 (496)	3600 (248)
1/4	3/4	-PSV-RT4-RT12	1.00 (25.4)	1.06 (27.0)	0.59 (15.0)	0.34 (8.6)	1.20 (30.5)	0.75 (19.1)	7300 (502)	3600 (248)
1/4	1	-PSV-RT4-RT16	1.26 (32.0)	1.37 (34.9)	0.59 (15.0)	0.34 (8.6)	1.48 (37.6)	0.94 (23.9)	5300 (365)	2600 (179)
3/8	1/4	-PSV-RT6-RT4	1.06 (27.0)	0.81 (20.6)	0.59 (15.0)	0.28 (7.1)	0.95 (24.2)	0.56 (14.2)	5600 (385)	2800 (192)
3/8	3/8	-PSV-RT6	1.06 (27.0)	0.81 (20.6)	0.59 (15.0)	0.38 (9.6)	0.95 (24.2)	0.56 (14.2)	5600 (385)	2800 (192)
3/8	1/2	-PSV-RT6-RT8	1.06 (27.0)	0.81 (20.6)	0.59 (15.0)	0.47 (11.9)	1.14 (29.0)	0.75 (19.1)	5600 (385)	2800 (192)
3/8	3/4	-PSV-RT6-RT12	1.06 (27.0)	1.06 (27.0)	0.59 (15.0)	0.47 (11.9)	1.20 (30.5)	0.75 (19.1)	7300 (502)	3600 (248)
3/8	1	-PSV-RT6-RT16	1.26 (32.0)	1.37 (34.9)	0.59 (15.0)	0.47 (11.9)	1.48 (37.6)	0.94 (23.9)	5300 (365)	2600 (179)
1/2	1/4	-PSV-RT8-RT4	1.26 (32.0)	1.00 (25.4)	0.78 (19.8)	0.28 (7.1)	0.99 (25.2)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	3/8	-PSV-RT8-RT6	1.26 (32.0)	1.00 (25.4)	0.78 (19.8)	0.38 (9.6)	0.99 (25.2)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	1/2	-PSV-RT8	1.26 (32.0)	1.00 (25.4)	0.78 (19.8)	0.47 (11.9)	1.26 (32.0)	0.75 (19.1)	5600 (385)	2800 (192)
1/2	3/4	-PSV-RT8-RT12	1.28 (32.5)	1.06 (27.0)	0.78 (19.8)	0.62 (15.7)	1.20 (30.5)	0.75 (19.1)	5600 (385)	2800 (192)
1/2	1	-PSV-RT8-RT16	1.48 (37.6)	1.37 (34.9)	0.78 (19.8)	0.62 (15.7)	1.48 (37.6)	0.94 (23.9)	5300 (365)	2600 (179)
3/4	3/4	-PSV-RT12	1.36 (34.5)	1.25 (31.8)	0.81 (20.6)	0.62 (15.7)	1.36 (34.5)	0.75 (19.1)	5100 (351)	2500 (172)
3/4	1	-PSV-RT12-RT16	1.48 (37.6)	1.49 (37.9)	0.81 (20.6)	0.88 (22.4)	1.48 (37.6)	0.94 (23.9)	5100 (351)	2500 (172)
1	1	-PSV-RT16	1.81 (46.0)	1.69 (42.9)	1.00 (25.4)	0.88 (22.4)	1.81 (46.0)	0.94 (23.9)	5300 (365)	2600 (179)
1 1/4	1 1/4	-PSV-RT20	2.00 (50.8)	2.00 (50.8)	1.00 (25.4)	1.25 (31.8)	2.00 (50.8)	0.94 (23.9)	3100 (213)	1600 (110)

Female Elbows



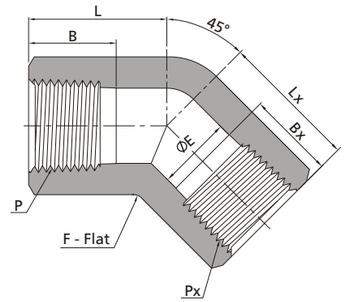
Female NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	-PE-NS1	0.86 (21.8)	0.44 (11.1)	0.39 (9.9)	0.19 (4.8)	0.86 (21.8)	0.39 (9.9)	6700 (460)	3300 (227)
1/8	1/16	-PE-NS2-NS1	1.04 (26.4)	0.50 (12.7)	0.41 (10.4)	0.19 (4.8)	1.04 (26.4)	0.39 (9.9)	6200 (427)	3100 (213)
1/8	1/8	-PE-NS2	1.04 (26.4)	0.50 (12.7)	0.41 (10.4)	0.28 (7.1)	1.04 (26.4)	0.41 (10.4)	6200 (427)	3100 (213)
1/4	1/8	-PE-NS4-NS2	1.17 (29.7)	0.69 (17.5)	0.59 (15.0)	0.28 (7.1)	1.17 (29.7)	0.41 (10.4)	7200 (496)	3600 (248)
1/4	1/4	-PE-NS4	1.17 (29.7)	0.69 (17.5)	0.59 (15.0)	0.41 (10.4)	1.17 (29.7)	0.59 (15.0)	7200 (496)	3600 (248)
3/8	3/8	-PE-NS6	1.42 (36.1)	0.81 (20.6)	0.59 (15.0)	0.50 (12.7)	1.42 (36.1)	0.59 (15.0)	5600 (385)	2800 (192)
1/2	1/2	-PE-NS8	1.56 (39.6)	1.00 (25.4)	0.78 (19.8)	0.67 (17.1)	1.56 (39.6)	0.78 (19.8)	5600 (385)	2800 (192)
3/4	3/4	-PE-NS12	1.92 (48.8)	1.25 (31.8)	0.81 (20.6)	0.88 (22.4)	1.92 (48.8)	0.81 (20.6)	5100 (351)	2500 (172)
1	1	-PE-NS16	1.91 (48.5)	1.69 (42.9)	1.00 (25.4)	1.11 (28.1)	1.91 (48.5)	1.00 (25.4)	6400 (440)	3200 (220)
1 1/4	1 1/4	-PE-NS20	2.35 (59.8)	2.00 (50.8)	1.00 (25.4)	1.09 (27.7)	2.35 (59.8)	1.00 (25.4)	3100 (213)	1600 (110)
1 1/2	1 1/2	-PE-NS24	2.56 (65.0)	2.50 (63.5)	1.09 (27.7)	1.34 (34.0)	2.56 (65.0)	1.09 (27.7)	5100 (351)	2500 (172)
Heavy-Wall Female NPT Threads										
1/4	1/4	-PE-NS4-10K	1.56 (39.6)	1.00 (25.4)	0.59 (15.0)	0.45 (11.4)	1.17 (29.7)	0.59 (15.0)	10000 (690)	/
1/2	1/2	-PE-NS8-10K	1.97 (50.0)	1.69 (42.9)	0.78 (19.8)	0.73 (18.5)	1.56 (39.6)	0.78 (19.8)	10000 (690)	/

Female ISO Tapered Threads

P-RT Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	-PE-RT1	0.86 (21.8)	0.44 (11.1)	0.39 (9.9)	0.19 (4.8)	0.86 (21.8)	0.39 (9.9)	6700 (460)	3300 (227)
1/8	1/16	-PE-RT2-RT1	1.04 (26.4)	0.50 (12.7)	0.41 (10.4)	0.19 (4.8)	1.04 (26.4)	0.39 (9.9)	6200 (427)	3100 (213)
1/8	1/8	-PE-RT2	1.04 (26.4)	0.50 (12.7)	0.41 (10.4)	0.28 (7.1)	1.04 (26.4)	0.41 (10.4)	6200 (427)	3100 (213)
1/4	1/8	-PE-RT4-RT2	1.17 (29.7)	0.69 (17.5)	0.59 (15.0)	0.28 (7.1)	1.17 (29.7)	0.41 (10.4)	7200 (496)	3600 (248)
1/4	1/4	-PE-RT4	1.17 (29.7)	0.69 (17.5)	0.59 (15.0)	0.41 (10.4)	1.17 (29.7)	0.59 (15.0)	7200 (496)	3600 (248)
3/8	3/8	-PE-RT6	1.42 (36.1)	0.81 (20.6)	0.59 (15.0)	0.50 (12.7)	1.42 (36.1)	0.59 (15.0)	5600 (385)	2800 (192)
1/2	1/2	-PE-RT8	1.56 (39.6)	1.00 (25.4)	0.78 (19.8)	0.67 (17.1)	1.56 (39.6)	0.78 (19.8)	5600 (385)	2800 (192)
3/4	3/4	-PE-RT12	1.92 (48.8)	1.25 (31.8)	0.81 (20.6)	0.88 (22.4)	1.92 (48.8)	0.81 (20.6)	5100 (351)	2500 (172)
1	1	-PE-RT16	1.91 (48.5)	1.69 (42.9)	1.00 (25.4)	1.11 (28.1)	1.91 (48.5)	1.00 (25.4)	6400 (440)	3200 (220)
1 1/4	1 1/4	-PE-RT20	2.35 (59.8)	2.00 (50.8)	1.00 (25.4)	1.09 (27.7)	2.35 (59.8)	1.00 (25.4)	3100 (213)	1600 (110)
1 1/2	1 1/2	-PE-RT24	2.56 (65.0)	2.50 (63.5)	1.09 (27.7)	1.34 (34.0)	2.56 (65.0)	1.09 (27.7)	5100 (351)	2500 (172)

45° Female Elbows



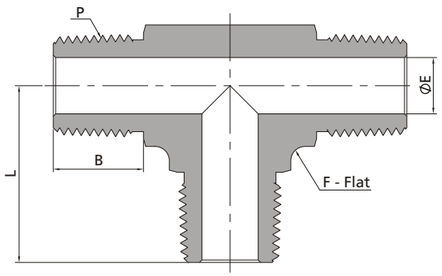
Female NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	-PVE-NS1	0.66 (16.8)	0.44 (11.1)	0.39 (9.9)	0.19 (4.8)	0.66 (16.8)	0.39 (9.9)	6700 (460)	3300 (227)
1/8	1/16	-PVE-NS2-NS1	0.80 (20.2)	0.50 (12.7)	0.41 (10.4)	0.19 (4.8)	0.80 (20.2)	0.39 (9.9)	6200 (427)	3100 (213)
1/8	1/8	-PVE-NS2	0.80 (20.2)	0.50 (12.7)	0.41 (10.4)	0.28 (7.1)	0.80 (20.2)	0.41 (10.4)	6200 (427)	3100 (213)
1/4	1/8	-PVE-NS4-NS2	1.00 (25.4)	0.69 (17.5)	0.59 (15.0)	0.28 (7.1)	1.00 (25.4)	0.41 (10.4)	7200 (496)	3600 (248)
1/4	1/4	-PVE-NS4	1.00 (25.4)	0.69 (17.5)	0.59 (15.0)	0.41 (10.4)	1.00 (25.4)	0.59 (15.0)	7200 (496)	3600 (248)
3/8	3/8	-PVE-NS6	1.06 (27.0)	0.81 (20.6)	0.59 (15.0)	0.50 (12.7)	1.06 (27.0)	0.59 (15.0)	5600 (385)	2800 (192)
1/2	1/2	-PVE-NS8	1.26 (32.0)	1.00 (25.4)	0.78 (19.8)	0.67 (17.1)	1.26 (32.0)	0.78 (19.8)	5600 (385)	2800 (192)
3/4	3/4	-PVE-NS12	1.36 (34.5)	1.25 (31.8)	0.81 (20.6)	0.88 (22.4)	1.36 (34.5)	0.81 (20.6)	5100 (351)	2500 (172)
1	1	-PVE-NS16	1.81 (46.0)	1.69 (42.9)	1.00 (25.4)	1.11 (28.1)	1.81 (46.0)	1.00 (25.4)	6400 (440)	3200 (220)
1 1/4	1 1/4	-PVE-NS20	1.70 (43.2)	2.00 (50.8)	1.00 (25.4)	1.09 (27.7)	1.70 (43.2)	1.00 (25.4)	3100 (213)	1600 (110)
1 1/2	1 1/2	-PVE-NS24	1.81 (46.0)	2.50 (63.5)	1.09 (27.7)	1.34 (34.0)	1.81 (46.0)	1.09 (27.7)	5100 (351)	2500 (172)

Female ISO Tapered Threads

P-RT Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	-PVE-RT1	0.66 (16.8)	0.44 (11.1)	0.39 (9.9)	0.19 (4.8)	0.66 (16.8)	0.39 (9.9)	6700 (460)	3300 (227)
1/8	1/16	-PVE-RT2-RT1	0.80 (20.2)	0.50 (12.7)	0.41 (10.4)	0.19 (4.8)	0.80 (20.2)	0.39 (9.9)	6200 (427)	3100 (213)
1/8	1/8	-PVE-RT2	0.80 (20.2)	0.50 (12.7)	0.41 (10.4)	0.28 (7.1)	0.80 (20.2)	0.41 (10.4)	6200 (427)	3100 (213)
1/4	1/8	-PVE-RT4-RT2	1.00 (25.4)	0.69 (17.5)	0.59 (15.0)	0.28 (7.1)	1.00 (25.4)	0.41 (10.4)	7200 (496)	3600 (248)
1/4	1/4	-PVE-RT4	1.00 (25.4)	0.69 (17.5)	0.59 (15.0)	0.41 (10.4)	1.00 (25.4)	0.59 (15.0)	7200 (496)	3600 (248)
3/8	3/8	-PVE-RT6	1.06 (27.0)	0.81 (20.6)	0.59 (15.0)	0.50 (12.7)	1.06 (27.0)	0.59 (15.0)	5600 (385)	2800 (192)
1/2	1/2	-PVE-RT8	1.26 (32.0)	1.00 (25.4)	0.78 (19.8)	0.67 (17.1)	1.26 (32.0)	0.78 (19.8)	5600 (385)	2800 (192)
3/4	3/4	-PVE-RT12	1.36 (34.5)	1.25 (31.8)	0.81 (20.6)	0.88 (22.4)	1.36 (34.5)	0.81 (20.6)	5100 (351)	2500 (172)
1	1	-PVE-RT16	1.81 (46.0)	1.69 (42.9)	1.00 (25.4)	1.11 (28.1)	1.81 (46.0)	1.00 (25.4)	6400 (440)	3200 (220)
1 1/4	1 1/4	-PVE-RT20	1.70 (43.2)	2.00 (50.8)	1.00 (25.4)	1.09 (27.7)	1.70 (43.2)	1.00 (25.4)	3100 (213)	1600 (110)
1 1/2	1 1/2	-PVE-RT24	1.81 (46.0)	2.50 (63.5)	1.09 (27.7)	1.34 (34.0)	1.81 (46.0)	1.09 (27.7)	5100 (351)	2500 (172)

Male Tees



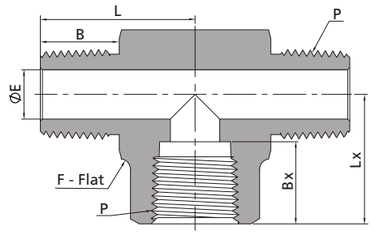
Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)	
		L	F	B	E	316 SS, Steel	Brass
1/16	-PMT-NS1	0.72 (18.3)	0.37 (9.5)	0.38 (9.7)	0.12 (3.0)	11000 (757)	5500 (378)
1/8	-PMT-NS2	0.88 (22.4)	0.44 (11.1)	0.38 (9.7)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	-PMT-NS4	1.05 (26.7)	0.50 (12.7)	0.56 (14.2)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	-PMT-NS6	1.17 (29.7)	0.69 (17.5)	0.56 (14.2)	0.38 (9.6)	7800 (537)	3900 (268)
1/2	-PMT-NS8	1.45 (36.8)	0.81 (20.6)	0.75 (19.1)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	-PMT-NS12	1.67 (42.4)	1.06 (27.0)	0.75 (19.1)	0.62 (15.7)	7300 (502)	3600 (248)
1	-PMT-NS16	1.94 (49.3)	1.37 (34.9)	0.94 (23.9)	0.88 (22.4)	5300 (365)	2600 (179)
1 1/4	-PMT-NS20	2.22 (56.4)	1.69 (42.9)	0.94 (23.9)	1.09 (27.7)	6000 (410)	3000 (200)
1 1/2	-PMT-NS24	2.64 (67.1)	1.87 (47.6)	1.03 (26.2)	1.34 (34.0)	5000 (344)	2500 (172)

Male ISO Tapered Threads

P-RT Size	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)	
		L	F	B	E	316 SS, Steel	Brass
1/16	-PMT-RT1	0.72 (18.3)	0.37 (9.5)	0.38 (9.7)	0.12 (3.0)	11000 (757)	5500 (378)
1/8	-PMT-RT2	0.88 (22.4)	0.44 (11.1)	0.38 (9.7)	0.19 (4.8)	10000 (690)	5000 (344)
1/4	-PMT-RT4	1.05 (26.7)	0.50 (12.7)	0.56 (14.2)	0.28 (7.1)	8000 (551)	4000 (275)
3/8	-PMT-RT6	1.17 (29.7)	0.69 (17.5)	0.56 (14.2)	0.38 (9.6)	7800 (537)	3900 (268)
1/2	-PMT-RT8	1.45 (36.8)	0.81 (20.6)	0.75 (19.1)	0.47 (11.9)	7700 (530)	3800 (261)
3/4	-PMT-RT12	1.67 (42.4)	1.06 (27.0)	0.75 (19.1)	0.62 (15.7)	7300 (502)	3600 (248)
1	-PMT-RT16	1.94 (49.3)	1.37 (34.9)	0.94 (23.9)	0.88 (22.4)	5300 (365)	2600 (179)
1 1/4	-PMT-RT20	2.22 (56.4)	1.69 (42.9)	0.94 (23.9)	1.09 (27.7)	6000 (410)	3000 (200)
1 1/2	-PMT-RT24	2.64 (67.1)	1.87 (47.6)	1.03 (26.2)	1.34 (34.0)	5000 (344)	2500 (172)

Female Branch Tees



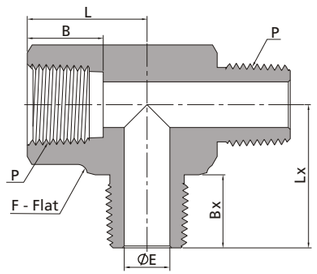
NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	-PTB-NS1	0.72 (18.3)	0.44 (11.1)	0.12 (3.0)	0.38 (9.7)	0.86 (21.8)	0.39 (9.9)	9200 (633)	4600 (316)
1/8	-PTB-NS2	0.87 (22.1)	0.50 (12.7)	0.19 (4.8)	0.38 (9.7)	1.04 (26.4)	0.41 (10.4)	6200 (427)	3100 (213)
1/4	-PTB-NS4	1.17 (29.7)	0.69 (17.5)	0.28 (7.1)	0.56 (14.2)	1.17 (29.7)	0.59 (15.0)	7200 (496)	3600 (248)
3/8	-PTB-NS6	1.26 (32.0)	0.81 (20.6)	0.38 (9.6)	0.56 (14.2)	1.42 (36.1)	0.59 (15.0)	5600 (385)	2800 (192)
1/2	-PTB-NS8	1.56 (39.6)	1.00 (25.4)	0.47 (11.9)	0.75 (19.1)	1.56 (39.6)	0.78 (19.8)	5600 (385)	2800 (192)
3/4	-PTB-NS12	1.67 (42.4)	1.25 (31.8)	0.62 (15.7)	0.75 (19.1)	1.92 (48.8)	0.81 (20.6)	5100 (351)	2500 (172)
1	-PTB-NS16	1.94 (49.3)	1.69 (42.9)	0.88 (22.4)	0.94 (23.9)	1.91 (48.5)	1.00 (25.4)	5300 (365)	2600 (179)

ISO Tapered Threads

P-RT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	-PTB-RT1	0.72 (18.3)	0.44 (11.1)	0.12 (3.0)	0.38 (9.7)	0.86 (21.8)	0.39 (9.9)	9200 (633)	4600 (316)
1/8	-PTB-RT2	0.87 (22.1)	0.50 (12.7)	0.19 (4.8)	0.38 (9.7)	1.04 (26.4)	0.41 (10.4)	6200 (427)	3100 (213)
1/4	-PTB-RT4	1.17 (29.7)	0.69 (17.5)	0.28 (7.1)	0.56 (14.2)	1.17 (29.7)	0.59 (15.0)	7200 (496)	3600 (248)
3/8	-PTB-RT6	1.26 (32.0)	0.81 (20.6)	0.38 (9.6)	0.56 (14.2)	1.42 (36.1)	0.59 (15.0)	5600 (385)	2800 (192)
1/2	-PTB-RT8	1.56 (39.6)	1.00 (25.4)	0.47 (11.9)	0.75 (19.1)	1.56 (39.6)	0.78 (19.8)	5600 (385)	2800 (192)
3/4	-PTB-RT12	1.67 (42.4)	1.25 (31.8)	0.62 (15.7)	0.75 (19.1)	1.92 (48.8)	0.81 (20.6)	5100 (351)	2500 (172)
1	-PTB-RT16	1.94 (49.3)	1.69 (42.9)	0.88 (22.4)	0.94 (23.9)	1.91 (48.5)	1.00 (25.4)	5300 (365)	2600 (179)

Female Run Tees



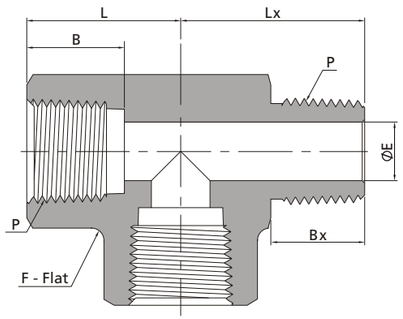
NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	-PTR-NS1	0.86 (21.8)	0.44 (11.1)	0.12 (3.0)	0.39 (9.9)	0.72 (18.3)	0.38 (9.7)	9200 (633)	4600 (316)
1/8	-PTR-NS2	1.04 (26.4)	0.50 (12.7)	0.19 (4.8)	0.41 (10.4)	0.87 (22.1)	0.38 (9.7)	6200 (427)	3100 (213)
1/4	-PTR-NS4	1.17 (29.7)	0.69 (17.5)	0.28 (7.1)	0.59 (15.0)	1.17 (29.7)	0.56 (14.2)	7200 (496)	3600 (248)
3/8	-PTR-NS6	1.42 (36.1)	0.81 (20.6)	0.38 (9.6)	0.59 (15.0)	1.26 (32.0)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	-PTR-NS8	1.56 (39.6)	1.00 (25.4)	0.47 (11.9)	0.78 (19.8)	1.56 (39.6)	0.75 (19.1)	5600 (385)	2800 (192)
3/4	-PTR-NS12	1.92 (48.8)	1.25 (31.8)	0.62 (15.7)	0.81 (20.6)	1.67 (42.4)	0.75 (19.1)	5100 (351)	2500 (172)
1	-PTR-NS16	1.91 (48.5)	1.69 (42.9)	0.88 (22.4)	1.00 (25.4)	1.94 (49.3)	0.94 (23.9)	5300 (365)	2600 (179)

ISO Tapered Threads

P-RT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	-PTR-RT1	0.86 (21.8)	0.44 (11.1)	0.12 (3.0)	0.39 (9.9)	0.72 (18.3)	0.38 (9.7)	9200 (633)	4600 (316)
1/8	-PTR-RT2	1.04 (26.4)	0.50 (12.7)	0.19 (4.8)	0.41 (10.4)	0.87 (22.1)	0.38 (9.7)	6200 (427)	3100 (213)
1/4	-PTR-RT4	1.17 (29.7)	0.69 (17.5)	0.28 (7.1)	0.59 (15.0)	1.17 (29.7)	0.56 (14.2)	7200 (496)	3600 (248)
3/8	-PTR-RT6	1.42 (36.1)	0.81 (20.6)	0.38 (9.6)	0.59 (15.0)	1.26 (32.0)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	-PTR-RT8	1.56 (39.6)	1.00 (25.4)	0.47 (11.9)	0.78 (19.8)	1.56 (39.6)	0.75 (19.1)	5600 (385)	2800 (192)
3/4	-PTR-RT12	1.92 (48.8)	1.25 (31.8)	0.62 (15.7)	0.81 (20.6)	1.67 (42.4)	0.75 (19.1)	5100 (351)	2500 (172)
1	-PTR-RT16	1.91 (48.5)	1.69 (42.9)	0.88 (22.4)	1.00 (25.4)	1.94 (49.3)	0.94 (23.9)	5300 (365)	2600 (179)

Male Street Tees



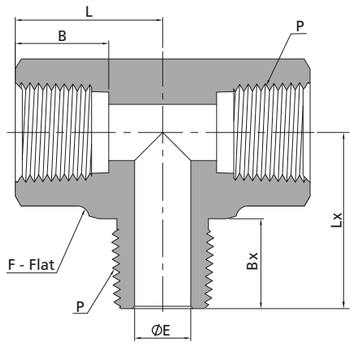
NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	-PST-NS1	0.86 (21.8)	0.44 (11.1)	0.12 (3.0)	0.39 (9.9)	0.72 (18.3)	0.38 (9.7)	9200 (633)	4600 (316)
1/8	-PST-NS2	1.04 (26.4)	0.50 (12.7)	0.19 (4.8)	0.41 (10.4)	0.87 (22.1)	0.38 (9.7)	6200 (427)	3100 (213)
1/4	-PST-NS4	1.17 (29.7)	0.69 (17.5)	0.28 (7.1)	0.59 (15.0)	1.17 (29.7)	0.56 (14.2)	7200 (496)	3600 (248)
3/8	-PST-NS6	1.42 (36.1)	0.81 (20.6)	0.38 (9.6)	0.59 (15.0)	1.26 (32.0)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	-PST-NS8	1.56 (39.6)	1.00 (25.4)	0.47 (11.9)	0.78 (19.8)	1.56 (39.6)	0.75 (19.1)	5600 (385)	2800 (192)
3/4	-PST-NS12	1.92 (48.8)	1.25 (31.8)	0.62 (15.7)	0.81 (20.6)	1.67 (42.4)	0.75 (19.1)	5100 (351)	2500 (172)
1	-PST-NS16	1.91 (48.5)	1.69 (42.9)	0.88 (22.4)	1.00 (25.4)	1.94 (49.3)	0.94 (23.9)	5300 (365)	2600 (179)

ISO Tapered Threads

P-RT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	-PST-RT1	0.86 (21.8)	0.44 (11.1)	0.12 (3.0)	0.39 (9.9)	0.72 (18.3)	0.38 (9.7)	9200 (633)	4600 (316)
1/8	-PST-RT2	1.04 (26.4)	0.50 (12.7)	0.19 (4.8)	0.41 (10.4)	0.87 (22.1)	0.38 (9.7)	6200 (427)	3100 (213)
1/4	-PST-RT4	1.17 (29.7)	0.69 (17.5)	0.28 (7.1)	0.59 (15.0)	1.17 (29.7)	0.56 (14.2)	7200 (496)	3600 (248)
3/8	-PST-RT6	1.42 (36.1)	0.81 (20.6)	0.38 (9.6)	0.59 (15.0)	1.26 (32.0)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	-PST-RT8	1.56 (39.6)	1.00 (25.4)	0.47 (11.9)	0.78 (19.8)	1.56 (39.6)	0.75 (19.1)	5600 (385)	2800 (192)
3/4	-PST-RT12	1.92 (48.8)	1.25 (31.8)	0.62 (15.7)	0.81 (20.6)	1.67 (42.4)	0.75 (19.1)	5100 (351)	2500 (172)
1	-PST-RT16	1.91 (48.5)	1.69 (42.9)	0.88 (22.4)	1.00 (25.4)	1.94 (49.3)	0.94 (23.9)	5300 (365)	2600 (179)

Male Branch Tees



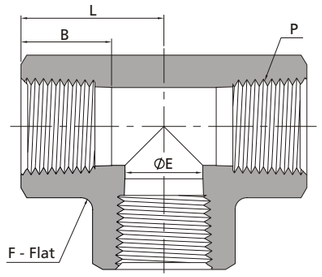
NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	-PBT-NS1	0.86 (21.8)	0.44 (11.1)	0.12 (3.0)	0.39 (9.9)	0.72 (18.3)	0.38 (9.7)	9200 (633)	4600 (316)
1/8	-PBT-NS2	1.04 (26.4)	0.50 (12.7)	0.19 (4.8)	0.41 (10.4)	0.87 (22.1)	0.38 (9.7)	6200 (427)	3100 (213)
1/4	-PBT-NS4	1.17 (29.7)	0.69 (17.5)	0.28 (7.1)	0.59 (15.0)	1.17 (29.7)	0.56 (14.2)	7200 (496)	3600 (248)
3/8	-PBT-NS6	1.42 (36.1)	0.81 (20.6)	0.38 (9.6)	0.59 (15.0)	1.26 (32.0)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	-PBT-NS8	1.56 (39.6)	1.00 (25.4)	0.47 (11.9)	0.78 (19.8)	1.56 (39.6)	0.75 (19.1)	5600 (385)	2800 (192)
3/4	-PBT-NS12	1.92 (48.8)	1.25 (31.8)	0.62 (15.7)	0.81 (20.6)	1.67 (42.4)	0.75 (19.1)	5100 (351)	2500 (172)
1	-PBT-NS16	1.91 (48.5)	1.69 (42.9)	0.88 (22.4)	1.00 (25.4)	1.94 (49.3)	0.94 (23.9)	5300 (365)	2600 (179)

ISO Tapered Threads

P-RT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	-PBT-RT1	0.86 (21.8)	0.44 (11.1)	0.12 (3.0)	0.39 (9.9)	0.72 (18.3)	0.38 (9.7)	9200 (633)	4600 (316)
1/8	-PBT-RT2	1.04 (26.4)	0.50 (12.7)	0.19 (4.8)	0.41 (10.4)	0.87 (22.1)	0.38 (9.7)	6200 (427)	3100 (213)
1/4	-PBT-RT4	1.17 (29.7)	0.69 (17.5)	0.28 (7.1)	0.59 (15.0)	1.17 (29.7)	0.56 (14.2)	7200 (496)	3600 (248)
3/8	-PBT-RT6	1.42 (36.1)	0.81 (20.6)	0.38 (9.6)	0.59 (15.0)	1.26 (32.0)	0.56 (14.2)	5600 (385)	2800 (192)
1/2	-PBT-RT8	1.56 (39.6)	1.00 (25.4)	0.47 (11.9)	0.78 (19.8)	1.56 (39.6)	0.75 (19.1)	5600 (385)	2800 (192)
3/4	-PBT-RT12	1.92 (48.8)	1.25 (31.8)	0.62 (15.7)	0.81 (20.6)	1.67 (42.4)	0.75 (19.1)	5100 (351)	2500 (172)
1	-PBT-RT16	1.91 (48.5)	1.69 (42.9)	0.88 (22.4)	1.00 (25.4)	1.94 (49.3)	0.94 (23.9)	5300 (365)	2600 (179)

Female Tees



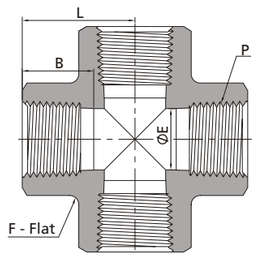
Female NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)	
		L	F	E	B	316 SS, Steel	Brass
1/16	-PT-NS1	0.86 (21.8)	0.44 (11.1)	0.19 (4.8)	0.39 (9.9)	6700 (460)	3300 (227)
1/8	-PT-NS2	1.04 (26.4)	0.50 (12.7)	0.34 (8.6)	0.41 (10.4)	6200 (427)	3100 (213)
1/4	-PT-NS4	1.17 (29.7)	0.69 (17.5)	0.45 (11.4)	0.59 (15.0)	7200 (496)	3600 (248)
3/8	-PT-NS6	1.42 (36.1)	0.81 (20.6)	0.59 (15.0)	0.59 (15.0)	5600 (385)	2800 (192)
1/2	-PT-NS8	1.56 (39.6)	1.00 (25.4)	0.73 (18.5)	0.78 (19.8)	5600 (385)	2800 (192)
3/4	-PT-NS12	1.92 (48.8)	1.25 (31.8)	0.94 (23.9)	0.81 (20.6)	5100 (351)	2500 (172)
1	-PT-NS16	1.91 (48.5)	1.69 (42.9)	1.17 (29.7)	1.00 (25.4)	6400 (440)	3200 (220)
1 1/4	-PT-NS20	2.35 (59.8)	2.00 (50.8)	1.46 (37.2)	1.00 (25.4)	3100 (213)	1600 (110)
1 1/2	-PT-NS24	2.56 (65.0)	2.50 (63.5)	1.70 (43.3)	1.09 (27.7)	5100 (351)	2500 (172)
Heavy-Wall Female NPT Threads							
1/4	-PT-NS4-10K	1.56 (39.6)	1.00 (25.4)	0.45 (11.4)	0.59 (15.0)	10000 (690)	/
1/2	-PT-NS8-10K	1.97 (50.0)	1.69 (42.9)	0.73 (18.5)	0.78 (19.8)	10000 (690)	/

Female ISO Tapered Threads

P-RT Size	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)	
		L	F	E	B	316 SS, Steel	Brass
1/16	-PT-RT1	0.86 (21.8)	0.44 (11.1)	0.19 (4.8)	0.39 (9.9)	6700 (460)	3300 (227)
1/8	-PT-RT2	1.04 (26.4)	0.50 (12.7)	0.34 (8.6)	0.41 (10.4)	6200 (427)	3100 (213)
1/4	-PT-RT4	1.17 (29.7)	0.69 (17.5)	0.44 (11.2)	0.59 (15.0)	7200 (496)	3600 (248)
3/8	-PT-RT6	1.42 (36.1)	0.81 (20.6)	0.58 (14.7)	0.59 (15.0)	5600 (385)	2800 (192)
1/2	-PT-RT8	1.56 (39.6)	1.00 (25.4)	0.72 (18.3)	0.78 (19.8)	5600 (385)	2800 (192)
3/4	-PT-RT12	1.92 (48.8)	1.25 (31.8)	0.94 (23.9)	0.81 (20.6)	5100 (351)	2500 (172)
1	-PT-RT16	1.91 (48.5)	1.69 (42.9)	1.17 (29.7)	1.00 (25.4)	6400 (440)	3200 (220)
1 1/4	-PT-RT20	2.35 (59.8)	2.00 (50.8)	1.46 (37.2)	1.00 (25.4)	3100 (213)	1600 (110)
1 1/2	-PT-RT24	2.56 (65.0)	2.50 (63.5)	1.70 (43.3)	1.09 (27.7)	5100 (351)	2500 (172)

Female Crosses



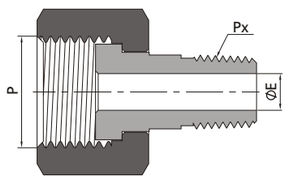
Female NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)	
		L	F	E	B	316 SS, Steel	Brass
1/16	-PCR-NS1	0.86 (21.8)	0.44 (11.1)	0.19 (4.8)	0.39 (9.9)	6700 (460)	3300 (227)
1/8	-PCR-NS2	1.04 (26.4)	0.50 (12.7)	0.34 (8.6)	0.41 (10.4)	6200 (427)	3100 (213)
1/4	-PCR-NS4	1.17 (29.7)	0.69 (17.5)	0.45 (11.4)	0.59 (15.0)	7200 (496)	3600 (248)
3/8	-PCR-NS6	1.42 (36.1)	0.81 (20.6)	0.59 (15.0)	0.59 (15.0)	5600 (385)	2800 (192)
1/2	-PCR-NS8	1.56 (39.6)	1.00 (25.4)	0.73 (18.5)	0.78 (19.8)	5600 (385)	2800 (192)
3/4	-PCR-NS12	1.92 (48.8)	1.25 (31.8)	0.94 (23.9)	0.81 (20.6)	5100 (351)	2500 (172)
1	-PCR-NS16	1.91 (48.5)	1.69 (42.9)	1.17 (29.7)	1.00 (25.4)	6400 (440)	3200 (220)

Female ISO Tapered Threads

P-RT Size	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)	
		L	F	E	B	316 SS, Steel	Brass
1/16	-PCR-RT1	0.86 (21.8)	0.44 (11.1)	0.19 (4.8)	0.39 (9.9)	6700 (460)	3300 (227)
1/8	-PCR-RT2	1.04 (26.4)	0.50 (12.7)	0.34 (8.6)	0.41 (10.4)	6200 (427)	3100 (213)
1/4	-PCR-RT4	1.17 (29.7)	0.69 (17.5)	0.45 (11.4)	0.59 (15.0)	7200 (496)	3600 (248)
3/8	-PCR-RT6	1.42 (36.1)	0.81 (20.6)	0.59 (15.0)	0.59 (15.0)	5600 (385)	2800 (192)
1/2	-PCR-RT8	1.56 (39.6)	1.00 (25.4)	0.73 (18.5)	0.78 (19.8)	5600 (385)	2800 (192)
3/4	-PCR-RT12	1.92 (48.8)	1.25 (31.8)	0.94 (23.9)	0.81 (20.6)	5100 (351)	2500 (172)
1	-PCR-RT16	1.91 (48.5)	1.69 (42.9)	1.17 (29.7)	1.00 (25.4)	6400 (440)	3200 (220)

Pipe to Pipe Unions

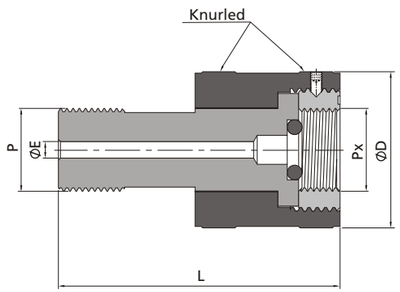


Metric Threads				NPT Threads
P-Metric Thread Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm) E	Working Pressure psig (bar) 316 SS, Steel
M20 x 1.5	1/8	-PUP-MS20-NS2	0.19 (4.8)	4500 (310)
M20 x 1.5	1/4	-PUP-MS20-NS4	0.28 (7.1)	4500 (310)

Metric Threads				ISO Tapered Threads
P-Metric Thread Size	Px-RT Size	Basic Ordering Number	Dimension, in. (mm) E	Working Pressure psig (bar) 316 SS, Steel
M20 x 1.5	1/8	-PUP-MS20-RT2	0.19 (4.8)	4500 (310)
M20 x 1.5	1/4	-PUP-MS20-RT4	0.28 (7.1)	4500 (310)

ISO Parallel Threads				NPT Threads
P-ISO Pipe Size	Px-NPT Size	Basic Ordering Number	Dimension, in. (mm) E	Working Pressure psig (bar) 316 SS, Steel
1/2	1/8	-PUP-RG8-NS2	0.19 (4.8)	4900 (337)
1/2	1/4	-PUP-RG8-NS4	0.28 (7.1)	4900 (337)

Hand Tight Adapter Fittings

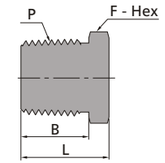


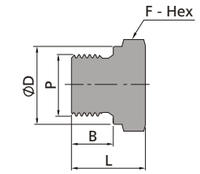
Metric Threads						
P-Metric Thread Size	Px-Metric Thread Size	Basic Ordering Number	Dimension, mm (in.) L	D	E	Working Pressure psig (bar) 316 SS, Steel
M14 x 1.5	M14 x 1.5	-HF-MS14	58.0 (2.28)	27.0 (1.06)	3.2 (0.13)	6100 (425)
M14 x 1.5	M20 x 1.5	-HF-MS14-MS20	58.0 (2.28)	37.5 (1.48)	3.2 (0.13)	5700 (393)
M20 x 1.5	M14 x 1.5	-HF-MS20-MS14	68.0 (2.68)	32.0 (1.26)	4.0 (0.16)	6100 (425)
M20 x 1.5	M20 x 1.5	-HF-MS20	68.0 (2.68)	37.5 (1.48)	4.0 (0.16)	5700 (393)
M20 x 1.5	M22 x 1.5	-HF-MS20-MS22	68.0 (2.68)	37.5 (1.48)	4.0 (0.16)	4000 (275)

Metric Threads						ISO Parallel Threads
P-Metric Thread Size	Px-ISO Thread Size	Basic Ordering Number	Dimension, mm (in.) L	D	E	Working Pressure psig (bar) 316 SS, Steel
M20 x 1.5	1/4	-HF-MS20-BP4	68.0 (2.68)	32.0 (1.26)	3.2 (0.13)	6500 (447)
M20 x 1.5	3/8	-HF-MS20-BP6	68.0 (2.68)	32.0 (1.26)	3.6 (0.14)	4300 (297)
M20 x 1.5	1/2	-HF-MS20-BP8	68.0 (2.68)	37.5 (1.48)	4.0 (0.16)	4800 (334)

ISO Parallel Threads						
P-ISO Thread Size	Px-ISO Thread Size	Basic Ordering Number	Dimension, mm (in.) L	D	E	Working Pressure psig (bar) 316 SS, Steel
1/2	1/4	-HF-BP8-BP4	68.0 (2.68)	32.0 (1.26)	3.2 (0.13)	6500 (447)
1/2	3/8	-HF-BP8-BP6	68.0 (2.68)	32.0 (1.26)	3.6 (0.14)	4300 (297)
1/2	1/2	-HF-BP8	68.0 (2.68)	37.5 (1.48)	4.0 (0.16)	4800 (334)

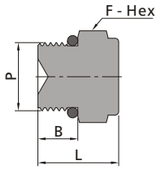
Pipe Plugs





Male NPT Threads				
P-NPT Size	Basic Ordering Number	Dimension, in. (mm) L	F	B
1/16	-PP-NS1	0.56 (14.2)	0.31 (7.9)	0.38 (9.7)
1/8	-PP-NS2	0.56 (14.2)	0.44 (11.1)	0.38 (9.7)
1/4	-PP-NS4	0.75 (19.1)	0.56 (14.3)	0.56 (14.2)
3/8	-PP-NS6	0.78 (19.8)	0.69 (17.5)	0.56 (14.2)
1/2	-PP-NS8	0.97 (24.6)	0.87 (22.2)	0.75 (19.1)
3/4	-PP-NS12	1.21 (30.7)	1.06 (27.0)	0.75 (19.1)
1	-PP-NS16	1.50 (38.1)	1.37 (34.9)	0.94 (23.9)
1 1/4	-PP-NS20	1.51 (38.4)	1.75 (44.5)	0.94 (23.9)
1 1/2	-PP-NS24	1.72 (43.7)	2.00 (50.8)	1.03 (26.2)
2	-PP-NS32	2.00 (50.8)	2.75 (69.9)	1.03 (26.2)

Male ISO Tapered Threads				
P-RT Size	Basic Ordering Number	Dimension, in. (mm) L	F	B
1/16	-PP-RT1	0.56 (14.2)	0.31 (7.9)	0.38 (9.7)
1/8	-PP-RT2	0.56 (14.2)	0.44 (11.1)	0.38 (9.7)
1/4	-PP-RT4	0.75 (19.1)	0.56 (14.3)	0.56 (14.2)
3/8	-PP-RT6	0.78 (19.8)	0.69 (17.5)	0.56 (14.2)
1/2	-PP-RT8	0.97 (24.6)	0.87 (22.2)	0.75 (19.1)
3/4	-PP-RT12	1.21 (30.7)	1.06 (27.0)	0.75 (19.1)
1	-PP-RT16	1.50 (38.1)	1.37 (34.9)	0.94 (23.9)
1 1/4	-PP-RT20	1.51 (38.4)	1.75 (44.5)	0.94 (23.9)
1 1/2	-PP-RT24	1.72 (43.7)	2.00 (50.8)	1.03 (26.2)
2	-PP-RT32	2.00 (50.8)	2.75 (69.9)	1.03 (26.2)

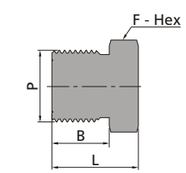


Male SAE/MS Straight Threads				
P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm) L	F	B
7/16-20	-PP-ST7	0.76 (19.3)	0.56 (14.3)	0.36 (9.1)
9/16-18	-PP-ST9	0.82 (20.8)	0.69 (17.5)	0.39 (9.9)
3/4-16	-PP-ST12	0.89 (22.6)	0.87 (22.2)	0.44 (11.2)
1 1/16-12	-PP-ST17	1.12 (28.4)	1.25 (31.8)	0.59 (15.0)
1 5/16-12	-PP-ST21	1.18 (30.0)	1.50 (38.1)	0.59 (15.0)

Dimensions are for reference only, subject to change.

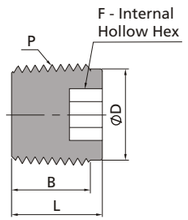
Male ISO Parallel Threads					
P-RS Size	Basic Ordering Number	Dimension, in. (mm) L	F	B	D
1/8	-PP-RS2	0.55 (14.0)	0.56 (14.3)	0.28 (7.1)	0.54 (13.7)
1/4	-PP-RS4	0.78 (19.8)	0.75 (19.1)	0.44 (11.2)	0.71 (18.0)
3/8	-PP-RS6	0.78 (19.8)	0.87 (22.2)	0.44 (11.2)	0.86 (21.8)
1/2	-PP-RS8	0.99 (25.1)	1.06 (27.0)	0.55 (14.0)	1.02 (25.9)
3/4	-PP-RS12	1.13 (28.7)	1.31 (33.3)	0.62 (15.7)	1.26 (32.0)
1	-PP-RS16	1.21 (30.7)	1.63 (41.3)	0.71 (18.0)	1.54 (39.1)

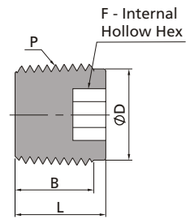
Male Metric Threads					
P-Metric Size	Basic Ordering Number	Dimension, mm (in.) L	F	B	D
M14 x 1.5	-PP-MRS14	21.0 (0.83)	20.6 (0.81)	12.0 (0.47)	18.8 (0.74)
M16 x 1.5	-PP-MRS16	23.0 (0.91)	22.2 (0.87)	12.0 (0.47)	20.8 (0.82)
M18 x 1.5	-PP-MRS18	25.0 (0.98)	23.8 (0.94)	12.0 (0.47)	22.8 (0.90)
M20 x 1.5	-PP-MRS20	26.5 (1.04)	25.4 (1.00)	14.0 (0.55)	24.8 (0.98)
M22 x 1.5	-PP-MRS22	28.8 (1.13)	28.6 (1.13)	14.0 (0.55)	26.8 (1.06)
M24 x 1.5	-PP-MRS24	29.0 (1.14)	35.0 (1.38)	14.0 (0.55)	28.8 (1.13)
M27 x 2	-PP-MRS27	30.0 (1.18)	36.5 (1.44)	16.0 (0.63)	31.8 (1.25)



Male Metric Threads				
P-Metric Size	Basic Ordering Number	Dimension, mm (in.) L	F	B
M14 x 1.5	-PP-MS14	18.0 (0.71)	16.0 (0.63)	13.0 (0.51)
M16 x 1.5	-PP-MS16	20.0 (0.79)	18.0 (0.71)	14.0 (0.55)
M18 x 1.5	-PP-MS18	22.0 (0.87)	19.0 (0.75)	15.0 (0.59)
M20 x 1.5	-PP-MS20	24.0 (0.94)	22.0 (0.87)	16.0 (0.63)
M22 x 1.5	-PP-MS22	26.0 (1.02)	24.0 (0.94)	17.0 (0.67)
M24 x 1.5	-PP-MS24	26.0 (1.02)	27.0 (1.06)	17.0 (0.67)
M27 x 2	-PP-MS27	27.0 (1.06)	30.0 (1.18)	18.0 (0.71)
M30 x 2	-PP-MS30	32.0 (1.26)	32.0 (1.26)	20.0 (0.79)

Hollow Hex Plugs



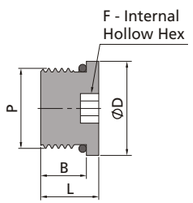


Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			
		L	F	B	D
1/16	-PI-NS1	0.30 (7.6)	0.16 (4.0)	0.29 (7.4)	0.29 (7.4)
1/8	-PI-NS2	0.41 (10.4)	0.19 (4.8)	0.29 (7.4)	0.37 (9.4)
1/4	-PI-NS4	0.61 (15.5)	0.25 (6.4)	0.49 (12.4)	0.48 (12.1)
3/8	-PI-NS6	0.59 (15.0)	0.31 (7.9)	0.47 (11.9)	0.62 (15.7)
1/2	-PI-NS8	0.76 (19.3)	0.37 (9.5)	0.64 (16.2)	0.76 (19.3)
3/4	-PI-NS12	0.78 (19.8)	0.56 (14.3)	0.66 (16.7)	1.01 (25.7)
1	-PI-NS16	0.82 (20.8)	0.63 (15.9)	0.70 (17.7)	1.25 (31.8)

Male ISO Tapered Threads

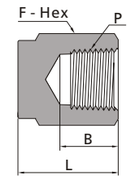
P-RT Size	Basic Ordering Number	Dimension, in. (mm)			
		L	F	B	D
1/16	-PI-RT1	0.30 (7.6)	0.16 (4.0)	0.29 (7.4)	0.29 (7.4)
1/8	-PI-RT2	0.41 (10.4)	0.19 (4.8)	0.29 (7.4)	0.37 (9.4)
1/4	-PI-RT4	0.61 (15.5)	0.25 (6.4)	0.49 (12.4)	0.48 (12.1)
3/8	-PI-RT6	0.61 (15.5)	0.31 (7.9)	0.49 (12.4)	0.62 (15.7)
1/2	-PI-RT8	0.76 (19.3)	0.37 (9.5)	0.64 (16.2)	0.76 (19.3)
3/4	-PI-RT12	0.78 (19.8)	0.56 (14.3)	0.66 (16.7)	1.01 (25.7)
1	-PI-RT16	0.82 (20.8)	0.63 (15.9)	0.70 (17.7)	1.25 (31.8)



Male SAE/MS Straight Threads

P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)			
		L	F	B	D
7/16-20	-PI-ST7	0.45 (11.4)	0.19 (4.8)	0.36 (9.1)	0.56 (14.2)
9/16-18	-PI-ST9	0.48 (12.2)	0.25 (6.4)	0.39 (9.9)	0.69 (17.5)
3/4-16	-PI-ST12	0.56 (14.2)	0.31 (7.9)	0.44 (11.2)	0.88 (22.4)
1 1/16-12	-PI-ST17	0.75 (19.1)	0.56 (14.3)	0.59 (15.0)	1.25 (31.8)
1 5/16-12	-PI-ST21	0.75 (19.1)	0.63 (15.9)	0.59 (15.0)	1.50 (38.1)

Pipe Caps



Female NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)	
		L	F	B	316 SS, Steel	Brass
1/16	-PC-NS1	0.50 (12.7)	0.44 (11.1)	0.39 (9.9)	6700 (460)	3300 (227)
1/8	-PC-NS2	0.75 (19.1)	0.56 (14.3)	0.41 (10.4)	6500 (447)	3200 (220)
1/4	-PC-NS4	0.91 (23.1)	0.75 (19.1)	0.59 (15.0)	6600 (454)	3300 (277)
3/8	-PC-NS6	1.03 (26.2)	0.87 (22.2)	0.59 (15.0)	5300 (365)	2600 (179)
1/2	-PC-NS8	1.34 (34.0)	1.06 (27.0)	0.78 (19.8)	4900 (337)	2400 (165)
3/4	-PC-NS12	1.44 (36.6)	1.31 (33.3)	0.81 (20.6)	4600 (316)	2300 (158)
1	-PC-NS16	1.62 (41.1)	1.63 (41.3)	1.00 (25.4)	4400 (303)	2200 (151)
Heavy-Wall Female NPT Threads						
1/4	-PC-NS4-10K	1.11 (28.2)	1.00 (25.4)	0.59 (15.0)	10000 (690)	/
1/2	-PC-NS8-10K	1.58 (40.1)	1.50 (38.1)	0.78 (19.8)	10000 (690)	/

Female ISO Tapered Threads

P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)	
		L	F	B	316 SS, Steel	Brass
1/16	-PC-RT1	0.50 (12.7)	0.44 (11.1)	0.39 (9.9)	6700 (460)	3300 (227)
1/8	-PC-RT2	0.75 (19.1)	0.56 (14.3)	0.41 (10.4)	6500 (447)	3200 (220)
1/4	-PC-RT4	0.91 (23.1)	0.75 (19.1)	0.59 (15.0)	6600 (454)	3300 (277)
3/8	-PC-RT6	1.03 (26.2)	0.87 (22.2)	0.59 (15.0)	5300 (365)	2600 (179)
1/2	-PC-RT8	1.34 (34.0)	1.06 (27.0)	0.78 (19.8)	4900 (337)	2400 (165)
3/4	-PC-RT12	1.44 (36.6)	1.31 (33.3)	0.81 (20.6)	4600 (316)	2300 (158)
1	-PC-RT16	1.62 (41.1)	1.63 (41.3)	1.00 (25.4)	4400 (303)	2200 (151)

Part Number Description

SS - PSE - NS6 - NS4 - □ - □ - S - □

Material

SS	316 SS
S4	304 SS
S1	321 SS
M	Alloy 400
INC	Alloy 600
HC	Alloy C-276
B	Brass
CS	Carbon Steel
904L	904L SS

Fitting Type

PHN	Hex Nipple
PLN	Hex Long Nipple
PCN	Close Nipple
PSN	Special Pipe Nipple
PA	Adapter
PRB	Reducing Bushing
PCG	Hex Coupling
UBJ	Union Ball Joints
PME	Male Elbow
PSE	Street Elbow
PSV	45° Street Elbow
PE	Female Elbow
PVE	45° Female Elbow
PMT	Male Tee
PTB	Female Branch Tee
PTR	Female Run Tee
PST	Male Street Tee
PBT	Male Branch Tee
PT	Female Tee
PCR	Female Cross
PUP	Pipe to Pipe Union
HF	Hand Tight Adapter Fitting
PP	Pipe Plug
PI	Hollow Hex Plug
PC	Pipe Cap

P1 Type

NS	NPT Thread
RT	ISO Tapered Thread
RG	ISO Parallel Thread (Gauge)
BP	ISO Parallel Thread
RS	ISO Parallel Thread
MRS	Male Metric Thread
MS	Male Metric Thread
ST	Male SAE/MS Straight Thread
US	Female SAE/MS Straight Thread

P1 Size

2	1/8"
4	1/4"
5	5/16-24
6	3/8" or 3/8-24
7	7/16 -20
8	1/2" or M8×1
9	9/16 -18
10	M10×1
12	3/4" or M12×1.5 or 3/4-16
14	M14×1.5 or 7/8-14
16	1" or M16 x 1.5
17	1 1/16-12
18	M18 x 1.5
19	1 3/16-12
20	1 1/4" or M20 x 1.5
21	1 5/16-12
22	M22 x 1.5
24	1 1/2" or M24 X 1.5
26	1 5/8-12
27	M27 x 2
30	1 7/8-12 or M30 x 2
32	2"

P2, P3 and P4

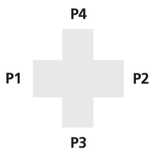
Specify in the same way as the P1

Special Application

	NO
S	NACE MR0175
	Classification for Nuclear Facility Application
N2	Class 2
N3	Class 3

Cleaning and Packaging

	FC-01
F2	FC-02



P1, P2, P3 and P4 shall be described in the following orders:

- NPT Thread - ISO Tapered Thread - ISO Parallel Thread - SAE/MS Straight Thread - Metric Thread - Others
- Male after female but the "PRB" and the "HF" types are not included
- Describe in descending order as per size if the end connection types are the same
- Describe the end of P1 if all end connections are the same

Cleaning and Packaging:

FC-01: Standard cleaning and packaging for general industrial procedures

FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement as stated in ASTM G93 Level C

Note: "Part Number Description" is used for composition rules of product model, Not suitable for specific product part number selection, not random combinations.

6 Series Weld Fittings

Contents

Tube Butt Weld Fittings

Male Connectors - WM A-139

Female Connectors - WF A-140

Reducing Unions - WU A-140

Union Elbows - WLU A-141

Union Tees - WT A-141

Union Crosses - WC A-142

Tube Socket Weld Fittings

Male Connectors - WM A-142

Female Connectors - WF A-143

Male Elbows - WLM A-144

Female Elbows - WLF A-144

Unions - WU A-145

Reducing Unions - WU A-145

Union Elbows - WLU A-146

Union 45° Elbows - WV A-146

Union Tees - WT A-147

Union Crosses - WC A-147

Pipe Butt Weld Fittings

Male Connectors - WM A-148

Female Connectors - WF A-148

Pipe Socket Weld Fittings

Male Connectors - WM A-149

Female Connectors - WF A-149

Unions - WU A-150

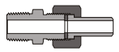
Weld Adapters

Tube Butt Weld to Tube Socket Weld - WA A-150

Pipe Butt Weld to Tube Socket Weld - WA A-150

Pipe to Weld Fittings

Pipe to Tube Butt Weld - PUW A-151

Male Pipe to Tube Butt Weld - MUW  A-152

Part Number Description A-153

Features

- ◎ 316 stainless steel is standard material. Other materials are available upon request.
- ◎ Straight fittings are manufactured from quality bar stock. Shaped fittings are made from forging.
- ◎ Quality machining of all ports ensures consistent welding.
- ◎ Radius junction design with elbows provides smooth flow path.
- ◎ All fittings are cleaned to remove oil, grease and loose particles.
- ◎ Every fitting is stamped with size, material and heat code.

Technical Data

◎ Sizes range from 1/8" to 2" and 6 mm to 38 mm.
◎ Working Temperature:

Material	Minimum Temperature	Maximum Temperature
316 stainless steel	-325°F (-198°C)	1000°F (538°C)
316L stainless steel	-325°F (-198°C)	850°F (454°C)
904L stainless steel	-325°F (-198°C)	700°F (371°C)

◎ Working Pressure:

1. Catalog working pressures shown are based on ANSI/ASME B31.3 at ambient temperature, to determine working pressures in accordance with ANSI/ASME B31.1, multiply catalog working pressures shown by 0.94.
2. Use the allowable working pressure at ambient temperature to multiply the elevated temperature factors to get the working pressure at elevated temperature. To know the elevated temperature factor, please refer to the related information of Tubes and Pipes in page D-14.

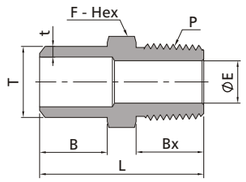
Materials

Material	Bar Stock	Forgings	Designator
316 stainless steel	ASTM A276, ASME SA479	ASTM A182, ASME SA182	SS
316L stainless steel			6L
904L stainless steel	ASTM B649	ASTM A182	904L

◎ *Using the same materials to weld will ensure the same coefficients of expansion and good welding.*
◎ *Tungsten Inert Gas Welding (TIG) is recommended.*

Tube Butt Weld Fittings

Male Connectors

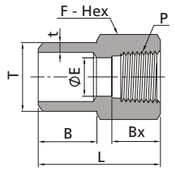


Fractional Tube									NPT Thread
T-Tube O.D. (in.)	t-Wall Thickness (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
				L	B	Bx	F	E	
1/4	0.065	1/4	-WM-TB4-NS4	1.17 (29.7)	0.38 (9.7)	0.56 (14.2)	0.56 (14.3)	0.28 (7.1)	8000 (551)
1/4	0.065	1/2	-WM-TB4-NS8	1.45 (36.8)	0.38 (9.7)	0.75 (19.1)	0.87 (22.2)	0.47 (11.9)	7700 (530)
3/8	0.095	1/4	-WM-TB6-NS4	1.17 (29.7)	0.38 (9.7)	0.56 (14.2)	0.56 (14.3)	0.28 (7.1)	8000 (551)
3/8	0.095	1/2	-WM-TB6-NS8	1.45 (36.8)	0.38 (9.7)	0.75 (19.1)	0.87 (22.2)	0.47 (11.9)	7700 (530)
1/2	0.095	1/4	-WM-TB8-NS4	1.35 (34.3)	0.56 (14.2)	0.56 (14.2)	0.56 (14.3)	0.28 (7.1)	6780 (468)
1/2	0.095	1/2	-WM-TB8-NS8	1.63 (41.4)	0.56 (14.2)	0.75 (19.1)	0.87 (22.2)	0.47 (11.9)	6780 (468)
5/8	0.109	1/4	-WM-TB10-NS4	1.37 (34.8)	0.56 (14.2)	0.56 (14.2)	0.69 (17.5)	0.28 (7.1)	5760 (397)
5/8	0.109	1/2	-WM-TB10-NS8	1.63 (41.4)	0.56 (14.2)	0.75 (19.1)	0.87 (22.2)	0.47 (11.9)	5760 (397)
3/4	0.120	1/4	-WM-TB12-NS4	1.58 (40.1)	0.75 (19.1)	0.56 (14.2)	0.81 (20.6)	0.28 (7.1)	5530 (381)
3/4	0.120	1/2	-WM-TB12-NS8	1.82 (46.2)	0.75 (19.1)	0.75 (19.1)	0.87 (22.2)	0.47 (11.9)	5530 (381)
1	0.134	1/4	-WM-TB16-NS4	1.69 (42.9)	0.75 (19.1)	0.56 (14.2)	1.06 (27.0)	0.28 (7.1)	4480 (309)
1	0.134	1/2	-WM-TB16-NS8	1.88 (47.8)	0.75 (19.1)	0.75 (19.1)	1.06 (27.0)	0.47 (11.9)	4480 (309)

Metric Tube									NPT Thread
T-Tube O.D. (mm)	t-Wall Thickness (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)					Working Pressure psig (bar)
				L	B	Bx	F	E	
12	2.2	1/4	-WM-MTB12-NS4	34.3 (1.35)	14.2 (0.56)	14.2 (0.56)	14.0 (0.55)	7.1 (0.28)	6470 (446)
12	2.2	1/2	-WM-MTB12-NS8	41.1 (1.62)	14.2 (0.56)	19.1 (0.75)	22.0 (0.87)	11.9 (0.47)	6470 (446)
14	2.5	1/4	-WM-MTB14-NS4	34.3 (1.35)	14.2 (0.56)	14.2 (0.56)	15.0 (0.59)	7.1 (0.28)	6280 (433)
14	2.5	1/2	-WM-MTB14-NS8	41.4 (1.63)	14.2 (0.56)	19.1 (0.75)	22.0 (0.87)	11.9 (0.47)	6280 (433)
15	2.5	1/4	-WM-MTB15-NS4	34.8 (1.37)	14.2 (0.56)	14.2 (0.56)	16.0 (0.63)	7.1 (0.28)	5770 (398)
16	2.8	1/4	-WM-MTB16-NS4	35.6 (1.40)	14.2 (0.56)	14.2 (0.56)	18.0 (0.71)	7.1 (0.28)	6140 (423)
16	2.8	1/2	-WM-MTB16-NS8	41.1 (1.62)	14.2 (0.56)	19.1 (0.75)	22.0 (0.87)	11.9 (0.47)	6140 (423)
20	3.0	1/2	-WM-MTB20-NS8	46.2 (1.82)	19.1 (0.75)	19.1 (0.75)	22.0 (0.87)	11.9 (0.47)	5110 (352)
22	3.0	1/4	-WM-MTB22-NS4	41.2 (1.62)	19.1 (0.75)	14.2 (0.56)	24.0 (0.94)	7.1 (0.28)	4620 (319)
22	3.0	1/2	-WM-MTB22-NS8	46.1 (1.81)	19.1 (0.75)	19.1 (0.75)	24.0 (0.94)	11.9 (0.47)	4620 (319)
25	3.5	3/4	-WM-MTB25-NS12	47.8 (1.88)	19.1 (0.75)	19.1 (0.75)	27.0 (1.06)	15.7 (0.62)	4730 (326)
25	3.5	1	-WM-MTB25-NS16	54.9 (2.16)	19.1 (0.75)	23.9 (0.94)	35.0 (1.38)	22.4 (0.88)	4730 (326)
28	4.0	1/2	-WM-MTB28-NS8	54.2 (2.13)	21.4 (0.84)	19.1 (0.75)	30.0 (1.18)	11.9 (0.47)	4850 (335)

Dimensions are for reference only, subject to change.

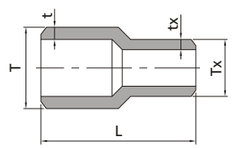
Female Connectors



Fractional Tube									NPT Thread
T-Tube O.D. (in.)	t-Wall Thickness (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
				L	B	Bx	F	E	
1/4	0.065	1/4	-WF-TB4-NS4	1.10 (27.9)	0.38 (9.7)	0.59 (15.0)	0.75 (19.1)	0.12 (3.0)	6600 (454)
1/4	0.065	3/8	-WF-TB4-NS6	1.16 (29.5)	0.38 (9.7)	0.59 (15.0)	0.87 (22.2)	0.12 (3.0)	5300 (365)
3/8	0.095	1/4	-WF-TB6-NS4	1.10 (27.9)	0.38 (9.7)	0.59 (15.0)	0.75 (19.1)	0.19 (4.7)	6600 (454)
3/8	0.095	3/8	-WF-TB6-NS6	1.16 (29.5)	0.38 (9.7)	0.59 (15.0)	0.87 (22.2)	0.19 (4.7)	5300 (365)
1/2	0.095	1/4	-WF-TB8-NS4	1.34 (34.0)	0.56 (14.2)	0.59 (15.0)	0.75 (19.1)	0.31 (7.9)	6600 (454)
1/2	0.095	3/8	-WF-TB8-NS6	1.34 (34.0)	0.56 (14.2)	0.59 (15.0)	0.87 (22.2)	0.31 (7.9)	5300 (365)
1/2	0.095	1/2	-WF-TB8-NS8	1.53 (38.9)	0.56 (14.2)	0.78 (19.8)	1.06 (27.0)	0.31 (7.9)	4900 (337)

Metric Tube									NPT Thread
T-Tube O.D. (mm)	t-Wall Thickness (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)					Working Pressure psig (bar)
				L	B	Bx	F	E	
14	2.5	1/4	-WF-MTB14-NS4	33.0 (1.30)	14.2 (0.56)	15.0 (0.59)	19.0 (0.75)	9.0 (0.35)	6280 (433)
14	2.5	1/2	-WF-MTB14-NS8	38.9 (1.53)	14.2 (0.56)	19.8 (0.78)	27.0 (1.06)	9.0 (0.35)	4900 (337)
20	3.0	1/2	-WF-MTB20-NS8	43.7 (1.72)	19.1 (0.75)	19.8 (0.78)	27.0 (1.06)	14.0 (0.55)	4900 (337)
28	4.0	1/2	-WF-MTB28-NS8	49.8 (1.96)	23.9 (0.94)	19.8 (0.78)	30.0 (1.18)	15.7 (0.62)	4850 (335)

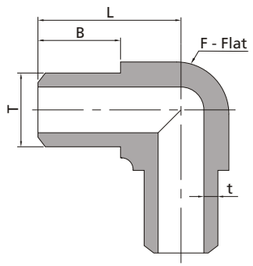
Reducing Unions



Fractional Tube						Fractional Tube
T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Basic Ordering Number	L in. (mm)	Working Pressure psig (bar)
3/8	0.095	1/4	0.065	-WU-TB6-TB4	1.50 (38.1)	9930 (685)
1/2	0.095	1/4	0.065	-WU-TB8-TB4	1.50 (38.1)	6780 (468)
1/2	0.095	3/8	0.095	-WU-TB8-TB6	1.50 (38.1)	6780 (468)
3/4	0.120	1/2	0.095	-WU-TB12-TB8	1.50 (38.1)	5530 (381)
1	0.134	3/4	0.120	-WU-TB16-TB12	1.50 (38.1)	4480 (309)

Metric Tube						Metric Tube
T-Tube O.D. (mm)	t-Wall Thickness (mm)	Tx-Tube O.D. (mm)	tx-Wall Thickness (mm)	Basic Ordering Number	L mm (in.)	Working Pressure psig (bar)
20	3.0	14	2.5	-WU-MTB20-MTB14	38.1 (1.50)	6470 (445)
22	3.0	14	2.5	-WU-MTB22-MTB14	38.1 (1.50)	5780 (395)
22	3.0	18	2.8	-WU-MTB22-MTB18	38.1 (1.50)	5780 (395)
25	3.5	22	3.0	-WU-MTB25-MTB22	38.1 (1.50)	5780 (395)
38	5.0	25	3.5	-WU-MTB38-MTB25	38.1 (1.50)	5540 (380)

Union Elbows



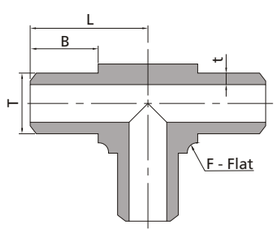
Fractional Tube

T-Tube O.D. (in.)	t-Wall Thickness (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.065	-WLU-TB4	0.64 (16.3)	0.38 (9.7)	0.37 (9.5)	10320 (712)
3/8	0.095	-WLU-TB6	0.71 (18.0)	0.38 (9.7)	0.44 (11.1)	9930 (685)
1/2	0.095	-WLU-TB8	0.96 (24.4)	0.56 (14.2)	0.56 (14.3)	6780 (468)
3/4	0.120	-WLU-TB12	1.31 (33.3)	0.75 (19.1)	0.81 (20.6)	5530 (381)
1	0.134	-WLU-TB16	1.46 (37.1)	0.75 (19.1)	1.06 (27.0)	4480 (309)

Metric Tube

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure psig (bar)
			L	B	F	
10	2.2	-WLU-MTB10	18.0 (0.71)	9.7 (0.38)	11.1 (0.44)	8160 (563)
14	2.5	-WLU-MTB14	25.4 (1.00)	14.2 (0.56)	15.9 (0.63)	6280 (433)
16	2.8	-WLU-MTB16	26.2 (1.03)	14.2 (0.56)	17.5 (0.69)	6140 (423)
20	3.0	-WLU-MTB20	33.3 (1.31)	19.1 (0.75)	20.6 (0.81)	5110 (352)
22	3.0	-WLU-MTB22	35.3 (1.39)	19.1 (0.75)	23.8 (0.94)	4620 (319)
25	3.5	-WLU-MTB25	37.1 (1.46)	19.1 (0.75)	27.0 (1.06)	4730 (326)

Union Tees



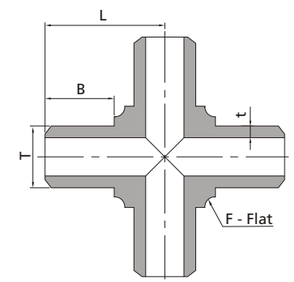
Fractional Tube

T-Tube O.D. (in.)	t-Wall Thickness (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.065	-WT-TB4	0.64 (16.3)	0.38 (9.7)	0.37 (9.5)	10320 (712)
3/8	0.095	-WT-TB6	0.71 (18.0)	0.38 (9.7)	0.44 (11.1)	9930 (685)
1/2	0.095	-WT-TB8	0.96 (24.4)	0.56 (14.2)	0.56 (14.3)	6780 (468)
3/4	0.120	-WT-TB12	1.31 (33.3)	0.75 (19.1)	0.81 (20.6)	5530 (381)
1	0.134	-WT-TB16	1.46 (37.1)	0.75 (19.1)	1.06 (27.0)	4480 (309)

Metric Tube

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure psig (bar)
			L	B	F	
6	1.8	-WT-MTB6	16.3 (0.64)	9.7 (0.38)	9.5 (0.37)	12660 (873)
8	1.8	-WT-MTB8	16.3 (0.64)	9.7 (0.38)	9.5 (0.37)	8320 (574)
10	2.2	-WT-MTB10	18.0 (0.71)	9.7 (0.38)	11.1 (0.44)	8160 (563)
12	2.2	-WT-MTB12	24.4 (0.96)	14.2 (0.56)	14.3 (0.56)	6470 (446)
14	2.5	-WT-MTB14	25.4 (1.00)	14.2 (0.56)	15.9 (0.63)	6280 (433)
16	2.8	-WT-MTB16	26.2 (1.03)	14.2 (0.56)	17.5 (0.69)	6140 (423)
20	3.0	-WT-MTB20	33.3 (1.31)	19.1 (0.75)	20.6 (0.81)	5110 (352)
22	3.0	-WT-MTB22	35.3 (1.39)	19.1 (0.75)	23.8 (0.94)	4620 (319)
25	3.5	-WT-MTB25	37.1 (1.46)	19.1 (0.75)	27.0 (1.06)	4730 (326)
32	4.5	-WT-MTB32	49.3 (1.94)	23.9 (0.94)	34.9 (1.37)	4730 (326)

Union Crosses



Fractional Tube

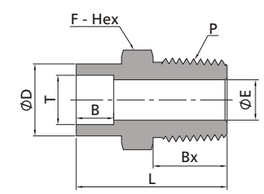
T-Tube O.D. (in.)	t-Wall Thickness (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.065	-WC-TB4	0.64 (16.3)	0.38 (9.7)	0.37 (9.5)	10320 (712)
3/8	0.095	-WC-TB6	0.71 (18.0)	0.38 (9.7)	0.44 (11.1)	9930 (685)
1/2	0.095	-WC-TB8	0.96 (24.4)	0.56 (14.2)	0.56 (14.3)	6780 (468)
3/4	0.120	-WC-TB12	1.31 (33.3)	0.75 (19.1)	0.81 (20.6)	5530 (381)
1	0.134	-WC-TB16	1.46 (37.1)	0.75 (19.1)	1.06 (27.0)	4480 (309)

Metric Tube

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure psig (bar)
			L	B	F	
6	1.8	-WC-MTB6	16.3 (0.64)	9.7 (0.38)	9.5 (0.37)	12660 (873)
8	1.8	-WC-MTB8	16.3 (0.64)	9.7 (0.38)	9.5 (0.37)	8320 (574)
10	2.2	-WC-MTB10	18.0 (0.71)	9.7 (0.38)	11.1 (0.44)	8160 (563)

Tube Socket Weld Fittings

Male Connectors

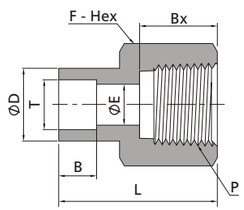


Fractional Tube — **NPT Thread**

T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/4	1/4	-WM-TS4-NS4	1.15 (29.2)	0.48 (12.2)	0.28 (7.1)	0.56 (14.2)	0.56 (14.3)	0.19 (4.8)	8000 (551)
3/8	1/4	-WM-TS6-NS4	1.25 (31.8)	0.60 (15.2)	0.31 (7.9)	0.56 (14.2)	0.63 (15.9)	0.28 (7.1)	8000 (551)
3/8	3/8	-WM-TS6-NS6	1.25 (31.8)	0.60 (15.2)	0.31 (7.9)	0.56 (14.2)	0.69 (17.5)	0.28 (7.1)	7800 (537)
3/8	1/2	-WM-TS6-NS8	1.47 (37.3)	0.60 (15.2)	0.31 (7.9)	0.75 (19.1)	0.87 (22.2)	0.28 (7.1)	7700 (530)
1/2	1/4	-WM-TS8-NS4	1.31 (33.3)	0.73 (18.5)	0.38 (9.7)	0.56 (14.2)	0.75 (19.1)	0.28 (7.1)	6600 (454)
1/2	3/8	-WM-TS8-NS6	1.31 (33.3)	0.73 (18.5)	0.38 (9.7)	0.56 (14.2)	0.75 (19.1)	0.38 (9.6)	6600 (454)
1/2	1/2	-WM-TS8-NS8	1.53 (38.9)	0.73 (18.5)	0.38 (9.7)	0.75 (19.1)	0.87 (22.2)	0.41 (10.4)	6600 (454)
3/4	3/4	-WM-TS12-NS12	1.78 (45.1)	1.04 (26.4)	0.44 (11.2)	0.75 (19.1)	1.06 (27.0)	0.62 (15.7)	5900 (406)
1	1	-WM-TS16-NS16	2.11 (53.6)	1.36 (34.5)	0.62 (15.7)	0.94 (23.9)	1.37 (34.9)	0.88 (22.4)	5300 (365)

Metric Tube									NPT Thread
T-Tube Size (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
6	1/4	-WM-MTS6-NS4	29.2 (1.15)	12.0 (0.47)	7.1 (0.28)	14.2 (0.56)	14.0 (0.55)	4.8 (0.19)	8000 (551)
12	1/2	-WM-MTS12-NS8	38.9 (1.53)	20.2 (0.80)	9.7 (0.38)	19.1 (0.75)	22.0 (0.87)	9.5 (0.37)	6820 (470)
14	1/4	-WM-MTS14-NS4	33.3 (1.31)	23.8 (0.94)	10.0 (0.39)	14.2 (0.56)	24.0 (0.94)	7.1 (0.28)	6930 (478)
14	3/8	-WM-MTS14-NS6	35.0 (1.38)	23.8 (0.94)	10.0 (0.39)	14.2 (0.56)	24.0 (0.94)	9.6 (0.38)	6930 (478)
14	1/2	-WM-MTS14-NS8	40.0 (1.57)	23.8 (0.94)	10.0 (0.39)	19.1 (0.75)	24.0 (0.94)	10.4 (0.41)	6930 (478)
16	1/4	-WM-MTS16-NS4	35.0 (1.38)	23.8 (0.94)	10.4 (0.41)	14.2 (0.56)	24.0 (0.94)	7.1 (0.28)	6190 (426)
16	1/2	-WM-MTS16-NS8	40.0 (1.57)	23.8 (0.94)	10.4 (0.41)	19.1 (0.75)	24.0 (0.94)	11.9 (0.47)	6190 (426)
18	1/4	-WM-MTS18-NS4	40.1 (1.58)	26.0 (1.02)	11.2 (0.44)	14.2 (0.56)	27.0 (1.06)	7.1 (0.28)	6050 (417)
28	3/4	-WM-MTS28-NS12	55.5 (2.19)	40.0 (1.57)	20.0 (0.79)	19.1 (0.75)	41.0 (1.61)	15.7 (0.62)	5040 (348)
38	1 1/4	-WM-MTS38-NS20	68.3 (2.69)	50.8 (2.00)	22.0 (0.87)	23.9 (0.94)	52.0 (2.05)	28.6 (1.13)	5000 (344)

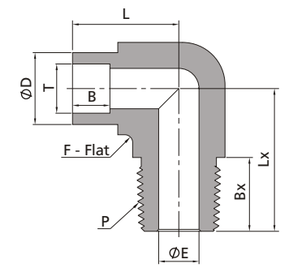
Female Connectors



Fractional Tube									NPT Thread
T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/8	1/8	-WF-TS2-NS2	0.83 (21.1)	0.29 (7.4)	0.10 (2.5)	0.41 (10.4)	0.56 (14.3)	0.09 (2.3)	6500 (447)
1/4	1/8	-WF-TS4-NS2	1.05 (26.7)	0.48 (12.2)	0.28 (7.1)	0.41 (10.4)	0.56 (14.3)	0.19 (4.8)	6500 (447)
1/4	1/4	-WF-TS4-NS4	1.18 (30.0)	0.48 (12.2)	0.28 (7.1)	0.59 (15.0)	0.75 (19.1)	0.19 (4.8)	6600 (454)
3/8	1/4	-WF-TS6-NS4	1.24 (31.5)	0.60 (15.2)	0.31 (7.9)	0.59 (15.0)	0.75 (19.1)	0.28 (7.1)	6600 (454)
1/2	3/8	-WF-TS8-NS6	1.36 (34.5)	0.73 (18.5)	0.38 (9.7)	0.59 (15.0)	0.87 (22.2)	0.41 (10.4)	5300 (365)
1/2	1/2	-WF-TS8-NS8	1.59 (40.4)	0.73 (18.5)	0.38 (9.7)	0.78 (19.8)	1.06 (27.0)	0.41 (10.4)	4900 (337)
3/4	3/4	-WF-TS12-NS12	1.73 (43.9)	1.04 (26.4)	0.44 (11.2)	0.81 (20.6)	1.31 (33.3)	0.63 (16.0)	4600 (316)
1	1	-WF-TS16-NS16	2.13 (54.1)	1.36 (34.5)	0.62 (15.7)	1.00 (25.4)	1.63 (41.3)	0.88 (22.4)	4400 (303)

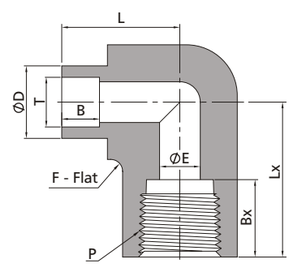
Metric Tube									NPT Thread
T-Tube Size (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
8	1/4	-WF-MTS8-NS4	27.0 (1.06)	14.3 (0.56)	7.9 (0.31)	15.0 (0.59)	19.0 (0.75)	4.8 (0.19)	6600 (454)
10	1/4	-WF-MTS10-NS4	29.0 (1.14)	16.5 (0.65)	7.9 (0.31)	15.0 (0.59)	19.0 (0.75)	7.1 (0.28)	6600 (454)
14	1/4	-WF-MTS14-NS4	32.0 (1.26)	23.8 (0.94)	10.0 (0.39)	15.0 (0.59)	24.0 (0.94)	9.5 (0.37)	6930 (478)
28	3/4	-WF-MTS28-NS12	54.1 (2.13)	40.0 (1.57)	20.0 (0.79)	20.6 (0.81)	41.0 (1.61)	19.8 (0.78)	4600 (316)

Male Elbows



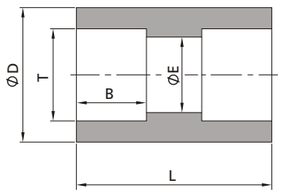
Fractional Tube									NPT Thread
T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)
			L	Lx	D	B	Bx	F	E	
1/4	1/4	SS-WLM-TS4-NS4	0.79 (20.1)	1.05 (26.7)	0.58 (14.7)	0.28 (7.1)	0.56 (14.2)	0.50 (12.7)	0.19 (4.8)	8000 (551)
3/8	1/4	SS-WLM-TS6-NS4	1.04 (26.4)	1.05 (26.7)	0.58 (14.7)	0.31 (7.9)	0.56 (14.2)	0.50 (12.7)	0.28 (7.1)	8000 (551)
3/8	3/8	SS-WLM-TS6-NS6	0.97 (24.6)	1.17 (29.7)	0.80 (20.2)	0.31 (7.9)	0.56 (14.2)	0.69 (17.5)	0.28 (7.1)	7800 (537)
3/8	1/2	SS-WLM-TS6-NS8	1.02 (25.9)	1.45 (36.8)	0.94 (23.8)	0.31 (7.9)	0.75 (19.1)	0.81 (20.6)	0.28 (7.1)	7700 (530)
1/2	1/2	SS-WLM-TS8-NS8	1.08 (27.4)	1.45 (36.8)	0.94 (23.8)	0.38 (9.7)	0.75 (19.1)	0.81 (20.6)	0.41 (10.4)	6600 (454)
3/4	3/4	SS-WLM-TS12-NS12	1.53 (38.9)	1.56 (39.6)	1.04 (26.4)	0.44 (11.2)	0.75 (19.1)	1.06 (27.0)	0.62 (15.7)	5900 (406)

Female Elbows



Fractional Tube									NPT Thread
T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)
			L	Lx	D	B	Bx	F	E	
1/4	1/4	SS-WLF-TS4-NS4	0.90 (22.9)	1.17 (29.7)	0.80 (20.2)	0.28 (7.1)	0.59 (15.0)	0.69 (17.5)	0.19 (4.8)	7400 (509)
3/8	1/4	SS-WLF-TS6-NS4	0.99 (25.1)	1.17 (29.7)	0.80 (20.2)	0.31 (7.9)	0.59 (15.0)	0.69 (17.5)	0.28 (7.1)	7400 (509)
3/8	1/2	SS-WLF-TS6-NS8	1.13 (28.7)	1.56 (39.6)	1.15 (29.3)	0.31 (7.9)	0.78 (19.8)	1.00 (25.4)	0.28 (7.1)	5700 (392)
1/2	1/2	SS-WLF-TS8-NS8	1.19 (30.2)	1.56 (39.6)	1.15 (29.3)	0.38 (9.7)	0.78 (19.8)	1.00 (25.4)	0.41 (10.4)	5700 (392)

Unions



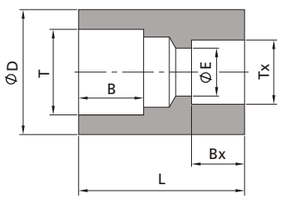
Fractional Tube

T-Tube Size (in.)	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)
		L	D	B	E	
1/4	SS-WU-TS4	0.75 (19.1)	0.48 (12.2)	0.28 (7.1)	0.19 (4.8)	10700 (737)
3/8	SS-WU-TS6	0.88 (22.4)	0.60 (15.2)	0.31 (7.9)	0.28 (7.1)	8100 (558)
1/2	SS-WU-TS8	1.06 (26.9)	0.73 (18.5)	0.38 (9.7)	0.41 (10.4)	6600 (454)
5/8	SS-WU-TS10	1.19 (30.2)	0.92 (23.4)	0.41 (10.4)	0.50 (12.7)	6200 (427)
3/4	SS-WU-TS12	1.31 (33.3)	1.04 (26.4)	0.44 (11.2)	0.63 (16.0)	5900 (406)
7/8	SS-WU-TS14	1.40 (35.5)	1.24 (31.5)	0.50 (12.7)	0.74 (18.8)	5730 (395)
1	SS-WU-TS16	1.44 (36.6)	1.36 (34.5)	0.62 (15.7)	0.88 (22.4)	5600 (385)

Metric Tube

T-Tube Size (mm)	Basic Ordering Number	Dimension, mm (in.)				Working Pressure psig (bar)
		L	D	B	E	
8	SS-WU-MTS8	22.4 (0.88)	14.3 (0.56)	7.9 (0.31)	6.4 (0.25)	9790 (675)
10	SS-WU-MTS10	23.6 (0.93)	16.5 (0.65)	7.9 (0.31)	7.4 (0.29)	8100 (558)
12	SS-WU-MTS12	26.9 (1.06)	20.2 (0.80)	9.7 (0.38)	9.5 (0.37)	6820 (470)
14	SS-WU-MTS14	28.0 (1.10)	23.8 (0.94)	10.0 (0.39)	10.4 (0.41)	6930 (478)
16	SS-WU-MTS16	30.2 (1.19)	23.8 (0.94)	10.4 (0.41)	12.7 (0.50)	6190 (426)
20	SS-WU-MTS20	28.0 (1.10)	27.0 (1.06)	11.2 (0.44)	17.0 (0.67)	5510 (380)

Reducing Unions



Fractional Tube — Fractional Tube

T-Tube Size (in.)	Tx-Tube Size (in.)	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	D	B	E	Bx	
3/8	1/4	-WU-TS6-TS4	0.88 (22.4)	0.60 (15.2)	0.31 (7.9)	0.19 (4.8)	0.28 (7.1)	8100 (558)
1/2	1/4	-WU-TS8-TS4	0.96 (24.3)	0.73 (18.5)	0.38 (9.7)	0.19 (4.8)	0.28 (7.1)	6600 (454)
1/2	3/8	-WU-TS8-TS6	1.03 (26.1)	0.73 (18.5)	0.38 (9.7)	0.28 (7.1)	0.31 (7.9)	6600 (454)
3/4	3/8	-WU-TS12-TS6	1.17 (29.8)	1.04 (26.4)	0.44 (11.2)	0.28 (7.1)	0.31 (7.9)	5900 (406)
3/4	1/2	-WU-TS12-TS8	1.24 (31.6)	1.04 (26.4)	0.44 (11.2)	0.41 (10.4)	0.38 (9.7)	5900 (406)
1	3/4	-WU-TS16-TS12	1.26 (32.1)	1.36 (34.5)	0.62 (15.7)	0.63 (16.0)	0.44 (11.2)	5600 (385)

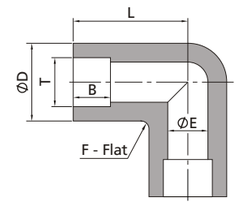
Metric Tube — Metric Tube

T-Tube Size (mm)	Tx-Tube Size (mm)	Basic Ordering Number	Dimension, mm (in.)					Working Pressure psig (bar)
			L	D	B	E	Bx	
14	10	-WU-MTS14-MTS10	26.0 (1.02)	23.8 (0.94)	10.4 (0.41)	7.4 (0.29)	7.9 (0.31)	6930 (478)
25	14	-WU-MTS25-MTS14	30.0 (1.18)	34.5 (1.36)	15.7 (0.62)	10.4 (0.41)	10.0 (0.39)	5450 (376)
25	22	-WU-MTS25-MTS22	35.8 (1.41)	34.5 (1.36)	15.7 (0.62)	19.0 (0.75)	13.5 (0.53)	5450 (376)

Metric Tube — Fractional Tube

T-Tube Size (mm)	Tx-Tube Size (in.)	Basic Ordering Number	Dimension, mm (in.)					Working Pressure psig (bar)
			L	D	B	E	Bx	
20	3/4	-WU-MTS20-TS12	28.0 (1.10)	27.0 (1.06)	11.2 (0.44)	15.7 (0.62)	11.2 (0.44)	5510 (380)
28	3/4	-WU-MTS28-TS12	36.8 (1.45)	40.0 (1.57)	20.0 (0.79)	15.7 (0.62)	11.2 (0.44)	5040 (348)

Union Elbows



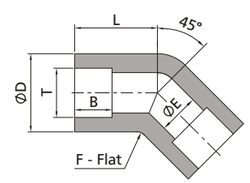
Fractional Tube

T-Tube Size (in.)	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
		L	D	B	F	E	
1/8	-WLU-TS2	0.59 (15.0)	0.43 (11.0)	0.10 (2.5)	0.37 (9.5)	0.09 (2.3)	12600 (863)
1/4	-WLU-TS4	0.86 (21.8)	0.50 (12.8)	0.28 (7.1)	0.44 (11.1)	0.19 (4.8)	10700 (737)
3/8	-WLU-TS6	1.04 (26.4)	0.65 (16.5)	0.31 (7.9)	0.56 (14.3)	0.28 (7.1)	8100 (558)
1/2	-WLU-TS8	1.17 (29.7)	0.80 (20.2)	0.38 (9.7)	0.69 (17.5)	0.41 (10.4)	6600 (454)
5/8	-WLU-TS10	1.42 (36.1)	0.94 (23.8)	0.41 (10.4)	0.81 (20.6)	0.50 (12.7)	6200 (427)
3/4	-WLU-TS12	1.56 (39.6)	1.15 (29.3)	0.44 (11.2)	1.00 (25.4)	0.63 (16.0)	5900 (406)
1	-WLU-TS16	1.92 (48.8)	1.44 (36.7)	0.62 (15.7)	1.25 (31.8)	0.88 (22.4)	5600 (385)

Metric Tube

T-Tube Size (mm)	Basic Ordering Number	Dimension, mm (in.)					Working Pressure psig (bar)
		L	D	B	F	E	
10	-WLU-MTS10	24.6 (0.97)	16.5 (0.65)	7.9 (0.31)	14.3 (0.56)	7.4 (0.29)	8100 (558)
12	-WLU-MTS12	29.7 (1.17)	20.2 (0.80)	9.7 (0.38)	17.5 (0.69)	9.5 (0.37)	6820 (470)
14	-WLU-MTS14	31.7 (1.25)	23.8 (0.94)	10.0 (0.39)	20.6 (0.81)	10.4 (0.41)	6930 (478)
16	-WLU-MTS16	34.7 (1.37)	23.8 (0.94)	10.4 (0.41)	20.6 (0.81)	12.7 (0.50)	6190 (426)

Union 45° Elbows



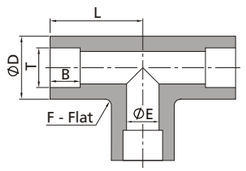
Fractional Tube

T-Tube Size (in.)	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
		L	D	B	F	E	
1/4	SS-WV-TS4	0.59 (15.0)	0.43 (11.0)	0.10 (2.5)	0.37 (9.5)	0.09 (2.3)	10700 (737)
3/8	SS-WV-TS6	0.78 (19.7)	0.50 (12.8)	0.28 (7.1)	0.44 (11.1)	0.19 (4.8)	8100 (558)
1/2	SS-WV-TS8	0.84 (21.3)	0.65 (16.5)	0.31 (7.9)	0.56 (14.3)	0.28 (7.1)	6600 (454)
3/4	SS-WV-TS12	1.13 (28.7)	0.80 (20.2)	0.38 (9.7)	0.69 (17.5)	0.41 (10.4)	5900 (406)
1	SS-WV-TS16	1.25 (31.8)	0.94 (23.8)	0.41 (10.4)	0.81 (20.6)	0.50 (12.7)	5600 (385)

Metric Tube

T-Tube Size (mm)	Basic Ordering Number	Dimension, mm (in.)					Working Pressure psig (bar)
		L	D	B	F	E	
8	SS-WV-MTS8	17.3 (0.68)	14.7 (0.58)	7.9 (0.31)	12.7 (0.50)	6.4 (0.25)	9790 (675)
10	SS-WV-MTS10	19.1 (0.75)	16.5 (0.65)	7.9 (0.31)	14.3 (0.56)	7.4 (0.29)	8100 (558)
12	SS-WV-MTS12	21.3 (0.84)	20.2 (0.80)	9.7 (0.38)	17.5 (0.69)	9.5 (0.37)	6820 (470)
14	SS-WV-MTS14	26.4 (1.04)	23.8 (0.94)	10.0 (0.39)	20.6 (0.81)	10.4 (0.41)	6930 (478)
16	SS-WV-MTS16	26.4 (1.04)	23.8 (0.94)	10.4 (0.41)	20.6 (0.81)	12.7 (0.50)	6190 (426)
20	SS-WV-MTS20	28.7 (1.13)	29.3 (1.15)	11.2 (0.44)	25.4 (1.00)	17.0 (0.67)	5510 (380)
22	SS-WV-MTS22	29.7 (1.17)	31.2 (1.23)	13.5 (0.53)	27.0 (1.06)	19.0 (0.75)	6850 (472)
25	SS-WV-MTS25	31.8 (1.25)	36.7 (1.44)	15.7 (0.62)	31.8 (1.25)	22.0 (0.87)	5450 (376)

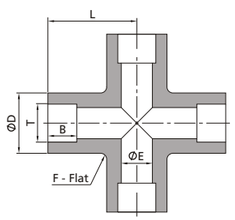
Union Tees



Fractional Tube							
T-Tube Size (in.)	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
		L	D	B	F	E	
1/8	-WT-TS2	0.59 (15.0)	0.39 (10.0)	0.10 (2.5)	0.44 (11.1)	0.09 (2.3)	12600 (868)
1/4	-WT-TS4	0.86 (21.8)	0.50 (12.8)	0.28 (7.1)	0.44 (11.1)	0.19 (4.8)	10700 (737)
3/8	-WT-TS6	1.04 (26.4)	0.65 (16.5)	0.31 (7.9)	0.56 (14.3)	0.28 (7.1)	8100 (558)
1/2	-WT-TS8	1.17 (29.7)	0.80 (20.2)	0.38 (9.7)	0.69 (17.5)	0.41 (10.4)	6600 (454)
5/8	-WT-TS10	1.42 (36.1)	0.94 (23.8)	0.41 (10.4)	0.81 (20.6)	0.50 (12.7)	6200 (428)
3/4	-WT-TS12	1.56 (39.6)	1.15 (29.3)	0.44 (11.2)	1.00 (25.4)	0.63 (16.0)	5900 (406)
1	-WT-TS16	1.92 (48.8)	1.44 (36.7)	0.62 (15.7)	1.25 (31.8)	0.88 (22.4)	5600 (385)

Metric Tube							
T-Tube Size (mm)	Basic Ordering Number	Dimension, mm (in.)					Working Pressure psig (bar)
		L	D	B	F	E	
8	-WT-MTS8	19.8 (0.78)	14.7 (0.58)	7.9 (0.31)	12.7 (0.50)	6.4 (0.25)	9790 (675)
10	-WT-MTS10	24.6 (0.97)	16.5 (0.65)	7.9 (0.31)	14.3 (0.56)	7.4 (0.29)	8100 (558)
12	-WT-MTS12	29.7 (1.17)	20.2 (0.80)	9.7 (0.38)	17.5 (0.69)	9.5 (0.37)	6820 (470)
14	-WT-MTS14	31.7 (1.25)	23.8 (0.94)	10.0 (0.39)	20.6 (0.81)	10.4 (0.41)	6930 (478)
16	-WT-MTS16	36.0 (1.42)	23.8 (0.94)	10.4 (0.41)	20.6 (0.81)	12.7 (0.50)	6190 (426)
20	-WT-MTS20	39.6 (1.56)	29.3 (1.15)	11.2 (0.44)	25.4 (1.00)	17.0 (0.67)	5510 (380)
22	-WT-MTS22	41.3 (1.63)	31.2 (1.23)	13.5 (0.53)	27.0 (1.06)	19.0 (0.75)	6850 (472)
25	-WT-MTS25	48.8 (1.92)	36.7 (1.44)	15.7 (0.62)	31.8 (1.25)	22.0 (0.87)	5450 (376)

Union Crosses

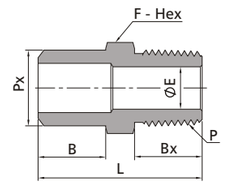


Fractional Tube							
T-Tube Size (in.)	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
		L	D	B	F	E	
1/8	-WC-TS2	0.59 (15.0)	0.43 (11.0)	0.10 (2.5)	0.44 (11.1)	0.09 (2.3)	12600 (863)
1/4	-WC-TS4	0.86 (21.8)	0.50 (12.8)	0.28 (7.1)	0.44 (11.1)	0.19 (4.8)	10700 (737)
3/8	-WC-TS6	1.04 (26.4)	0.58 (14.7)	0.31 (7.9)	0.50 (12.7)	0.28 (7.1)	8100 (558)
1/2	-WC-TS8	1.17 (29.7)	0.80 (20.2)	0.38 (9.7)	0.69 (17.5)	0.41 (10.4)	6600 (454)
5/8	-WC-TS10	1.42 (36.1)	0.94 (23.8)	0.41 (10.4)	0.81 (20.6)	0.50 (12.7)	6200 (428)
3/4	-WC-TS12	1.56 (39.6)	1.15 (29.3)	0.44 (11.2)	1.00 (25.4)	0.63 (16.0)	5900 (406)
1	-WC-TS16	1.92 (48.8)	1.44 (36.7)	0.62 (15.7)	1.25 (31.8)	0.88 (22.4)	5600 (385)

Metric Tube							
T-Tube Size (mm)	Basic Ordering Number	Dimension, mm (in.)					Working Pressure psig (bar)
		L	D	B	F	E	
8	-WC-MTS8	19.8 (0.78)	14.7 (0.58)	7.9 (0.31)	12.7 (0.50)	6.4 (0.25)	9790 (675)
10	-WC-MTS10	24.6 (0.97)	16.5 (0.65)	7.9 (0.31)	14.3 (0.56)	7.1 (0.28)	8100 (558)
12	-WC-MTS12	29.7 (1.17)	20.2 (0.80)	9.7 (0.38)	17.5 (0.69)	9.5 (0.37)	6820 (470)
14	-WC-MTS14	31.7 (1.25)	23.8 (0.94)	10.0 (0.39)	20.6 (0.81)	10.4 (0.41)	6930 (478)
16	-WC-MTS16	36.0 (1.42)	23.8 (0.94)	10.4 (0.41)	20.6 (0.81)	12.7 (0.50)	6190 (426)
20	-WC-MTS20	39.6 (1.56)	29.3 (1.15)	11.2 (0.44)	25.4 (1.00)	17.0 (0.67)	5510 (380)
22	-WC-MTS22	41.3 (1.63)	31.2 (1.23)	13.5 (0.53)	27.0 (1.06)	19.0 (0.75)	6850 (472)
25	-WC-MTS25	48.8 (1.92)	36.7 (1.44)	15.7 (0.62)	31.8 (1.25)	22.0 (0.87)	5450 (376)

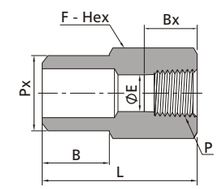
Pipe Butt Weld Fittings

Male Connectors



Pipe								NPT Thread
Px-Sch80 Pipe Size	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	B	Bx	F	E	
1/4	1/4	-WM-PB4-NS4	1.35 (34.3)	0.56 (14.2)	0.56 (14.2)	0.56 (14.3)	0.28 (7.1)	8000 (551)
1/4	1/2	-WM-PB4-NS8	1.63 (41.3)	0.56 (14.2)	0.75 (19.1)	0.87 (22.2)	0.30 (7.7)	7700 (537)
3/8	1/4	-WM-PB6-NS4	1.37 (34.8)	0.56 (14.2)	0.56 (14.2)	0.69 (17.5)	0.28 (7.1)	6650 (459)
3/8	1/2	-WM-PB6-NS8	1.63 (41.3)	0.56 (14.2)	0.75 (19.1)	0.87 (22.2)	0.42 (10.7)	6650 (459)
1/2	1/4	-WM-PB8-NS4	1.63 (41.3)	0.75 (19.1)	0.56 (14.2)	0.87 (22.2)	0.28 (7.1)	6190 (427)
1/2	1/2	-WM-PB8-NS8	1.82 (46.2)	0.75 (19.1)	0.75 (19.1)	0.87 (22.2)	0.47 (11.9)	6190 (427)
3/4	1/4	-WM-PB12-NS4	1.69 (42.9)	0.75 (19.1)	0.56 (14.2)	1.06 (27.0)	0.28 (7.1)	5040 (348)
3/4	1/2	-WM-PB12-NS8	1.88 (47.8)	0.75 (19.1)	0.75 (19.1)	1.06 (27.0)	0.47 (11.9)	5040 (348)
1	1/4	-WM-PB16-NS4	1.97 (50.0)	0.94 (23.9)	0.56 (14.2)	1.37 (34.9)	0.28 (7.1)	4640 (320)
1	1/2	-WM-PB16-NS8	2.16 (54.9)	0.94 (23.9)	0.75 (19.1)	1.37 (34.9)	0.47 (11.9)	4640 (320)

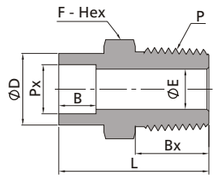
Female Connectors



Pipe								NPT Thread
Px-Sch80 Pipe Size	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	B	Bx	F	E	
1/4	1/2	-WF-PB4-NS8	1.53 (38.9)	0.56 (14.2)	0.78 (19.8)	1.06 (27.0)	0.30 (7.6)	4900 (337)
3/8	1/2	-WF-PB6-NS8	1.53 (38.9)	0.56 (14.2)	0.78 (19.8)	1.06 (27.0)	0.42 (10.7)	4900 (337)
1/2	1/4	-WF-PB8-NS4	1.47 (37.3)	0.75 (19.1)	0.59 (15.0)	0.87 (22.2)	0.41 (10.4)	7500 (516)
1/2	1/2	-WF-PB8-NS8	1.72 (43.7)	0.75 (19.1)	0.78 (19.8)	1.06 (27.0)	0.55 (13.9)	4900 (337)

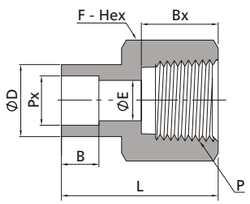
Pipe Socket Weld Fittings

Male Connectors



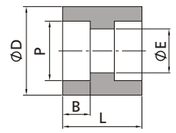
Pipe									NPT Thread
Px-Pipe Size	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/4	1/4	-WM-PS4-NS4	1.39 (35.2)	0.88 (22.4)	0.39 (9.9)	0.56 (14.2)	0.94 (23.8)	0.28 (7.1)	8000 (551)
1/4	1/2	-WM-PS4-NS8	1.57 (40.0)	0.88 (22.4)	0.39 (9.9)	0.75 (19.1)	0.94 (23.8)	0.36 (9.1)	7700 (530)
3/8	3/8	-WM-PS6-NS6	1.50 (38.0)	1.03 (26.2)	0.39 (9.9)	0.56 (14.2)	1.06 (27.0)	0.38 (9.7)	7100 (489)
3/8	1/2	-WM-PS6-NS8	1.69 (42.9)	1.03 (26.2)	0.39 (9.9)	0.75 (19.1)	1.06 (27.0)	0.47 (11.9)	7100 (489)
1/2	3/8	-WM-PS8-NS6	1.59 (40.3)	1.25 (31.8)	0.39 (9.9)	0.56 (14.2)	1.31 (33.3)	0.38 (9.7)	6800 (468)
1/2	1/2	-WM-PS8-NS8	1.78 (45.2)	1.25 (31.8)	0.39 (9.9)	0.75 (19.1)	1.31 (33.3)	0.47 (11.9)	6800 (468)
3/4	1/2	-WM-PS12-NS8	2.14 (54.3)	1.47 (37.3)	0.51 (13.0)	0.75 (19.1)	1.50 (38.1)	0.47 (11.9)	5800 (399)
3/4	3/4	-WM-PS12-NS12	2.14 (54.3)	1.47 (37.3)	0.51 (13.0)	0.75 (19.1)	1.50 (38.1)	0.62 (15.7)	5800 (399)
1	3/4	-WM-PS16-NS12	2.20 (55.8)	1.86 (47.2)	0.51 (13.0)	0.75 (19.1)	1.87 (47.6)	0.62 (15.7)	6100 (420)
1	1	-WM-PS16-NS16	2.39 (60.6)	1.86 (47.2)	0.51 (13.0)	0.94 (23.9)	1.87 (47.6)	0.88 (22.4)	5300 (365)

Female Connectors



Pipe									NPT Thread
Px-Pipe Size	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/4	1/4	-WF-PS4-NS4	1.32 (33.5)	0.88 (22.4)	0.39 (9.9)	0.59 (15.0)	0.94 (23.8)	0.36 (9.1)	8000 (551)
1/4	3/8	-WF-PS4-NS6	1.32 (33.5)	0.88 (22.4)	0.39 (9.9)	0.59 (15.0)	0.94 (23.8)	0.36 (9.1)	6790 (463)
3/8	3/8	-WF-PS6-NS6	1.34 (34.1)	1.03 (26.2)	0.39 (9.9)	0.59 (15.0)	1.06 (27.0)	0.49 (12.4)	7100 (489)
3/8	1/2	-WF-PS6-NS8	1.54 (39.1)	1.03 (26.2)	0.39 (9.9)	0.78 (19.8)	1.06 (27.0)	0.49 (12.4)	4900 (337)
1/2	1/2	-WF-PS8-NS8	1.57 (40.0)	1.25 (31.8)	0.39 (9.9)	0.78 (19.8)	1.31 (33.3)	0.62 (15.7)	6800 (468)
1/2	3/4	-WF-PS8-NS12	1.60 (40.6)	1.25 (31.8)	0.39 (9.9)	0.81 (20.6)	1.31 (33.3)	0.62 (15.7)	4600 (316)
3/4	3/4	-WF-PS12-NS12	2.09 (53.2)	1.47 (37.3)	0.51 (13.0)	0.81 (20.6)	1.50 (38.1)	0.82 (20.8)	5800 (399)
3/4	1	-WF-PS12-NS16	2.29 (58.1)	1.47 (37.3)	0.51 (13.0)	1.00 (25.4)	1.63 (41.3)	0.82 (20.8)	4400 (303)

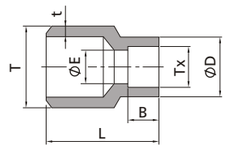
Unions



Pipe						
P-Pipe Size	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)
		L	D	B	E	
1/8	-WU-PS2	1.01 (25.7)	0.67 (17.1)	0.39 (9.9)	0.28 (7.0)	8230 (568)
1/4	-WU-PS4	1.06 (26.9)	0.88 (22.4)	0.39 (9.9)	0.38 (9.7)	8000 (551)
3/8	-WU-PS6	1.12 (28.4)	1.03 (26.2)	0.39 (9.9)	0.49 (12.4)	7100 (489)
1/2	-WU-PS8	1.16 (29.5)	1.25 (31.8)	0.39 (9.9)	0.62 (15.7)	6800 (468)
3/4	-WU-PS12	1.75 (44.5)	1.47 (37.3)	0.51 (13.0)	0.82 (20.8)	5800 (399)
1	-WU-PS16	1.75 (44.5)	1.86 (47.2)	0.51 (13.0)	1.05 (26.7)	6100 (420)

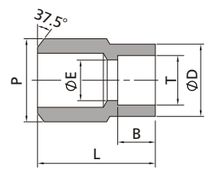
Weld Adapters

Tube Butt Weld to Tube Socket Weld



Fractional Tube								
T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube Size (in.)	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)
				L	B	D	E	
1/4	0.083	1/8	-WA-TB4-TS2	0.56 (14.2)	0.10 (2.5)	0.31 (8.0)	0.09 (2.3)	12600 (868)
3/8	0.095	1/4	-WA-TB6-TS4	0.75 (19.1)	0.28 (7.1)	0.48 (12.2)	0.19 (4.8)	8200 (564)
1/2	0.095	1/4	-WA-TB8-TS4	0.88 (22.4)	0.28 (7.1)	0.50 (12.7)	0.19 (4.8)	7500 (516)
1/2	0.095	3/8	-WA-TB8-TS6	0.88 (22.4)	0.31 (7.9)	0.60 (15.2)	0.28 (7.1)	7500 (516)
3/4	0.120	1/2	-WA-TB12-TS8	1.12 (28.4)	0.38 (9.7)	0.73 (18.5)	0.41 (10.4)	6300 (434)
1	0.134	1/2	-WA-TB16-TS8	1.38 (35.1)	0.38 (9.7)	0.73 (18.5)	0.41 (10.4)	5300 (365)
1	0.134	3/4	-WA-TB16-TS12	1.50 (38.1)	0.44 (11.2)	1.04 (26.4)	0.63 (16.0)	5300 (365)

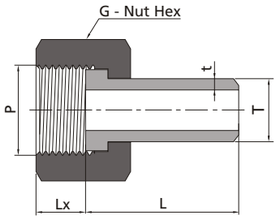
Pipe Butt Weld to Tube Socket Weld



Pipe							Fractional Tube
P-Sch80 Pipe Size	T-Tube Size (in.)	Basic Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)
			L	B	D	E	
1/4	1/4	-WA-PB4-TS4	0.88 (22.4)	0.28 (7.1)	0.48 (12.2)	0.19 (4.8)	10810 (744)
3/8	1/4	-WA-PB6-TS4	1.03 (26.2)	0.31 (7.9)	0.48 (12.2)	0.19 (4.8)	8500 (586)
3/8	3/8	-WA-PB6-TS6	1.03 (26.2)	0.31 (7.9)	0.60 (15.2)	0.28 (7.1)	8500 (586)
3/8	1/2	-WA-PB6-TS8	1.00 (25.4)	0.38 (9.7)	0.73 (18.5)	0.41 (10.4)	6930 (476)
1/2	1/4	-WA-PB8-TS4	1.12 (28.4)	0.28 (7.1)	0.48 (12.2)	0.19 (4.8)	8190 (563)
1/2	3/8	-WA-PB8-TS6	1.12 (28.4)	0.31 (7.9)	0.60 (15.2)	0.28 (7.1)	8190 (563)
1/2	1/2	-WA-PB8-TS8	1.19 (30.2)	0.38 (9.7)	0.73 (18.5)	0.41 (10.4)	6930 (476)
3/4	1/4	-WA-PB12-TS4	1.50 (38.1)	0.28 (7.1)	0.48 (12.2)	0.19 (4.8)	6930 (476)
3/4	3/8	-WA-PB12-TS6	1.50 (38.1)	0.31 (7.9)	0.60 (15.2)	0.28 (7.1)	6930 (476)
3/4	1/2	-WA-PB12-TS8	1.50 (38.1)	0.38 (9.7)	0.73 (18.5)	0.41 (10.4)	6930 (476)
3/4	3/4	-WA-PB12-TS12	1.50 (38.1)	0.44 (11.2)	1.04 (26.4)	0.63 (16.0)	6190 (483)
1	3/8	-WA-PB16-TS6	1.38 (35.1)	0.31 (7.9)	0.60 (15.2)	0.28 (7.1)	6300 (434)
1	1/2	-WA-PB16-TS8	1.56 (39.6)	0.38 (9.7)	0.73 (18.5)	0.41 (10.4)	6300 (434)

Pipe to Weld Fittings

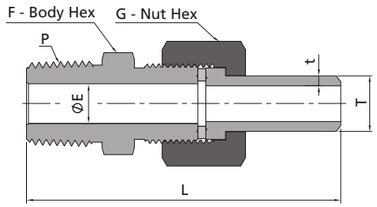
Pipe to Tube Butt Weld



ISO Parallel Thread							Metric Tube
P-ISO Thread Size	T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure psig (bar)
				L	G	Lx	
1/2	12	2.2	-PUW-RG8-MTB12	34.0 (1.34)	27.0 (1.06)	11.0 (0.43)	6470 (446)
1/2	14	2.5	-PUW-RG8-MTB14	34.0 (1.34)	27.0 (1.06)	11.0 (0.43)	6280 (433)
1/2	16	2.8	-PUW-RG8-MTB16	34.0 (1.34)	27.0 (1.06)	11.0 (0.43)	6140 (423)

Metric Thread							Metric Tube
P-Metric Thread Size	T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure psig (bar)
				L	G	Lx	
M12 x 1.5	6	1.8	-PUW-MS12-MTB6	25.0 (0.98)	16.0 (0.63)	9.0 (0.35)	12660 (873)
M12 x 1.5	8	1.8	-PUW-MS12-MTB8	30.0 (1.18)	16.0 (0.63)	9.0 (0.35)	8320 (574)
M14 x 1.5	8	1.8	-PUW-MS14-MTB8	30.0 (1.18)	18.0 (0.71)	9.0 (0.35)	8320 (574)
M14 x 1.5	10	2.2	-PUW-MS14-MTB10	30.0 (1.18)	18.0 (0.71)	9.0 (0.35)	8160 (563)
M16 x 1.5	8	1.8	-PUW-MS16-MTB8	30.0 (1.18)	22.0 (0.87)	9.0 (0.35)	8320 (574)
M16 x 1.5	10	2.2	-PUW-MS16-MTB10	30.0 (1.18)	22.0 (0.87)	9.0 (0.35)	8160 (563)
M16 x 1.5	12	2.2	-PUW-MS16-MTB12	34.0 (1.34)	22.0 (0.87)	9.0 (0.35)	6470 (446)
M18 x 1.5	10	2.2	-PUW-MS18-MTB10	34.0 (1.34)	22.0 (0.87)	10.0 (0.39)	8160 (563)
M18 x 1.5	12	2.2	-PUW-MS18-MTB12	34.0 (1.34)	22.0 (0.87)	10.0 (0.39)	6470 (446)
M18 x 1.5	14	2.5	-PUW-MS18-MTB14	34.0 (1.34)	22.0 (0.87)	10.0 (0.39)	6280 (433)
M20 x 1.5	10	2.2	-PUW-MS20-MTB10	34.0 (1.34)	25.0 (0.98)	11.0 (0.43)	8160 (563)
M20 x 1.5	12	2.2	-PUW-MS20-MTB12	34.0 (1.34)	25.0 (0.98)	11.0 (0.43)	6470 (446)
M20 x 1.5	14	2.5	-PUW-MS20-MTB14	34.0 (1.34)	25.0 (0.98)	11.0 (0.43)	6280 (433)
M20 x 1.5	15	2.5	-PUW-MS20-MTB15	34.0 (1.34)	25.0 (0.98)	11.0 (0.43)	6160 (425)
M20 x 1.5	16	2.8	-PUW-MS20-MTB16	34.0 (1.34)	25.0 (0.98)	11.0 (0.43)	6140 (423)
M22 x 1.5	14	2.5	-PUW-MS22-MTB14	34.0 (1.34)	27.0 (1.06)	11.0 (0.43)	6280 (433)
M22 x 1.5	16	2.8	-PUW-MS22-MTB16	34.0 (1.34)	27.0 (1.06)	11.0 (0.43)	6140 (423)
M24 x 1.5	16	2.8	-PUW-MS24-MTB16	34.0 (1.34)	30.0 (1.18)	11.0 (0.43)	6140 (423)
M24 x 1.5	18	2.8	-PUW-MS24-MTB18	34.0 (1.34)	30.0 (1.18)	11.0 (0.43)	5670 (392)
M24 x 1.5	20	3.0	-PUW-MS24-MTB20	34.0 (1.34)	30.0 (1.18)	11.0 (0.43)	5110 (352)
M27 x 2	14	2.5	-PUW-MS27-MTB14	34.0 (1.34)	32.0 (1.26)	14.0 (0.55)	6280 (433)
M27 x 2	16	2.8	-PUW-MS27-MTB16	34.0 (1.34)	32.0 (1.26)	14.0 (0.55)	6140 (423)
M27 x 2	18	2.8	-PUW-MS27-MTB18	34.0 (1.34)	32.0 (1.26)	14.0 (0.55)	5670 (392)
M27 x 2	20	3.0	-PUW-MS27-MTB20	40.0 (1.57)	32.0 (1.26)	14.0 (0.55)	5110 (352)
M27 x 2	22	3.0	-PUW-MS27-MTB22	40.0 (1.57)	32.0 (1.26)	14.0 (0.55)	4620 (319)
M30 x 2	22	3.0	-PUW-MS30-MTB22	40.0 (1.57)	35.0 (1.38)	18.0 (0.71)	4620 (319)
M30 x 2	25	3.5	-PUW-MS30-MTB25	45.0 (1.77)	35.0 (1.38)	18.0 (0.71)	4730 (326)
M33 x 2	28	4.0	-PUW-MS33-MTB28	45.0 (1.77)	41.0 (1.61)	18.0 (0.71)	5160 (356)
M36 x 2	30	4.0	-PUW-MS36-MTB30	45.0 (1.77)	41.0 (1.61)	18.0 (0.71)	4760 (328)

Male Pipe to Tube Butt Weld



NPT Thread								Metric Tube
P-NPT Size	T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)				Working Pressure psig (bar)
				L	F	G	E	
1/8	14	2.5	-MUW-NS2-MTB14	69.0 (2.72)	19.0 (0.75)	22.0 (0.87)	4.8 (0.19)	6280 (433)
1/4	6	1.8	-MUW-NS4-MTB6	60.0 (2.36)	14.0 (0.55)	14.0 (0.55)	3.0 (0.12)	8240 (566)
1/4	8	1.8	-MUW-NS4-MTB8	73.2 (2.88)	14.0 (0.55)	16.0 (0.63)	4.0 (0.16)	8240 (566)
1/4	10	2.2	-MUW-NS4-MTB10	73.2 (2.88)	15.0 (0.59)	18.0 (0.71)	6.0 (0.24)	8160 (563)
1/4	12	2.2	-MUW-NS4-MTB12	73.2 (2.88)	18.0 (0.71)	22.0 (0.87)	7.0 (0.28)	6470 (446)
1/4	14	2.5	-MUW-NS4-MTB14	73.2 (2.88)	19.0 (0.75)	22.0 (0.87)	7.1 (0.28)	6280 (433)
1/4	16	2.8	-MUW-NS4-MTB16	73.2 (2.88)	22.0 (0.87)	25.0 (0.98)	7.1 (0.28)	6140 (423)
1/4	18	2.8	-MUW-NS4-MTB18	74.2 (2.92)	24.0 (0.94)	27.0 (1.06)	7.1 (0.28)	5670 (392)
3/8	14	2.5	-MUW-NS6-MTB14	73.2 (2.88)	19.0 (0.75)	22.0 (0.87)	9.7 (0.38)	6280 (433)
1/2	12	2.2	-MUW-NS8-MTB12	78.0 (3.07)	18.0 (0.71)	22.0 (0.87)	7.0 (0.28)	6470 (446)
1/2	14	2.5	-MUW-NS8-MTB14	78.0 (3.07)	19.0 (0.75)	22.0 (0.87)	9.0 (0.35)	6280 (433)
1/2	16	2.8	-MUW-NS8-MTB16	78.0 (3.07)	22.0 (0.87)	25.0 (0.98)	10.0 (0.39)	6140 (423)
1/2	22	3.0	-MUW-NS8-MTB22	82.0 (3.23)	30.0 (1.18)	32.0 (1.26)	11.9 (0.47)	4620 (319)
1/2	25	2.8	-MUW-NS8-MTB25	86.0 (3.39)	32.0 (1.26)	35.0 (1.38)	11.9 (0.47)	4730 (326)
1	25	3.5	-MUW-NS16-MTB25	103.0 (4.06)	35.0 (1.38)	35.0 (1.38)	17.0 (0.67)	4730 (326)

Part Number Description

SS - WLM - TS6 - NS6 - □ - □ - S - □

Material

SS	316 SS
6L	316L SS
904L	904L SS

Fitting Type

WM	Male Connector
WF	Female Connector
WU	Reducing Union
WLU	Union Elbow
WT	Union Tee
WC	Union Cross
WLM	Male Elbow
WLF	Female Elbow
WV	45° Union Elbow
WA	Adapter
PUW	Pipe To Weld
MUW	Male Pipe To Weld

P1 Type

TB	Fractional Tube Butt Weld
TS	Fractional Tube Socket Weld
MTB	Metric Tube Butt Weld
MTS	Metric Tube Socket Weld
PB	Pipe Butt Weld
PS	Pipe Socket Weld
NS	NPT Thread
RT	ISO Tapered Thread
BP	ISO Parallel Thread
MS	Metric Thread

P1 Size

2	1/8"
4	1/4"
6	3/8" or 6 mm
8	1/2" or 8 mm
10	5/8" or 10 mm
12	3/4" or 12 mm or M12 x 1.5
14	7/8" or 14 mm or M14 x 1.5
16	1" or 16 mm or M16 x 1.5
18	18 mm or M18 x 1.5
20	1 1/4" or 20 mm or M20 x 1.5
22	22 mm or M22x 1.5
24	1 1/2" or M24 x 1.5
25	25 mm
27	M27 x 2
28	28 mm
30	30 mm or M30 x 2
32	2" or 32 mm
38	38 mm

P2, P3 and P4

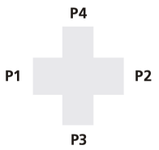
Specify in the same way as the P1

Special Application

	NO
S	NACE MR0175
Classification for Nuclear Facility Application	
N2	Class 2
N3	Class 3

Cleaning and Packaging

	FC-01
F2	FC-02



Note: "Part Number Description" is used for composition rules of product model, Not suitable for specific product part number selection, not random combinations.

P1,P2,P3 and P4 shall be described in the following orders:

- Pipe thread connection type after weld connection type ("PUW" and "MUW" excluded)
- Pipe Butt Weld - Tube Butt Weld - Pipe Socket Weld - Tube Socket Weld - Others
- Describe in descending order as per size if the end connection types are the same
- Describe the end of P1 if all end connections are the same

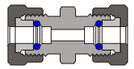
Cleaning and Packaging:

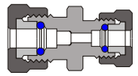
FC-01: Standard cleaning and packaging for general industrial procedures

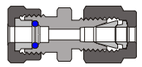
FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement as stated in ASTM G93 Level C

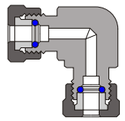
VL Series Vacuum Tube Fittings

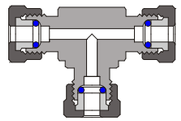
Contents

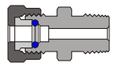
Unions - U  A-170

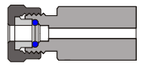
Reducing Unions - U  A-171

Tube Fitting Unions - U  A-171

Union Elbows - LU  A-171

Union Tees - TTT  A-171

Male Connectors - CM  A-171

Adapters - CW  A-172

Nuts - N A-172

O-rings - VI7 A-172

VL Series

Features

- Stainless steel construction, fluorocarbon FKM O-ring
- Available in tube sizes from 1/16" to 1 1/2 "
- Working temperature: -25°F to 400°F (-31°C to 204°C)
- Knurled nut for easy, finger-tight assembly
- Reliable, repeatable sealing performance

Testing

- The VL vacuum fitting design has been helium leak tested to a maximum leak rate of 4×10^{-9} std cm^3/s at ambient temperature.
- The leak rate increases as temperature increases due to permeation through the O-ring.

Cleaning and Packaging

- VL vacuum fittings meet the requirements of Standard Cleaning and Packing.
- VL vacuum fittings are cleaned to remove machine oil, grease and loose particles.

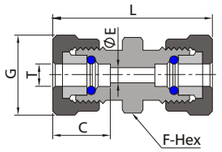
Ordering Information

- The E dimension refers to the smallest nominal inside diameter of the part.
- To order straight fittings bored through, add T to the ordering number.

Example: SS-TU-VL6
SS-TCM-VL8

Dimensions

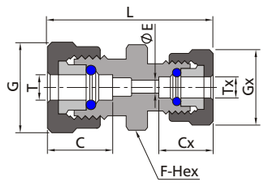
Unions



T-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)				
		L	C	E	G	F
1/16	SS-U-VL1	1.23 (31.2)	0.43 (10.9)	0.05 (1.3)	3/8	3/8 (9.5)
1/8	SS-U-VL2	1.40 (35.6)	0.43 (10.9)	0.09 (2.3)	9/16	1/2 (12.7)
1/4	SS-U-VL4	1.63 (41.4)	0.62 (15.7)	0.18 (4.6)	11/16	5/8 (15.9)
3/8	SS-U-VL6	1.81 (46.0)	0.66 (16.8)	0.28 (7.1)	13/16	13/16 (20.6)
1/2	SS-U-VL8	1.84 (46.7)	0.80 (20.3)	0.40 (10.2)	15/16	7/8 (22.2)
5/8	SS-U-VL10	1.84 (46.7)	0.84 (21.3)	0.50 (12.7)	1 1/8	1 1/16 (27.0)
3/4	SS-U-VL12	2.05 (52.1)	0.94 (23.9)	0.62 (15.7)	1 1/4	1 3/16 (30.1)
1	SS-U-VL16	2.15 (54.6)	0.94 (23.9)	0.87 (22.1)	1 9/16	1 1/2 (38.1)
1 1/2	SS-U-VL24	2.27 (57.6)	0.94 (23.9)	1.38 (35.1)	2 1/16	2 1/8 (54.0)

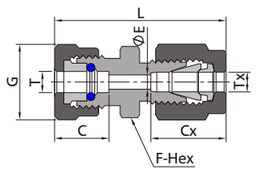
Dimensions are for reference only and are subject to change.

Reducing Unions



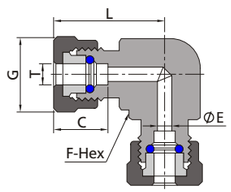
T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)						
			L	C	Cx	E	G	Gx	F
3/8	1/4	SS-U-VL6-VL4	1.72 (43.7)	0.66 (16.8)	0.62 (15.7)	0.18 (4.6)	13/16	11/16	13/16 (20.6)
1/2	1/4	SS-U-VL8-VL4	1.75 (44.4)	0.80 (20.3)	0.62 (15.7)	0.18 (4.6)	15/16	11/16	7/8 (22.2)

Tube Fitting Unions



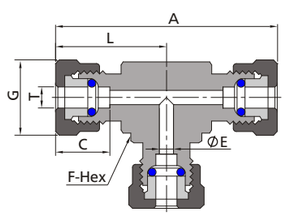
T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)					
			L	C	Cx	E	G	F
1/4	1/4	SS-U-VL4-FL4	1.66 (42.2)	0.62 (15.7)	0.60 (15.2)	0.18 (4.6)	11/16	5/8 (15.9)
3/8	3/8	SS-U-VL6-FL6	1.81 (46.0)	0.66 (16.8)	0.66 (16.8)	0.28 (7.1)	13/16	13/16 (20.6)
1/2	1/2	SS-U-VL8-FL8	1.95 (49.5)	0.80 (20.3)	0.90 (22.9)	0.40 (10.2)	15/16	7/8 (22.2)

Union Elbows



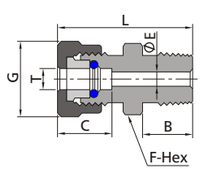
T-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)				
		L	C	E	G	F
1/4	SS-LU-VL4	1.14 (29.0)	0.62 (15.7)	0.18 (4.6)	11/16	1/2 (12.7)
3/8	SS-LU-VL6	1.36 (34.5)	0.66 (16.8)	0.28 (7.1)	13/16	11/16 (17.5)
1/2	SS-LU-VL8	1.36 (34.5)	0.80 (20.3)	0.40 (10.2)	15/16	13/16 (20.6)

Union Tees



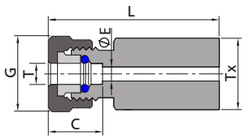
T-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)					
		A	L	C	E	G	F
1/8	SS-TTT-VL2	2.12 (53.8)	1.06 (26.9)	0.43 (10.9)	0.09 (2.3)	9/16	1/2 (12.7)
1/4	SS-TTT-VL4	2.30 (58.4)	1.15 (29.2)	0.62 (15.7)	0.18 (4.6)	11/16	1/2 (12.7)
3/8	SS-TTT-VL6	2.72 (69.1)	1.36 (34.5)	0.66 (16.8)	0.28 (7.1)	13/16	11/16 (17.5)
1/2	SS-TTT-VL8	2.72 (69.1)	1.36 (34.5)	0.80 (20.3)	0.40 (10.2)	15/16	11/16 (17.5)
3/4	SS-TTT-VL12	3.30 (83.8)	1.65 (41.9)	0.94 (23.9)	0.62 (15.7)	1 1/4	15/16 (23.8)
1	SS-TTT-VL16	3.64 (92.4)	1.82 (46.2)	0.94 (23.9)	0.87 (22.1)	1 9/16	1 1/4 (31.8)

Male Connectors



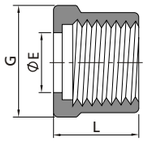
Tube O.D. (in.)	NPT Size in.	Ordering Number	Dimensions, in. (mm)					
			L	C	B	E	G	F
1/16	1/8	SS-CM-VL1-NS2	1.12 (28.4)	0.43 (10.9)	0.38 (9.6)	0.05 (1.3)	3/8	7/16 (11.1)
1/8	1/8	SS-CM-VL2-NS2	1.22 (31.0)	0.43 (10.9)	0.38 (9.6)	0.09 (2.3)	9/16	1/2 (12.7)
1/4	1/8	SS-CM-VL4-NS2	1.35 (34.3)	0.62 (15.7)	0.38 (9.6)	0.18 (4.6)	11/16	5/8 (15.9)
1/4	1/4	SS-CM-VL4-NS4	1.53 (38.9)	0.62 (15.7)	0.56 (14.2)	0.18 (4.6)	11/16	5/8 (15.9)
3/8	1/8	SS-CM-VL6-NS2	1.44 (36.6)	0.66 (16.8)	0.38 (9.6)	0.18 (4.6)	13/16	13/16 (20.6)
3/8	1/4	SS-CM-VL6-NS4	1.62 (41.1)	0.66 (16.8)	0.56 (14.2)	0.28 (7.1)	13/16	13/16 (20.6)
1/2	3/8	SS-CM-VL8-NS6	1.65 (41.9)	0.80 (20.3)	0.56 (14.2)	0.40 (10.2)	15/16	7/8 (22.2)
1/2	1/2	SS-CM-VL8-NS8	1.84 (46.7)	0.80 (20.3)	0.75 (19.1)	0.40 (10.2)	15/16	7/8 (22.2)
3/4	3/4	SS-CM-VL12-NS12	1.96 (49.8)	0.94 (23.9)	0.75 (19.1)	0.62 (15.7)	1 1/4	1 3/16 (30.1)
1	1	SS-CM-VL16-NS16	2.25 (57.2)	0.94 (23.9)	0.94 (23.9)	0.87 (22.1)	1 9/16	1 1/2(38.1)

Adapters



T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)			
			L	C	E	G
1/16	1/4	SS-CW-VL1-A4	1.12 (28.4)	0.43 (10.9)	0.05 (1.3)	3/8
1/8	1/4	SS-CW-VL2-A4	1.20 (30.5)	0.43 (10.9)	0.09 (2.3)	9/16
1/8	3/8	SS-CW-VL2-A6	1.21 (30.7)	0.43 (10.9)	0.09 (2.3)	9/16
1/4	1/4	SS-CW-VL4-A4	1.34 (34.0)	0.62 (15.7)	0.18 (4.6)	11/16
1/4	3/8	SS-CW-VL4-A6	1.33 (33.8)	0.62 (15.7)	0.18 (4.6)	11/16
1/4	1/2	SS-CW-VL4-A8	1.47 (37.3)	0.62 (15.7)	0.18 (4.6)	11/16
3/8	3/8	SS-CW-VL6-A6	1.47 (37.3)	0.66 (16.8)	0.28 (7.1)	13/16
3/8	1/2	SS-CW-VL6-A8	1.58 (40.1)	0.66 (16.8)	0.28 (7.1)	13/16
1/2	5/8	SS-CW-VL8-A10	1.64 (41.7)	0.80 (20.3)	0.40 (10.2)	15/16
1/2	3/4	SS-CW-VL8-A12	1.69 (42.9)	0.80 (20.3)	0.40 (10.2)	15/16
3/4	1	SS-CW-VL12-A16	1.78 (45.2)	0.94 (23.9)	0.62 (15.7)	1 1/4
1	1 1/4	SS-CW-VL16-A20	1.80 (45.7)	0.94 (23.9)	0.87 (22.1)	1 9/16
1 1/2	1 1/2	SS-CW-VL24-A24	1.98 (50.3)	0.94 (23.9)	1.25 (31.8)	2 1/16

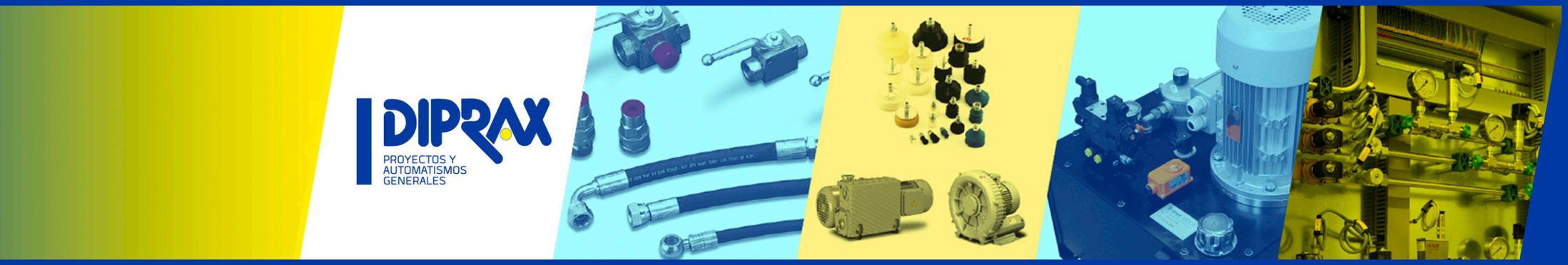
Nuts



T-Tube O.D. (in.)	Ordering Number	Thread Size	Dimensions,in. (mm)		
			L	E	G
1/16	SS-N-VL1	1/4-20 UNC	0.38 (9.60)	0.07 (1.80)	3/8
1/8	SS-N-VL2	3/8-20 UN	0.41 (10.4)	0.13 (3.30)	9/16
1/4	SS-N-VL4	1/2-20 UNF	0.53 (13.5)	0.26 (6.60)	11/16
3/8	SS-N-VL6	5/8-20 UN	0.62 (15.7)	0.38 (9.60)	13/16
1/2	SS-N-VL8	3/4-20 UNEF	0.62 (15.7)	0.51 (13.0)	15/16
5/8	SS-N-VL10	15/16-20 UNEF	0.62 (15.7)	0.63 (16.0)	1 1/8
3/4	SS-N-VL12	1 1/16-20 UN	0.72 (18.3)	0.76 (19.3)	1 1/4
1	SS-N-VL16	1 3/8-20 UN	0.72 (18.3)	1.01 (25.6)	1 9/16
1 1/2	SS-N-VL24	1 7/8-20 UN	0.72 (18.3)	1.51 (38.4)	2 1/16

O-rings

T-Tube O.D. (in.)	Ordering Number	Material
1/16	VI7-001	70 durometer fluorocarbon FKM
1/8	VI7-006	
1/4	VI7-010	
3/8	VI7-012	
1/2	VI7-014	
5/8	VI7-114	
3/4	VI7-116	
1	VI7-120	
1 1/2	VI7-128	



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