

Sync-Lok



Tube Fittings

Pipe Fittings



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Sync-Lok instrumentation tube fittings provide a leak-proof seal which will withstand high pressure, impulse, vibration & temperature. These features offer the highest safety and maintenance-free operation. Each component of our tube fittings is precision machined to the highest tolerances, while maintaining TQM practices throughout the manufacturing process.

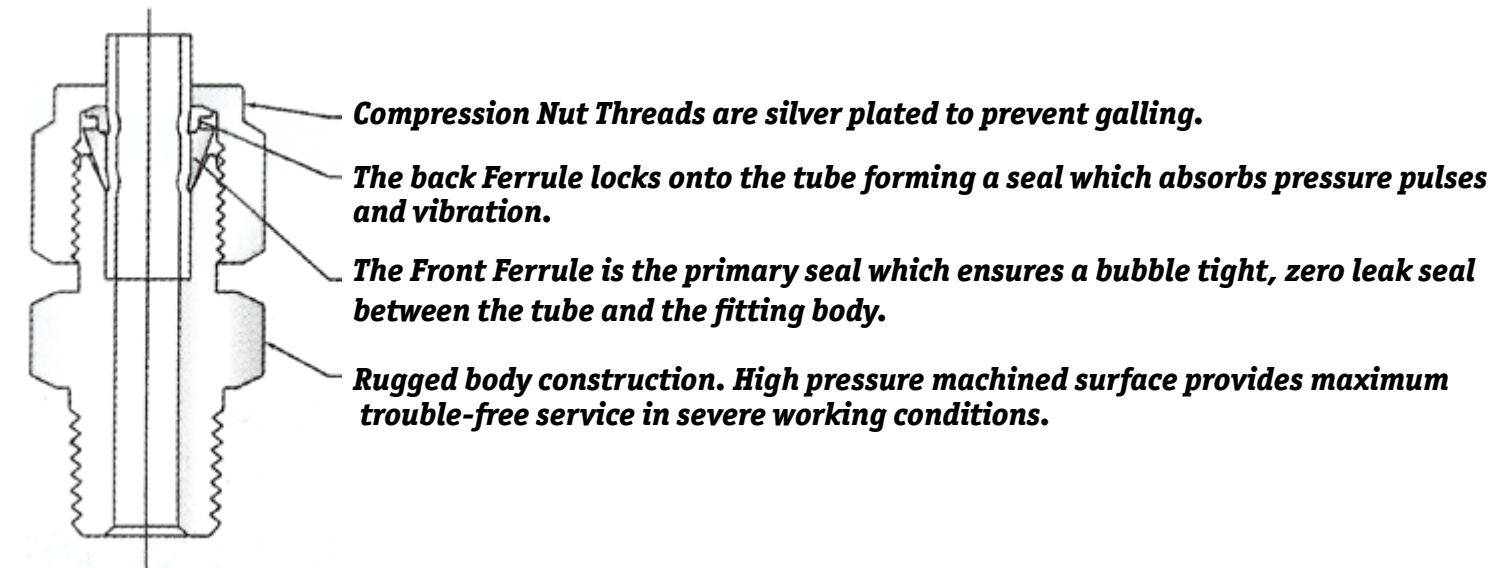
Our engineers can design and produce any product against supplied specifications. Our Q.A. department continues to monitor and update the quality in accordance with ISO 9001 and CE marking requirements. Complete traceability records are available upon request.

Tube fittings are available in 316SS as standard. Also available in Brass, Carbon Steel, Monel, Duplex and many others.

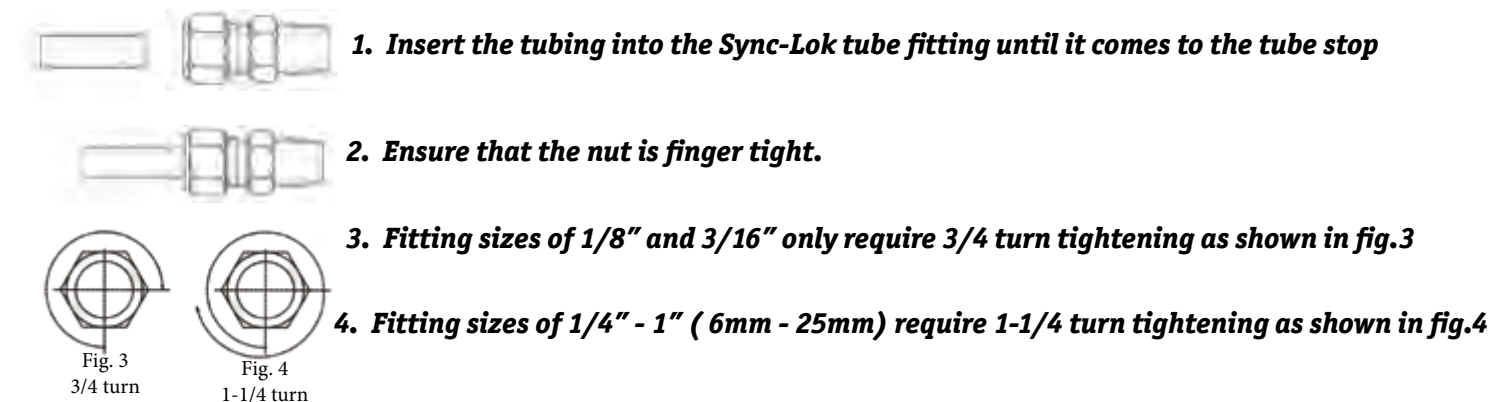
All pipe threads meet the requirement of ASME/ANSI B1.20.1 for tapered pipe threads (NPT) Working pressure meets the requirements of Power Piping Code ANSI B31.1 and section VII of AMSE Boiler & Pressure Vessel Code.

Straight fittings are machined from bar stock and shaped bodies and machined from forging

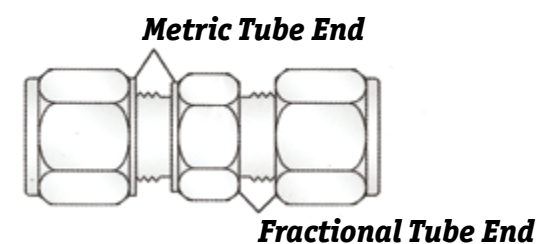
Functions



Assembly Instructions



Identification of Sync-Lok Tube Fittings



Sync-Lok metric size tube fittings have an extra step on the body shoulder and the nut to distinguish from fractional sizes

Geeral Information

Material Standards

Material	Bar Stock a	Forging b	Tubing
316 S.S.	ASTM A276	ASTM A182	ASME-SA-213 / ASTM-A-213
	ASME SA479	ASME SA182	ASTM-A-249 / ASTM-A-269
			MIL-T-8504 / MIL-T-8506
Brass	ASTM B16	ASTM B283	ASTM-B75
			ASME-SB75 (TEMPER "O")
Alloy 400	ASTM B164	ASTM B564	
	ASME SB164	ASME SB564	
Alloy 600	ASTM B166	ASTM B564	ASTM-B-163
	ASME SB166	ASME SB564	
Alloy C-276	ASTM B574	ASTM SB564	ASTM-B-622 / ASTM-B-626
Carbon Steel	ASTM A108		SAE J542b / SAE J525b
			ASTM-A-179
PTFE	ASTM D1710	ASTM D3293	

(a) includes straight configurations

(b) includes elbows, crosses and tees

Pipe End Pressure Ratings

Calculations based on ASME b31.3 code for process piping

NPT / ISO Pipe Size in.	316 SS and Carbon Steel				Brass			
	Male		Female		Male		Female	
	psig	bar	psig	bar	psig	bar	psig	bar
1/16	11000	760	6700	460	5500	380	3300	230
1/8	10000	690	6500	440	5000	340	3200	220
1/4	8000	550	6600	560	4000	270	3300	220
3/8	78000	540	5300	360	3900	270	2600	180
1/2	7700	530	4900	330	3800	260	2400	160
3/4	7300	500	4600	320	3600	250	2300	160
1	5300	370	4400	300	2600	180	2200	150
1 1/4	6000	410	5000	350	3000	200	2500	170
1 1/2	5000	340	4600	310	2500	170	2300	150
2	3900	270	3900	270	1900	130	1900	130

Stress Value based on ANSI B31.3 code for process piping

Material	Allowable Stress Value		Design Factor	Ultimate Tensile Strength	
	psi	bar		psig	bar
316 SS	20000	1372	3.75:1	75000	5170
Brass	10000	689	4:01	40000	2760
Steel	20000	1378	3:01	60000	4140

Dimensions are for reference only and sre subject to change.

Geeral Information - Tube Fitting

Example 1 - Tube to Pipe ends

The part number below shows male connector, stainless steel type 316, tube O.D 1/4" x 1/4" Male NPT

4	MC	4
1	2	3

1. Tube O.D.: see tube O.D. designator
2. Name of fitting: see fitting type designator
3. Pipe thread end: see pipe thread designator

Example 2 - Tube to Tube ends

Sync-Lok Union tube O.D. 1/4", material SS316

4	U
1	2

Material Designator

Material	Designator
316 Stainless Steel	No designation
Brass	B
Carbon Steel	CS
Monel	MO

Thread Specifications

Pipe Thread	Relevant Standards
NPT	ASME B1.20.1, MIL-P-7105B
ISO/BSP (parallel)	ISO 228, BS 2779, JIS B 0202
ISO/BSP (tapered)	ISO 7, BS21, JIS B 0203
ISO/BSP (gauge) (Based on DIN 16288-1987)	ISO 228, BS 2779
Unified (SAE)	ASME B 1.1

Tube O.D. Designator

Tube O.D. (inch)	1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
Identifier	1	2	3	4	5	6	8	10	12	14	16
Tube O.D. (metric)	2mm	3mm	4mm	6mm	8mm	10mm	12mm	16mm	20mm	22mm	25mm
Identifier	2MM	3MM	4MM	6MM	8MM	10MM	12MM	16MM	20MM	22MM	25MM

Pipe Thread Size Designator

Pipe Size Identifier	1/16	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1
Identifier	1	2	3	4	5	6	8	10	12	14	16

Fitting Designators

Identifier	Description
MC	Male Connector
MCBT	Male Bore Through Connector
MBH	Male Bulkhead Connector
ME	Male Elbow
LME	Male Elbow 45o
TMT	Male Run Tee
TTM	Male Branch Tee
CF	Female Connector
FBH	Female Bulkhead Connector
FE	Female Elbow
TFT	Female Run Tee
TTF	Female Branch Tee
U	Union
RU	Reducing Union
BHU	Bulkhead Union
ELU	Union Elbow
TEE	Union Tee
UC	Union Cross
RED	Reducer
BHR	Bulkhead Reducer
ATPM	Male Adapter
ATPF	Female Adapter
PC	Port Connector
RPC	Reducing Port Connector
MPWC	Male Pipe Weld Connector
MPWE	Male Pipe Weld Elbow
TSWC	Tube Socket Weld Connector
TSWE	Tube Socket Weld Elbow
BP	Tube Plug
BE	Tube Cap
N	Nut
FF	Front Ferrule
FR	Rear Ferrule

Geeral Information - Pipe Fitting

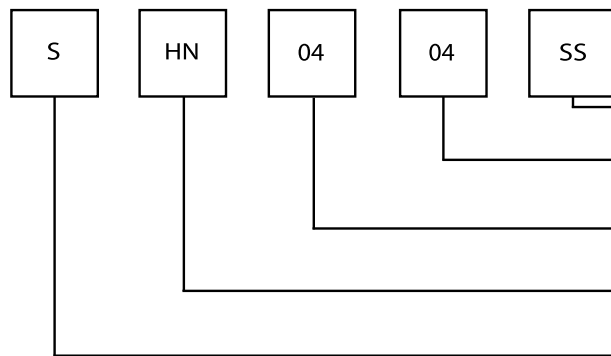
Fitting Designators

Identifier	Description
SHN	Hex Nipple
SHRN	Hex Reducing Nipple
SHLN	Hex Long Nipple
SCN	Close Nipple
SLPN	Long Pipe Nipple
SHC	Coupling
SRC	Reducing Coupling
SA	Adapter
SRA	Reducing Adapter
SGA	Gauge Adapter
SRB	Reducing Bushing
SCP	Pipe Cap
SHP	Pipe Plug
SFE	Female Elbow
SME	Male Elbow
SSE	Street Elbow
SRSE	Reducing Street Elbow
SFT	Female Tee
SMT	Male Tee
SST	Street Tee
SBT	Branch Tee
SC	Cross

Pipe Thread Size Designator

Pipe Size	1/16	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1
Identifier	1	2	3	4	5	6	8	10	12	14	16

Example 1 - Pipe to Pipe ends



Material Designator

Material	Designator
316 Stainless Steel	SS
Brass	B
Carbon Steel	CS
Monel	MO

Thread Specifications

Pipe Thread	Relevant Standards
NPT	ASME B1.20.1, MIL-P-7105B
ISO/BSP (parallel)	ISO 228, BS 2779, JIS B 0202
ISO/BSP (tapered)	ISO 7, BS21, JIS B 0203
ISO/BSP (gauge) (Based on DIN 16288-1987)	ISO 228, BS 2779
Unified (SAE)	ASME B 1.1

Pressure Ratings

Ratings are based on AMSE Code for pressure piping B13.3 process piping at ambient temperature

Material	Allowable Stress Value (psi)	Bar
316 SS	20000	1372
Brass	10000	689
Steel	20000	1378

Temperature Ratings

Material	Max Temperature (° F)
316 SS	1000 ° F
Brass	400 ° F
Steel	375 ° F

Installation instructions: To ensure leak tight seal, Sync-Lok recommends the use of pipe thread sealant on all NPT threads. The most effective sealing method is the use of Teflon Tape. Tape should be used on Male NPT threads. Clean both male and female tapered threads. Wrap tape in thread direction of male taper

Dimensions are for reference only and are subject to change.

Tube Selection Data

Copper Fractional Tubing

Tube O.D.	Tube Wall Thickness (Inches)										
	inch	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120		
1/8		2700	3600								
3/16		1800	2300	3400							
1/4		1300	1800	2500	3800						
5/16			1300	1900	2700						
3/8			1000	1600	2200						
1/2			800	1100	1600	2100					
5/8				900	1200	1600	1900				
3/4				700	1000	1300	1500	1800			
7/8					600	800	1100	1300	1500		
1						500	700	900	1100	1300	1500

Copper Metric Tubing

Tube O.D.	Tube Wall Thickness (mm)																
	mm	0.71	0.89	1.00	1.25	1.50	1.65	2.00	2.11	2.41	2.50	2.77	3.00	3.05			
3		3465	4400	4900													
4		2520	3230	3670	4610												
6		1610	2070	2350	3020	3670	4060										
8			1510	1710	2790	2680	2990										
10			1190	1350	1710	2090	2320										
12			970	1100	1410	1710	1900	2350	2500								
16				810	1030	1230	1390	1710	1810	2100	2190						
18					915	1100	1220	1510	1600	1840	1930	2130					
20						810	990	1090	1350	1420	1650	1710	1920				
22							740	900	990	1200	1290	1480	1550	1730			
25								640	780	870	1060	1120	1290	1350	1490	1640	1670

High quality soft annealed seamless copper tubing ASTM B-165 or equivalent
 Allowable Stress = 6,500 psi between -20° F and 100° F
 Safety Factor = 5 considering tensile strength to be 30,000 psi @ room temperature

Monel 400 Tubing

Tube O.D.	Tube Wall Thickness (Inches)									
	inch	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120	
1/8		7900	10100							
1/4		3700	4800	7000	9500					
3/8			3100	4400	6100					
1/2			2300	3200	4400	2100				
3/4				2200	3000	4000	4600	1800		
1						2200	290	3400	3900	4300

Fully annealed quality seamless Monel 400 hydraulic tubing ASTM B-165 or equivalent
 Hardness = Rb75
 Tubing free of scratches; suitable for bending and flaring
 Allowable Stress = 18,500 psi between -20° F and 100° F
 Safety Factor = 4 considering tensile strength to be 70,000 psi @ room temperature

Tube Selection Data

Stainless Steel Fractional Tubing

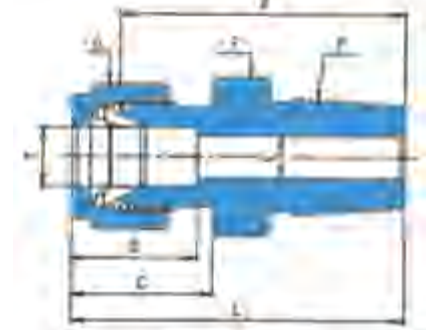
Tube O.D. inch	Tube Wall Thickness (Inches)												
	0.010	0.012	0.014	0.016	0.020	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120
1/16	5600	6800	8100	9400	12000								
1/8						8500	10900						
3/16						5400	7000	10200					
1/4						4800	5100	7500	10200				
5/16							4000	5800	8000				
3/8							3300	4800	6500				
1/2							2400	3500	4700	6200			
5/8								2900	4000	4500	6000		
3/4								2400	3300	4200	4900	5800	
7/8								2000	2800	3600	4200	4800	
1									2400	3100	3600	4200	4700

Stainless Steel Metric Tubing

Tube O.D. mm	Tube Wall Thickness (mm)												
	0.71	0.89	1.00	1.25	1.50	1.65	2.00	2.11	2.41	2.50	2.77	3.00	3.05
3	10800	13800	15300										
4	7900	10100	11500	14400									
6	5000	6500	7400	9400	11500	12700							
8		4700	5800	6800	8400	9300							
10		3700	4200	5300	6500	7300							
12		3000	3400	4400	5300	5900	10600	11100					
16			2500	3200	3900	4300	5300	5700	6600	6800			
18				2800	3400	3800	4700	5000	5800	6000	6700		
20				2500	3000	3400	4200	4400	5100	5300	6000		
22				2300	2800	3000	3800	4000	4600	4800	5400		
25				2000	2400	2700	3300	3500	4000	4200	4700	5100	5200

Fully annealed high quality (type 304, 316, etc.) seamless or welded
 Stainless Steel hydraulic tubing ASTM A-269 or A-213 or equivalent
 Hardness = Rb80 or less
 Tubing free of scratches; suitable for bending and flaring
 Allowable Stress = 19,500 psi between -20° F and 100° F
 Safety Factor = 4 considering tensile strength to be 75,000 psi @ room temperature

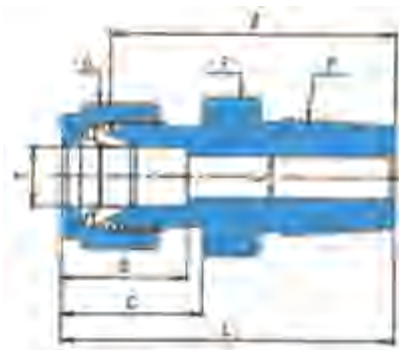
Male Connector



Fractional Range

Part No.	Tube O.D (T) inches	NPT (P*)	E Min	Width across flat		D	C	t	L
				F	G				
				inches	inches				
1MC1	1/16	1/16	1.27	5/16	5/16	8.63	10.92	20.02	23.83
1MC2	1/16	1/8	1.27	7/16	7/16	8.63	10.92	22.52	26.33
2MC2	1/8	1/8	2.28	7/16	7/16	12.70	15.24	23.88	30.48
2MC4	1/8	1/4	2.28	9/16	7/16	12.70	15.24	28.96	35.56
2MC6	1/8	3/8	2.28	11/16	7/16	12.70	15.24	29.21	35.81
2MC8	1/8	1/2	2.28	7/8	7/16	12.70	15.24	35.56	42.16
3MC2	3/16	1/8	3.04	7/16	1/2	13.71	16.00	24.63	31.24
3MC4	3/16	1/4	3.04	9/16	1/2	13.71	16.00	29.71	36.32
4MC2	1/4	1/8	4.82	1/2	9/16	15.24	17.78	25.40	32.76
4MC4	1/4	1/4	4.82	9/16	9/16	15.24	17.78	30.48	37.84
4MC6	1/4	3/8	4.82	11/16	9/16	15.24	17.78	30.99	38.35
4MC8	1/4	1/2	4.82	7/8	9/16	15.24	17.78	37.34	44.70
4MC12	1/4	3/4	4.82	1 1/16	9/16	15.24	17.78	38.86	46.22
5MC2	5/16	1/8	4.82	9/16	5/8	16.25	18.54	26.67	34.03
5MC4	5/16	1/4	6.35	9/16	5/8	16.25	18.54	31.24	38.60
5MC6	5/16	3/8	6.35	11/16	5/8	16.25	18.54	31.75	39.11
6MC2	3/8	1/8	4.82	5/8	11/16	16.76	19.30	27.94	35.30
6MC4	3/8	1/4	7.11	5/8	11/16	16.76	19.30	32.51	39.87
6MC6	3/8	3/8	7.11	11/16	11/16	16.76	19.30	32.51	39.87
6MC8	3/8	1/2	7.11	7/8	11/16	16.76	19.30	38.86	46.22
6MC12	3/8	3/4	7.11	1 1/16	11/16	16.76	19.30	40.39	47.75
8MC2	1/2	1/8	4.82	13/16	7/8	22.86	21.84	28.70	38.86
8MC4	1/2	1/4	7.11	13/16	7/8	22.86	21.84	33.27	43.43
8MC6	1/2	3/8	9.65	13/16	7/8	22.86	21.84	33.27	43.43
8MC8	1/2	1/2	10.41	7/8	7/8	22.86	21.84	38.86	49.02
8MC12	1/2	3/4	10.41	1 1/16	7/8	22.86	21.84	40.38	50.54
8MC16	1/2	1	10.41	1 3/8	7/8	22.86	21.84	46.99	57.15
10MC6	5/8	3/8	9.65	15/16	1	24.38	21.84	34.03	44.19
10MC8	5/8	1/2	11.93	15/16	1	24.38	21.84	38.86	49.02
10MC12	5/8	3/4	12.70	1 1/16	1	24.38	21.84	40.38	50.54
12MC8	3/4	1/2	11.93	1 1/16	1 1/8	24.38	21.84	40.38	50.54
12MC12	3/4	3/4	15.74	1 1/16	1 1/8	24.38	21.84	40.38	50.54
12MC16	3/4	1	15.74	1 3/8	1 1/8	24.38	21.84	46.99	57.15
14MC12	7/8	3/4	15.74	1 3/16	1 1/4	25.90	21.84	40.38	50.54
14MC16	7/8	1	18.28	1 3/8	1 1/4	25.90	21.84	46.99	57.15
16MC8	1	1/2	11.93	1 3/8	1 1/2	31.24	26.41	45.21	57.40
16MC12	1	3/4	15.74	1 3/8	1 1/2	31.24	26.41	45.21	57.40
16MC16	1	1	22.35	1 3/8	1 1/2	31.24	26.41	50.04	62.23

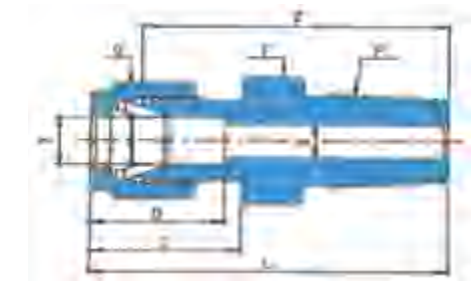
Male Connector



Metric Range: ISO Tapered Thread

Part No.	Tube O.D (T) mm	(R)PT (P*)	E Min	Width across flat		D	C	t	L
				F	G				
				mm	mm				
2MC2 - MM	2	1/8	1.7	12	12	12.9	15.3	23.9	30.5
3MC2 - MM	3	1/8	2.4	12	12	12.9	15.3	23.1	29.7
3MC4 - MM	3	1/4	2.4	14	12	12.9	15.3	29.0	35.6
4MC2 - MM	4	1/8	2.4	12	12	13.7	16.1	24.6	31.2
4MC4 - MM	4	1/4	2.4	14	12	13.7	16.1	29.7	36.3
6MC2 - MM	6	1/8	4.8	14	14	15.3	17.7	25.4	32.8
6MC4 - MM	6	1/4	4.8	14	14	15.3	17.7	30.2	37.6
6MC6 - MM	6	3/8	4.8	17	14	15.3	17.7	31.0	38.4
6MC8 - MM	6	1/2	4.8	22	14	15.3	17.7	36.6	44.0
8MC2 - MM	8	1/8	4.8	15	16	16.2	18.6	26.7	34.2
8MC4 - MM	8	1/4	6.4	15	16	16.2	18.6	31.2	38.7
8MC6 - MM	8	3/8	6.4	17	16	16.2	18.6	31.8	39.2
8MC8 - MM	8	1/2	6.4	22	16	16.2	18.6	37.3	44.8
10MC2 - MM	10	1/8	4.8	18	19	17.2	19.5	28.7	36.3
10MC4 - MM	10	1/4	7.1	18	19	17.2	19.5	33.3	40.9
10MC6 - MM	10	3/8	7.9	18	19	17.2	19.5	33.3	40.8
10MC8 - MM	10	1/2	7.9	22	19	17.2	19.5	38.1	45.7
12MC4 - MM	12	1/4	7.1	22	22	22.8	22.0	33.3	43.4
12MC6 - MM	12	3/8	9.5	22	22	22.8	22.0	33.3	43.4
12MC8 - MM	12	1/2	9.5	22	22	22.8	22.0	38.1	48.2
12MC12 - MM	12	3/4	9.5	27	22	22.8	22.0	38.9	49.0
15MC8 - MM	15	1/2	11.9	24	25	24.4	22.0	38.9	49.0
16MC4 - MM	16	1/4	7.1	24	25	24.4	22.0	34.0	44.1
16MC6 - MM	16	3/8	9.5	24	25	24.4	22.0	34.0	44.1
16MC8 - MM	16	1/2	11.9	24	25	24.4	22.0	38.9	29.0
16MC12 - MM	16	3/4	12.7	27	25	24.4	22.0	38.9	49.0
18MC8 - MM	18	1/2	11.9	27	30	24.4	22.0	40.4	50.5
18MC12 - MM	18	3/4	15.1	27	30	24.4	22.0	40.4	50.5
20MC8 - MM	20	1/2	11.9	30	32	26.0	22.0	42.2	52.3
20MC12 - MM	20	3/4	15.9	30	32	26.0	22.0	42.2	52.3
22MC12 - MM	22	3/4	15.9	30	32	26.0	22.0	42.2	52.3
22MC16 - MM	22	1	18.3	35	32	26.0	22.0	47.8	57.9
25MC12 - MM	25	3/4	15.9	35	38	31.3	26.5	45.2	57.5
25MC16 - MM	25	1	21.8	35	38	31.3	26.5	50.0	62.3

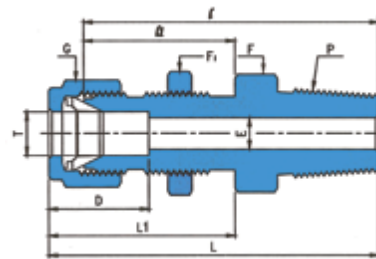
Male Bore Through Connector



Fractional Range

Part No.	Tube O.D (T) inches	NPT (P*)	F Hex	L inches	C inches	t inches	B inches
1MC1 - BT	1/16	1/16	5/16	0.93	0.43	0.78	0.38
1MC2 - BT	1/16	1/8	7/16	1.03	0.43	0.88	0.38
1MC4 - BT	1/16	1/4	9/16	1.23	0.43	1.08	0.56
2MC1 - BT	1/8	1/16	3/8	1.17	0.60	0.91	0.38
2MC2 - BT	1/8	1/8	7/16	1.20	0.60	0.94	0.38
2MC4 - BT	1/8	1/4	9/16	1.40	0.60	1.14	0.56
3MC2 - BT	3/16	1/8	7/16	1.23	0.64	0.97	0.38
3MC4 - BT	3/16	1/4	9/16	1.43	0.64	1.17	0.56
4MC2 - BT	1/4	1/8	1/2	1.29	0.70	1.00	0.38
4MC4 - BT	1/4	1/4	9/16	1.49	0.70	1.20	0.56
4MC6 - BT	1/4	3/8	11/16	1.60	0.70	1.22	0.56
4MC8 - BT	1/4	1/2	7/8	1.87	0.70	1.47	0.75
5MC4 - BT	5/16	1/4	9/16	1.52	0.73	1.22	0.56
6MC4 - BT	3/8	1/4	5/8	1.57	0.76	1.28	0.56
6MC6 - BT	3/8	3/8	11/16	1.57	0.76	1.28	0.56
6MC8 - BT	3/8	1/2	7/8	1.82	0.76	1.53	0.75
6MC12 - BT	3/8	3/4	1 1/16	1.88	0.76	1.59	0.75
8MC8 - BT	1/2	1/2	7/8	1.93	0.87	1.53	0.76
8MC12 - BT	1/2	3/4	1 1/16	1.99	0.87	1.59	0.75
10MC12 - BT	5/8	3/4	1 1/16	1.99	0.87	1.59	0.75
12MC12 - BT	3/4	3/4	1 1/16	1.99	0.87	1.59	0.75
16MC16 - BT	1	1	1 3/8	2.46	1.05	1.97	0.94

Male Bulkhead Connector



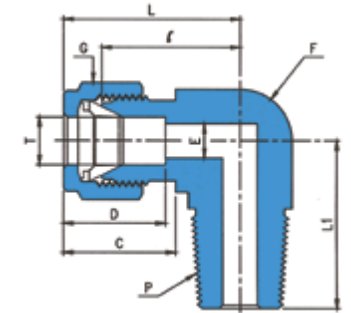
Fractional Range

Part No.	Tube O.D (T) inches	NPT (P*)	E Min	Width across flat			D	l	l1	L	L1	Panel Hole Drill Size	Panel Max Thickness
				F inches	F1 inches	G inches							
2MBH2	1/8	1/8	2.28	1/2	1/2	7/16	12.70	39.88	24.63	46.48	31.24	8.33	12.70
4MBH2	1/4	1/8	4.82	5/8	5/8	9/16	15.24	42.17	26.16	49.53	33.52	11.50	10.16
4MBH4	1/4	1/4	4.82	5/8	5/8	9/16	15.24	45.98	26.16	53.34	33.52	11.50	10.16
6MBH4	3/8	1/4	7.11	3/4	3/4	11/16	16.76	50.04	29.46	57.40	36.83	14.68	11.17
8MBH6	1/2	3/8	9.39	15/16	15/16	7/8	22.86	53.08	31.75	63.24	41.91	19.44	12.70
8MBH8	1/2	1/2	10.41	15/16	15/16	7/8	22.86	58.67	31.75	68.83	41.91	19.44	12.70

Metric Range

Part No.	Tube O.D (T) mm	NPT (P*)	E Min	Width across flat			D	l	l1	L	L1	Panel Hole Drill Size	Panel Max Thickness
				F	F1	G							
				mm	mm	mm							
6MBH2 - MM	6	1/8	2.28	14	17	14	17	41.90	26.0	51.0	35	11.60	12
6MBH4 - MM	6	1/4	4.82	14	17	14	17	46.90	26.0	56.0	35	11.60	12
10MBH4 - MM	10	1/4	7.11	17	19	19	18	52.10	29.5	60.5	38	16.40	10
12MBH4 - MM	12	1/4	10.40	22	24	22	24	59.70	32.0	71.0	43	19.50	14

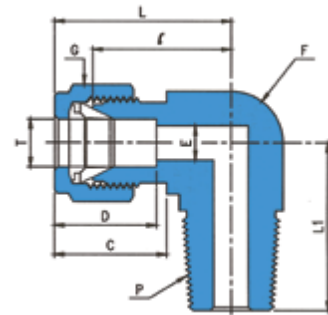
Male Elbow



Fractional Range

Part No.	Tube O.D (T) inches	NPT (P*)	E Min	Width across flat		D	C	l	L	L1
				F	G					
				inches	inches					
2ME2	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.31	24.91	18.90
2ME4	1/8	1/4	2.28	1/2	7/16	12.70	15.24	18.31	24.91	23.36
3ME2	3/16	1/8	3.04	1/2	1/2	13.71	16.00	18.79	25.40	18.79
3ME4	3/16	1/4	3.04	1/2	1/2	13.71	16.00	18.79	25.40	23.36
4ME2	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.11	26.47	19.10
4ME4	1/4	1/4	4.82	1/2	9/16	15.24	17.78	19.82	27.18	23.87
4ME6	1/4	3/8	4.82	11/16	9/16	15.24	17.78	22.35	29.71	28.40
4ME8	1/4	1/2	4.82	13/16	9/16	15.24	17.78	24.61	31.97	35.10
5ME2	5/16	1/8	4.82	9/16	5/8	16.25	18.54	21.34	28.70	19.81
5ME4	5/16	1/4	6.35	9/16	5/8	16.25	18.54	22.41	29.77	24.50
5ME6	5/16	3/8	6.35	11/16	5/8	16.25	18.54	23.12	30.48	28.40
6ME2	3/8	1/8	4.82	5/8	11/16	16.76	19.30	23.12	30.47	20.60
6ME4	3/8	1/4	7.11	5/8	11/16	16.76	19.30	23.12	30.47	25.40
6ME6	3/8	3/8	7.11	11/16	11/16	16.76	19.30	23.88	31.24	28.44
6ME8	3/8	1/2	7.11	13/16	11/16	16.76	19.30	24.06	31.42	33.02
6ME12	3/8	3/4	7.11	1 1/16	11/16	16.76	19.30	29.78	37.08	36.83
8ME4	1/2	1/4	7.11	13/16	7/8	22.86	21.84	25.90	36.06	28.30
8ME6	1/2	3/8	9.65	13/16	7/8	22.86	21.84	25.90	36.06	28.30
8ME8	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06	33.02
8ME12	1/2	3/4	10.41	1 1/16	7/8	22.86	21.84	29.71	39.87	36.83
10ME6	5/8	3/8	9.65	15/16	1	24.38	21.84	26.90	37.06	29.40
10ME8	5/8	1/2	11.93	15/16	1	24.38	21.84	26.90	37.06	34.00
10ME12	5/8	3/4	12.70	1 1/16	1	24.38	21.84	29.71	39.87	36.83
12ME8	3/4	1/2	11.93	1 1/16	1 1/8	24.38	21.84	29.71	39.87	37.00
12ME12	3/4	3/4	15.74	1 1/16	1 1/8	24.38	21.84	29.71	39.87	36.83
14ME12	7/8	3/4	15.74	1 1/4	1 1/4	25.90	21.84	34.54	44.70	41.65
16ME12	1	3/4	15.74	1 27/64	1 1/2	31.24	26.41	36.83	49.02	42.20
16ME16	1	1	22.35	1 27/64	1 1/2	31.24	26.41	36.83	49.02	46.70

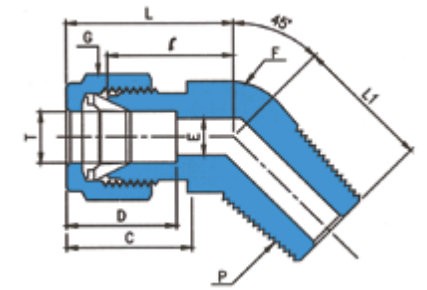
Male Elbow



Metric Range

Part No.	Tube O.D (T) mm	P* R(PT)	E Min	Width across flat		D	C	l	L	L1
				F	G					
				mm	mm					
3ME2 - MM	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
3ME4 - MM	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
4ME2 - MM	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
4ME4 - MM	4	1/4	2.4	12.7	12	13.7	16.1	18.8	25.4	23.4
6ME2 - MM	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
6ME4 - MM	6	1/4	4.8	12.7	14	15.3	17.7	19.6	27.0	23.4
6ME6 - MM	6	3/8	4.8	17.5	14	15.3	17.7	22.4	29.8	26.2
6ME8 - MM	6	1/2	4.8	20.6	14	15.3	17.7	24.4	31.8	33.0
8ME2 - MM	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
8ME4 - MM	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
8ME6 - MM	8	3/8	6.4	17.5	16	16.2	18.6	23.1	30.6	28.5
8ME8 - MM	8	1/2	6.4	20.6	16	16.2	18.6	25.1	32.6	33.0
10ME2 - MM	10	1/8	4.8	17.5	19	17.2	19.5	23.9	31.5	23.6
10ME4 - MM	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
10ME6 - MM	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	28.2
10ME8 - MM	10	1/2	7.9	20.6	19	17.2	19.5	25.9	33.5	33.0
12ME2 - MM	12	1/8	4.8	20.6	22	22.8	22.0	25.9	36.0	23.6
12ME4 - MM	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
12ME6 - MM	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
12ME8 - MM	12	1/2	9.5	20.6	22	22.8	22.0	29.7	36.0	33.0
12ME12 - MM	12	3/4	9.5	27.0	22	22.8	22.0	27.9	39.8	36.8
16ME6 - MM	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.0	30.2
16ME8 - MM	16	1/2	11.9	25.4	25	24.4	22.0	29.7	38.0	35.1
16ME12 - MM	16	3/4	12.7	27.0	25	24.4	22.0	29.7	39.8	36.8
18ME8 - MM	18	1/2	11.9	27.0	30	24.4	22.0	29.7	39.8	36.8
18ME12 - MM	18	3/4	15.1	27.0	30	24.4	22.0	34.5	39.8	36.8
20ME8 - MM	20	1/2	11.9	31.8	32	26.0	22.0	34.5	44.6	41.7
20ME12 - MM	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7
22ME12 - MM	22	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7
22ME16 - MM	22	1	18.3	36.0	32	26.0	22.0	34.5	44.6	46.5
25ME12 - MM	25	3/4	15.9	36.0	38	31.3	26.5	36.8	49.1	41.7
25ME16 - MM	25	1	21.8	36.0	38	31.3	26.5	36.8	49.1	46.5

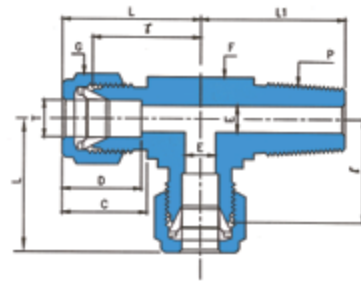
Male Elbow 45°



Fractional Range

Part No.	Tube O.D (T) inches	(P*) NPT	E Min	Width across flat		D	C	l	L	L1
				F	G					
				inches	inches					
4LME2	1/4	1/8	4.82	1/2	9/16	15.24	17.78	17.27	24.63	16.51
4LME4	1/4	1/4	4.82	1/2	9/16	15.24	17.78	17.27	24.63	21.08
6LME2	3/8	1/8	4.82	5/8	11/16	16.76	19.30	20.57	27.94	18.28
6LME4	3/8	1/4	7.11	5/8	11/16	16.76	19.30	20.57	27.94	22.86
6LME6	3/8	3/8	7.11	13/16	11/16	16.76	19.30	21.84	29.21	24.13
8LME6	1/2	3/8	9.65	13/16	7/8	22.86	21.84	21.84	32.00	24.13

Male Run Tee



Fractional Range

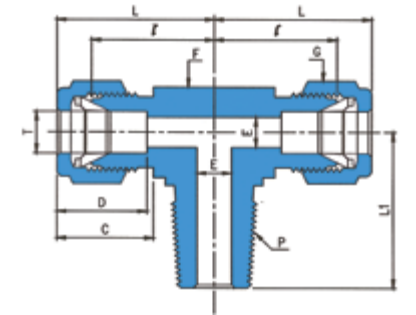
Part No.	Tube O.D (T) inches	(P*) NPT	E Min	Width across flat		D	C	l	L	L1
				F inches	G inches					
2TMT2	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.31	24.91	18.90
2TMT4	1/8	1/4	2.28	1/2	7/16	12.70	15.24	18.31	24.91	23.36
3TMT2	3/16	1/8	3.04	1/2	1/2	13.71	16.00	17.77	24.38	17.78
4TMT2	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.56	26.92	18.79
4TMT4	1/4	1/4	4.82	1/2	9/16	15.24	17.78	19.72	27.08	23.37
5TMT2	5/16	1/8	4.82	9/16	5/8	16.25	18.54	22.35	29.71	20.82
6TMT4	3/8	1/4	7.11	5/8	11/16	16.76	19.30	23.12	30.48	25.40
6TMT6	3/8	3/8	7.11	11/16	11/16	16.76	19.30	23.88	31.24	26.20
8TMT6	1/2	3/8	9.65	13/16	7/8	22.86	21.84	25.90	36.06	28.19
8TMT8	1/2	1/2	10.41	13/15	7/8	22.86	21.84	25.90	36.06	33.02
10TMT8	5/8	1/2	11.93	15/16	1	24.86	21.84	27.46	38.10	35.05
12TMT12	3/4	3/4	15.74	1 1/16	1 1/8	24.38	21.84	28.19	38.35	35.30

Metric Range

Part No.	Tube O.D (T) mm	(P*) NPT	E Min	Width across flat		D	C	l	L	L1
				F mm	G mm					
3TMT2 - MM	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.6
3TMT4 - MM	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
4TMT2 - MM	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
6TMT2 - MM	6	1/8	4.8	12.7	14	15.3	17.7	16.6	27.0	18.8
6TMT4 - MM	6	1/4	4.8	14.2	14	15.3	17.7	19.6	27.0	23.4
8TMT2 - MM	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
8TMT4 - MM	8	1/4	6.4	17.5	16	16.2	18.6	21.3	28.8	24.4
10TMT4 - MM	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.6	28.2
10TMT6 - MM	10	3/8	7.9	20.6	19	17.2	19.5	23.9	31.5	28.2
12TMT4 - MM	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
12TMT6 - MM	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.3
12TMT8 - MM	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
16TMT6 - MM	16	3/8	9.5	25.4	25	24.4	22.0	37.9	38.0	30.2
16TMT8 - MM	16	1/2	11.9	25.4	25	24.4	22.0	27.9	38.0	35.1
20TMT12 - MM	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7

Dimensions are for reference only and are subject to change.

Male Branch Tee



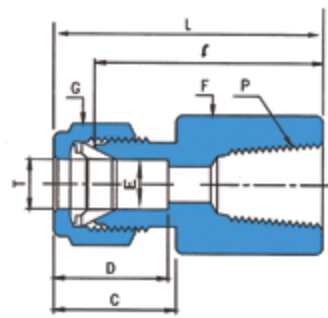
Fractional Range

Part No.	Tube O.D (T) inches	NPT (P*)	E Min	Width across flat		D	C	l	L	L1
				F inches	G inches					
2TTM2	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.31	24.91	18.90
2TTM4	1/8	1/4	2.28	1/2	7/16	12.70	15.24	18.31	24.91	23.36
3TTM2	3/16	1/8	3.04	1/2	1/2	13.71	16.00	17.77	24.38	17.78
4TTM2	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.56	26.92	18.79
4TTM4	1/4	1/4	4.82	1/2	9/16	15.24	17.78	19.72	27.08	23.37
5TTM2	5/16	1/8	4.82	9/16	5/8	16.25	18.54	22.35	29.71	20.82
6TTM4	3/8	1/4	7.11	5/8	11/16	16.76	19.30	23.12	30.48	25.40
6TTM6	3/8	3/8	7.11	11/16	11/16	16.76	19.30	23.88	31.24	26.20
8TTM6	1/2	3/8	9.65	13/16	7/8	22.86	21.84	25.90	36.06	28.19
8TTM8	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06	33.02
10TTM8	5/8	1/2	11.93	15/16	1	24.86	21.84	27.46	38.10	35.05
12TTM12	3/4	3/4	15.74	1 1/16	1 1/8	24.38	21.84	28.19	38.35	35.30

Metric Range

Part No.	Tube O.D (T) mm	NPT (P*)	E Min	Width across flat		D	C	l	L	L1
				F mm	G mm					
3TTM2 - MM	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
3TTM4 - MM	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
4TTM2 - MM	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
6TTM2 - MM	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
6TTM4 - MM	6	1/4	4.8	14.2	14	15.3	17.7	19.6	27.0	23.4
8TTM2 - MM	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
8TTM4 - MM	8	1/4	6.4	17.5	16	16.2	18.6	21.3	28.8	24.4
10TTM4 - MM	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
10TTM6 - MM	10	3/8	7.9	20.6	19	17.2	19.5	23.9	31.5	28.2
12TTM4 - MM	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
12TTM6 - MM	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
12TTM8 - MM	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
16TTM6 - MM	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.0	30.2
16TTM8 - MM	16	1/2	11.9	24.4	25	24.4	22.0	27.9	38.0	35.1
20TTM12 - MM	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7

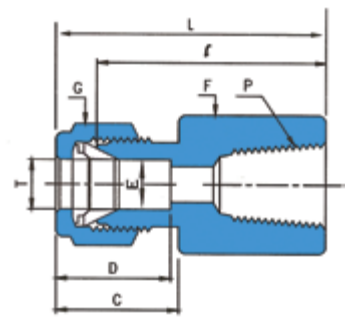
Female Connector



Fractional Range

Part No.	Tube O.D (T) inches	NPT (P*)	E Min	Width across flat		D	C	t	L
				F	G				
				inches	inches				
2FC2	1/8	1/8	2.28	9/16	7/16	12.70	15.24	22.10	28.70
2FC4	1/8	1/4	2.28	3/4	7/16	12.70	15.24	26.92	33.52
3FC2	3/16	1/8	3.04	9/16	1/2	13.71	16.00	23.10	39.71
4FC2	1/4	1/8	4.82	9/16	9/16	15.24	17.78	23.88	31.24
4FC4	1/4	1/4	4.82	3/4	9/16	15.24	17.78	28.45	35.81
4FC6	1/4	3/8	4.82	7/8	9/16	15.24	17.78	30.21	37.59
4FC8	1/4	1/2	4.82	1 1/16	9/16	15.24	17.78	35.05	42.41
5FC2	5/16	1/8	6.35	9/16	5/8	16.25	17.78	34.64	32.00
5FC4	5/16	1/4	6.35	3/4	5/8	16.25	18.54	29.47	36.83
6FC2	3/8	1/8	7.11	5/8	11/16	16.76	18.54	25.40	32.76
6FC4	3/8	1/4	7.11	3/4	11/16	16.76	19.30	30.23	37.59
6FC6	3/8	3/8	7.11	7/8	11/16	16.76	19.30	31.75	39.11
6FC8	3/8	1/2	7.11	1 1/16	11/16	16.76	19.30	36.58	43.94
6FC12	3/8	3/4	7.11	1 5/16	11/16	22.86	19.30	40.39	47.75
8FC4	1/2	1/4	10.41	1 3/16	7/8	22.86	19.30	30.22	40.38
8FC6	1/2	3/8	10.41	7/8	7/8	22.86	21.84	31.75	41.91
8FC8	1/2	1/2	10.41	1 1/16	7/8	22.86	21.84	36.57	46.73
8FC12	1/2	3/4	10.41	1 5/16	7/8	24.38	21.84	38.10	48.26
10FC6	5/8	3/8	12.70	15/16	1	24.38	21.84	31.75	41.91
10FC8	5/8	1/2	12.70	1 1/16	1	24.38	21.84	36.51	46.73
12FC8	3/4	1/2	15.74	1 1/16	1 1/8	24.38	21.84	36.51	46.73
12FC12	3/4	3/4	15.74	1 5/16	1 1/8	24.38	21.84	38.10	48.26
14FC12	7/8	3/4	18.28	1 5/16	1 1/4	25.90	21.84	39.62	49.78
16FC12	1	3/4	22.35	1 3/8	1 1/2	31.24	26.41	41.05	53.24
16FC16	1	1	22.35	1 5/8	1 1/2	31.24	26.41	50.04	62.23

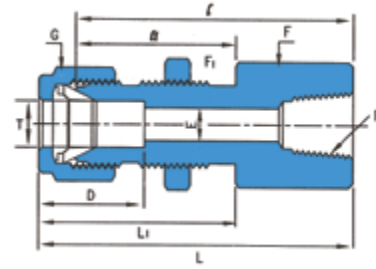
Female Connector



Metric Range

Part No.	Tube O.D (T) mm	(R)PT (P*)	E Min	Width across flat		D	C	t	L
				F	G				
				mm	mm				
3FC2 - MM	3	1/8	2.4	14	12	12.9	15.3	22.1	28.7
3FC4 - MM	3	1/4	2.4	19	12	12.9	15.3	26.9	33.5
4FC2 - MM	4	1/8	2.4	14	12	13.7	16.1	23.1	29.7
6FC2 - MM	6	1/8	4.8	14	14	15.3	17.7	23.9	31.2
6FC4 - MM	6	1/4	4.8	19	14	15.3	17.7	28.4	35.8
6FC6 - MM	6	3/8	4.8	22	14	15.3	17.7	29.5	36.9
6FC8 - MM	6	1/2	4.8	27	14	15.3	17.7	35.1	42.5
8FC2 - MM	8	1/8	6.4	15	16	16.2	18.6	34.6	32.1
8FC4 - MM	8	1/4	6.4	19	16	16.2	18.6	29.5	37.0
8FC6 - MM	8	3/8	6.4	22	16	16.2	18.6	30.2	37.7
8FC8 - MM	8	1/2	6.4	27	16	16.2	19.5	35.8	43.3
10FC2 - MM	10	1/8	7.9	18	19	17.2	19.5	25.4	33.0
10FC4 - MM	10	1/4	7.9	19	19	17.2	19.5	30.2	37.8
10FC6 - MM	10	3/8	7.9	22	19	17.2	19.5	31.0	38.6
10FC8 - MM	10	1/2	7.9	27	19	17.2	22.0	36.6	44.2
12FC2 - MM	12	1/8	8.3	22	22	22.8	22.0	28.4	38.5
12FC4 - MM	12	1/4	9.5	22	22	22.8	22.0	30.2	40.3
12FC6 - MM	12	3/8	9.5	22	22	22.8	22.0	31.0	41.1
12FC8 - MM	12	1/2	9.5	27	22	22.8	22.0	36.6	46.7
12FC12 - MM	12	3/4	9.5	35	22	22.8	22.0	38.9	49.0
15FC8 - MM	15	1/2	11.9	27	25	24.4	22.0	36.6	46.7
16FC8 - MM	16	1/2	12.7	27	25	24.4	22.0	36.8	46.9
20FC8 - MM	20	1/2	15.9	30	32	26.0	22.0	37.8	47.9
20FC12 - MM	20	3/4	15.9	35	32	26.0	22.0	39.6	49.7
22FC12 - MM	22	3/4	18.3	35	32	26.0	22.0	39.6	49.7
22FC16 - MM	22	1	18.3	41	32	26.0	22.0	47.8	57.9
25FC12 - MM	25	3/4	21.8	35	38	31.3	26.5	41.1	53.4
25FC16 - MM	25	1	21.8	41	38	31.3	26.5	50.0	62.3

Female Bulkhead Connector



Fractional Range

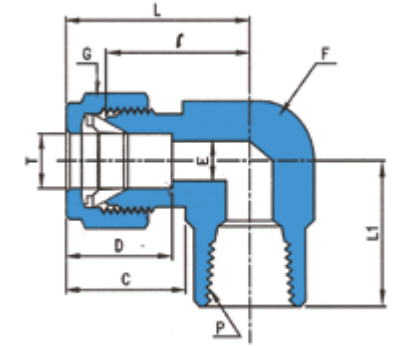
Part No.	Tube O.D (T) inches	NPT (P*)	E Min	Width across flat			D	l	l1	L	L1	Panel Hole Drill Size	Panel Max Thickness
				F	F1	G							
				inches	inches	inches							
2FBH2	1/8	1/8	2.28	9/16	1/2	7/16	12.70	38.10	24.63	44.70	31.24	8.33	12.70
4FBH2	1/4	1/8	4.82	5/8	5/8	9/16	15.24	39.63	26.16	46.99	33.52	11.50	10.16
4FBH4	1/4	1/4	4.82	3/4	5/8	9/16	15.24	44.45	26.16	51.81	33.52	11.50	10.16
6FBH4	3/8	1/4	7.11	3/4	3/4	11/16	16.76	47.75	29.46	55.11	36.83	14.68	11.17
8FBH6	1/2	3/8	10.41	15/16	15/16	7/8	22.86	51.56	31.75	61.72	41.91	19.44	12.70
8FBH8	1/2	1/2	10.41	1 1/16	15/16	7/8	22.86	56.38	31.75	66.54	41.91	19.44	12.70
12FBH12	3/4	3/4	15.74	1 1/4	1 3/16	1 1/8	24.38	65.35	38.80	75.51	47.21	25.79	16.76

Metric Range

Part No.	Tube O.D (T) mm	NPT (P*)	E Min	Width across flat			D	l	l1	L	L1	Panel Hole Drill Size	Panel Max Thickness
				F	F1	G							
				mm	mm	mm							
6FBH2 - MM	6	1/8	4.8	15.8	15.8	14	15.3	39.50	27.7	46.90	35.00	11.5	10.2
6FBH4 - MM	6	1/4	4.8	19.0	16.0	14	15.3	44.40	26.2	51.80	33.60	11.5	10.2
8FBH4 - MM	8	1/4	6.3	19.0	17.4	16	16.2	46.35	28.4	53.85	35.55	13.1	11.2
12FBH8 - MM	12	1/2	9.5	27.0	24.0	22	22.8	56.40	31.8	66.50	41.90	19.5	12.7

Dimensions are for reference only and are subject to change.

Female Elbow



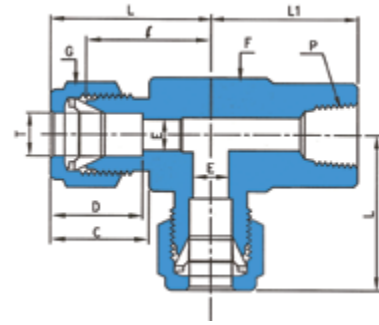
Fractional Range

Part No.	Tube O.D (T) inches	NPT (P*)	E Min	Width across flat		D	C	l	L	L1
				F	G					
				inches	inches					
2FE2	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.03	24.63	19.05
2FE4	1/8	1/4	2.28	11/16	7/16	12.70	15.24	21.22	27.82	22.35
3FE2	3/16	1/8	3.04	1/2	1/2	13.71	16.00	18.79	25.40	19.05
4FE2	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.56	26.92	19.05
4FE4	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
4FE6	1/4	3/8	4.82	13/16	9/16	15.24	17.78	24.39	31.75	22.35
4FE8	1/4	1/2	4.82	1	9/16	15.24	17.78	27.18	34.54	28.44
5FE2	5/16	1/8	6.35	9/16	5/8	16.25	18.54	21.34	28.70	19.05
5FE4	5/16	1/4	6.35	11/16	5/8	16.25	18.54	23.12	30.48	22.35
6FE2	3/8	1/8	7.11	5/8	11/16	16.76	19.30	23.12	30.48	19.05
6FE4	3/8	1/4	7.11	11/16	11/16	16.76	19.30	23.88	31.24	22.35
6FE6	3/8	3/8	7.11	13/16	11/16	16.76	19.30	25.91	33.27	22.35
6FE8	3/8	1/2	7.11	1	11/16	16.76	19.30	28.70	36.06	28.44
8FE4	1/2	1/4	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
8FE6	1/2	3/8	10.41	13/16	7/8	22.86	21.84	25.92	36.06	22.35
8FE8	1/2	1/2	10.41	1	7/8	22.86	21.84	28.70	38.86	28.44
10FE6	5/8	3/8	12.70	15/16	1	24.38	21.84	27.94	38.10	20.35
10FE8	5/8	1/2	12.70	1	1	24.38	21.84	29.71	39.87	28.44
12FE8	3/4	1/2	15.74	1 1/16	1 1/8	24.38	21.84	29.71	39.87	28.11
12FE12	3/4	3/4	15.74	1 1/4	1 1/8	24.38	21.84	34.54	44.70	31.75
14FE12	7/8	3/4	18.28	1 1/4	1 1/4	25.90	21.84	34.54	44.70	31.75
16FE12	1	3/4	22.35	1 27/64	1 1/2	31.24	26.41	36.83	49.02	31.75
16FE16	1	1	22.35	1 11/16	1 1/2	31.24	26.41	38.10	50.29	38.10

Metric Range

Part No.	Tube O.D (T) mm	P * R(PT)	E Min	Width across flat		D	C	l	L	L1
				F	G					
				mm	mm					
6FE4 - MM	6	1/4	4.8	17.46	14	15.3	17.7	19.6	27.0	22.40
6FE6 - MM	6	3/8	4.8	20.63	14	15.3	17.7	22.4	29.8	22.40
6FE8 - MM	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.6	28.40
8FE4 - MM	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.40
8FE8 - MM	8	1/2	6.4	20.63	16	16.2	18.6	27.7	35.2	28.40
10FE4 - MM	10	1/4	7.9	17.46	19	17.2	19.5	25.9	33.5	22.35
10FE6 - MM	10	3/8	7.9	20.63	19	17.2	19.5	25.9	33.5	22.40
10FE8 - MM	10	1/2	7.9	25.40	19	17.2	19.5	28.5	36.1	28.40
12FE6 - MM	12	3/8	9.5	20.63	22	22.8	22.0	26.1	36.2	22.35
12FE8 - MM	12	1/2	9.5	25.40	22	22.8	22.0	28.7	38.8	28.40

Female Run Tee



Fractional Range

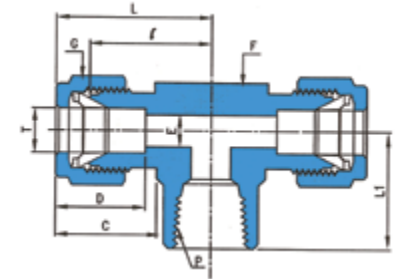
Part No.	Tube O.D (T) inches	NPT (P*)	E Min	Width across flat		D	C	l	L	L1
				F	G					
				inches	inches					
2TFT2	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.03	24.63	19.05
4TFT2	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.56	26.92	19.05
4TFT4	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
6TFT4	3/8	1/4	7.11	11/16	11/16	16.76	19.30	23.88	31.24	22.35
8TFT6	1/2	3/8	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
8TFT8	1/2	1/2	10.41	1	7/8	22.86	21.84	29.71	39.87	28.44
12TFT12	3/4	3/4	15.74	1 1/4	1 1/8	24.38	21.84	34.54	44.70	31.75

Metric Range

Part No.	Tube O.D (T) mm	(R) PT P*	E Min	Width across flat		D	C	l	L	L1
				F	G					
				mm	mm					
6TFT2 - MM	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.0
6TFT4 - MM	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.4
6TFT8 - MM	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.6	28.4
8TFT2 - MM	8	1/8	6.4	15.87	16	16.2	18.6	22.4	29.9	19.0
8TFT4 - MM	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.4
8TFT6 - MM	8	3/8	6.4	20.63	16	16.2	18.6	25.2	32.7	22.4
8TFT8 - MM	8	1/2	6.4	25.40	16	16.2	28.6	28.0	35.5	28.4
12TFT4 - MM	12	1/4	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
12TFT6 - MM	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
12TFT8 - MM	12	1/2	9.5	26.98	22	22.8	22.0	29.7	39.8	28.4
16TFT8 - MM	16	1/2	12.7	25.40	25	24.4	22.0	29.7	39.8	28.4

Dimensions are for reference only and are subject to change.

Female Branch Tee



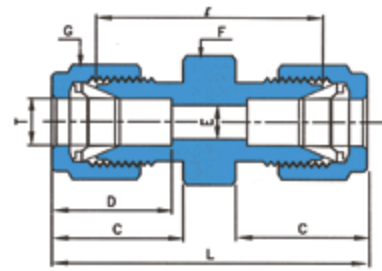
Fractional Range

Part No.	Tube O.D. T inches	(P*) NPT	E Min	Width across flat		D	C	l	L	L1
				F	G					
				inches	inches					
2TTF2	1/8	1/8	2.28	1/2	7/16	12.70	15.24	17.78	24.38	19.05
4TTF2	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.56	26.92	19.05
4TTF4	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
6TTF4	3/8	1/4	7.11	11/16	11/16	16.76	19.30	23.88	31.24	22.35
8TTF4	1/2	1/4	10.41	13/16	7/8	22.86	21.34	25.90	36.06	22.35
8TTF6	1/2	3/8	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
8TTF8	1/2	1/2	10.41	1	1	22.86	21.84	28.70	38.86	28.44
10TTF8	5/8	1/2	12.70	1	1 1/8	24.38	21.84	28.70	38.86	28.44
12TTF12	3/4	3/4	15.74	1 1/4	1 1/8	24.38	21.84	34.54	44.70	31.75
16TTF12	1	3/4	22.35	1 27/64	1 1/2	31.24	26.41	36.83	79.02	31.75
16TTF16	1	1	22.35	1 11/16	1 1/2	31.24	26.41	41.40	53.59	38.10

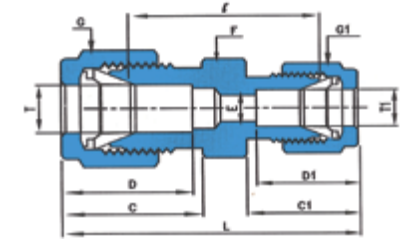
Metric Range

Part No.	Tube O.D. T mm	(P*) NPT	E Min	Width across flat		D	C	l	L	L1
				F	G					
				mm	mm					
6TFT2 - MM	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.0
6TFT4 - MM	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.4
6TFT6 - MM	6	3/8	4.8	20.63	14	15.3	17.7	24.3	31.7	22.4
6TFT8 - MM	6	1/2	4.8	25.40	14	15.3	17.7	27.3	34.7	28.4
8TFT2 - MM	8	1/8	6.4	15.87	16	16.2	18.6	22.4	29.9	19.0
8TFT4 - MM	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.4
8TFT6 - MM	8	3/8	6.4	20.63	16	16.2	18.6	24.9	32.4	22.4
8TFT8 - MM	8	1/2	6.4	25.40	16	16.2	18.6	27.7	35.2	28.4
10TFT4 - MM	10	1/4	7.9	20.63	19	17.2	19.5	25.9	33.5	22.4
10TFT6 - MM	10	3/8	7.9	20.63	19	17.2	19.5	25.7	33.3	22.4
10TFT8 - MM	10	1/2	9.5	25.40	19	17.2	19.5	26.0	33.6	22.4
12TFT4 - MM	12	1/4	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
12TFT6 - MM	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
12TFT8 - MM	12	1/2	9.5	25.40	22	22.8	22.0	29.9	40.0	28.4
16TFT8 - MM	16	1/2	12.7	25.40	25	24.4	22.0	28.7	38.8	28.7

Union



Reducing Union



Fractional Range

Part No.	Tube O.D.	E Min	Width across flat		D	C	I	L
	T		F	G				
	inches		inches	inches				
1U	1/16	1.27	5/16	5/16	8.63	10.91	17.53	25.15
2U	1/8	2.28	7/16	7/16	12.70	15.24	22.36	35.35
3U	3/16	3.04	7/16	1/2	13.71	16.00	24.11	37.33
4U	1/4	4.82	1/2	9/16	15.24	17.78	26.17	40.89
5U	5/16	6.35	9/16	5/8	16.25	18.54	28.20	42.92
6U	3/8	7.11	5/8	11/16	16.76	19.30	30.23	44.95
8U	1/2	10.41	13/16	5/8	22.86	21.84	30.98	51.30
10U	5/8	12.70	15/16	1	24.38	21.84	31.75	52.07
12U	3/4	15.74	1 1/16	1 1/8	24.38	21.84	33.27	53.59
14U	7/8	18.28	1 3/16	1 1/4	25.90	21.84	35.05	55.37
16U	1	22.35	1 3/8	1 1/2	31.24	26.41	40.39	64.77

Fractional Range

Part No.	Tube O.D.		E Min	Width across flat			D	D1	C	C1	I	L
	T	T1		F	G	G1						
	inches	inches		Min	inches	inches						
2RU1	1/8	1/16	1.27	7/16	7/16	5/16	12.70	8.63	15.24	10.92	17.71	30.91
3RU2	3/16	1/8	2.28	7/16	1/2	7/16	13.71	12.70	16.00	15.24	23.35	36.57
4RU2	1/4	1/8	2.28	1/2	9/16	7/16	15.24	12.70	17.78	15.24	23.88	38.60
4RU3	1/4	3/16	3.04	1/2	9/16	1/2	15.24	13.71	17.78	16.00	25.40	39.37
5RU2	5/16	1/8	2.28	9/16	5/8	7/16	16.25	12.70	18.54	15.24	25.90	39.87
5RU4	5/16	1/4	4.82	9/16	11/16	9/16	16.25	15.24	18.54	17.78	27.43	42.16
6RU2	3/8	1/8	2.28	5/8	11/16	7/16	16.76	12.70	19.30	15.24	26.92	40.89
6RU4	3/8	1/4	4.82	5/8	11/16	9/16	16.76	15.24	19.30	17.78	28.44	43.18
6RU5	3/8	5/16	6.35	5/8	7/8	5/8	16.76	16.25	19.30	18.54	29.46	44.19
8RU2	1/2	1/8	2.28	13/16	7/8	7/16	22.86	12.70	21.84	15.24	28.44	45.21
8RU4	1/2	1/4	4.82	13/16	7/8	9/16	22.86	15.24	21.84	17.78	29.46	46.99
8RU6	1/2	3/8	7.11	13/16	1	11/16	22.86	16.76	17.78	19.30	30.98	48.51
10RU6	5/8	3/8	7.11	15/16	1	11/16	24.38	16.76	21.84	19.30	31.75	49.27
10RU8	5/8	1/2	10.41	15/16	1 1/8	7/8	24.38	22.86	21.84	21.84	31.75	52.07
12RU4	3/4	1/4	4.82	1 1/16	1 1/8	9/16	24.38	15.24	21.84	17.78	31.75	49.27
12RU6	3/4	3/8	7.11	1 1/16	1 1/8	11/16	24.38	16.76	21.84	19.30	33.27	50.80
12RU8	3/4	1/2	10.41	1 1/16	1 1/8	7/8	24.38	22.86	21.84	21.84	33.27	53.59
12RU10	3/4	5/8	12.70	1 1/16	1 1/8	1	24.38	24.38	21.84	21.84	33.27	53.59
16RU8	1	1/2	10.41	1 3/8	1 1/2	7/8	31.24	22.86	26.41	21.84	40.89	63.24
16RU12	1	3/4	15.74	1 3/8	1 1/2	1 1/8	31.24	24.38	26.41	21.84	40.38	62.73

Metric Range

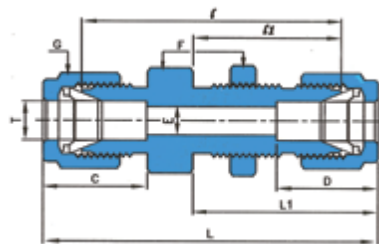
Part No.	Tube O.D.	E Min	Width across flat		D	C	I	L
	T		F	G				
	mm		mm	mm				
2U - MM	2	1.7	12	12	12.9	15.3	22.4	35.6
3U - MM	3	2.4	12	12	12.9	15.3	22.1	35.3
4U - MM	5	2.4	12	12	13.7	16.1	24.1	37.3
6U - MM	6	4.8	14	14	15.3	17.7	26.2	41.0
8U - MM	8	6.4	15	16	16.2	18.6	28.2	43.2
10U - MM	10	7.9	18	19	17.2	19.5	31.0	46.2
12U - MM	12	9.5	22	22	22.8	22.0	31.0	51.2
15U - MM	15	11.9	24	25	24.4	22.0	31.8	52.0
20U - MM	20	15.9	30	32	26.0	22.0	34.8	55.0
22U - MM	22	18.3	30	32	26.0	22.0	34.8	55.0
25U - MM	25	21.8	35	38	31.3	26.5	40.4	65.0

Metric Range

Part No.	Tube O.D.		E Min	Width across flat			D	D1	C	C1	I	L
	T	T1		F	G	G1						
	mm	mm		mm	mm	mm						
6RU3 - MM	6	3	2.4	14	14	12	15.3	12.9	17.7	15.3	24.6	38.6
6RU4 - MM	6	4	2.4	14	14	12	15.3	13.7	17.7	16.1	25.4	39.4
8RU6 -MM	8	6	4.8	15	16	14	16.2	15.3	18.6	17.7	27.4	42.3
10RU6 - MM	10	6	4.8	18	19	14	17.2	15.3	19.5	17.7	29.5	44.5
10RU8 - MM	10	8	6.4	18	19	16	17.2	16.2	19.5	18.6	30.0	45.1
12RU6 - MM	12	6	4.8	22	22	14	22.8	15.3	22.0	17.7	29.5	47.0
12RU8 - MM	12	8	6.4	22	22	16	22.8	16.2	22.0	18.6	30.2	47.8
12RU10 -MM	12	10	7.9	22	22	19	22.8	17.2	22.0	19.5	31.0	48.7
16RU12 - MM	16	12	9.5	24	25	22	24.4	22.8	22.0	22.0	31.8	52.0
25RU18 - MM	25	18	15.1	35	38	30	31.3	24.4	26.5	22.0	38.6	61.0
25RU20 - MM	25	20	15.9	35	38	32	31.3	26.0	26.5	22.0	39.9	62.3

Dimensions are for reference only and are subject to change.

Bulkhead Union



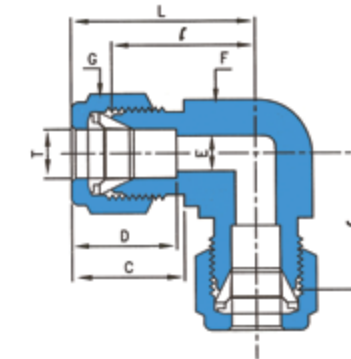
Fractional Range

Part No.	Tube O.D.	E Min	Width across flat			D	C	I	II	L	L1	Panel	Panel
	T		F	G	Hole							Max	
	inches		Min	inches	Drill Size							Thickness	
1BHU	1/16	1.27	5/16	5/16	8.63	10.92	23.88	13.46	31.50	17.27	5.16	3.05	
2BHU	1/8	2.28	1/2	7/16	12.70	15.24	38.10	24.63	51.30	31.24	8.33	12.70	
3BHU	3/16	3.04	9/16	1/2	13.71	16.00	40.38	25.40	53.59	32.00	9.92	12.70	
4BHU	1/4	4.82	5/8	9/16	15.24	17.78	42.93	26.16	57.65	35.52	11.50	10.16	
5BHU	5/16	6.35	11/16	5/16	16.25	18.54	45.98	28.44	60.70	35.81	13.09	11.17	
6BHU	3/8	7.11	3/4	11/16	16.76	19.30	47.51	29.46	62.23	36.83	14.65	11.17	
8BHU	1/2	10.41	15/16	7/8	22.86	21.84	50.80	31.75	71.12	41.91	19.44	12.70	
10BHU	5/8	12.70	1 1/16	1	24.38	21.84	52.32	32.51	72.64	42.67	22.62	12.70	
12BHU	3/4	15.74	1 3/16	1 1/8	24.38	21.84	58.67	37.33	78.99	47.49	25.79	16.76	
14BHU	7/8	18.28	1 3/8	1 1/4	25.90	21.84	64.26	42.92	84.58	53.08	28.97	19.05	
16BHU	1	22.35	1 5/8	1 1/2	31.24	26.41	71.37	45.21	95.75	57.40	33.73	19.05	

Metric Range

Part No.	Tube O.D.	E Min	Width across flat			D	C	I	II	L	L1	Panel	Panel
	T		F	F1	G							Hole	Max
	mm		mm	mm	mm							Drill Size	Thickness
3BHU - MM	3	2.4	14	12.7	12	12.9	15.3	38.1	24.6	51.3	31.2	8.3	12.7
4BHU - MM	4	2.4	14	14.3	12	13.7	15.3	40.4	25.4	53.6	32.0	9.9	12.7
6BHU - MM	6	4.8	16	15.9	14	15.3	16.1	42.9	26.2	57.7	33.6	11.5	10.2
8BHU - MM	8	6.4	16	17.5	16	16.2	17.7	46.0	28.6	61.0	36.1	13.1	11.2
10BHU - MM	10	7.9	22	22.0	19	17.2	18.6	48.5	29.4	63.7	37.0	16.2	11.2
12BHU - MM	12	9.5	24	23.8	22	22.8	19.5	50.8	31.8	71.0	41.9	19.5	12.7
15BHU - MM	15	11.9	27	27.0	25	24.4	22.0	52.3	32.5	72.5	42.6	22.8	12.7
16BHU - MM	16	12.7	27	27.0	25	24.4	22.0	52.3	32.5	72.5	42.6	22.8	12.7
18 BHU - MM	18	15.1	30	30.0	30	24.4	22.0	58.7	37.7	78.9	47.4	26.0	16.8
20BHU - MM	20	15.9	35	35.0	32	26.0	22.0	64.3	42.9	84.5	53.0	29.0	17.0
22BHU - MM	22	18.3	35	35.0	32	26.0	22.0	64.3	42.9	84.5	53.0	29.0	19.1
25BHU - MM	25	21.8	41.3	41.3	38	31.3	26.5	71.4	45.2	95.9	57.5	33.7	19.1

Union Elbow



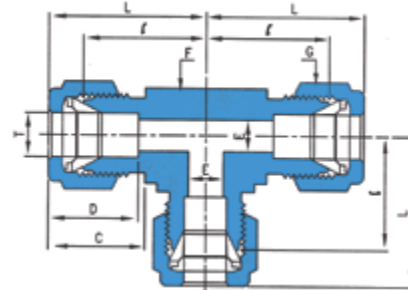
Fractional Range

Part No.	Tube O.D.	E Min	Width across flat		D	C	I	L
	T		F	G				
	inches		Min	inches				
1ELU	1/16	1.27	3/8	5/16	8.63	10.92	14.07	17.88
2ELU	1/8	2.28	3/8	7/16	12.70	15.24	15.75	22.35
3ELU	3/16	3.04	1/2	1/2	13.71	16.00	17.77	24.38
4ELU	1/4	4.82	1/2	9/16	15.24	17.78	19.56	26.92
5ELU	5/16	6.35	9/16	5/8	16.25	18.54	21.34	28.70
6ELU	3/8	7.11	5/8	11/16	16.76	19.30	23.12	30.48
8ELU	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06
10ELU	5/8	12.70	15/16	1	24.38	21.84	28.64	38.80
12ELU	3/4	15.74	1 1/16	1 1/8	24.38	21.84	29.71	39.87
14ELU	7/8	18.28	1 1/4	1 1/4	25.90	21.84	34.54	44.70
16ELU	1	22.35	1 27/64	1 1/2	31.24	26.41	36.83	49.02

Metric Range

Part No.	Tube O.D.	E Min	Width across flat		D	C	I	L
	T		F	G				
	mm		mm	mm				
2ELU - MM	2	1.7	9.5	12	12.9	15.3	15.7	22.3
3ELU - MM	3	2.4	9.5	12	12.9	15.3	15.7	22.3
4ELU - MM	4	2.4	12.7	12	13.7	16.4	18.8	25.4
6ELU - MM	6	4.8	12.7	14	15.3	17.7	19.6	27.0
8ELU - MM	8	6.4	14.3	16	16.2	18.6	21.3	28.8
10ELU - MM	10	7.9	17.5	19	17.2	19.5	23.9	31.5
12ELU - MM	12	9.5	20.6	22	22.8	22.0	25.9	36.0
15ELU - MM	15	11.9	25.4	25	24.4	22.0	28.7	38.8
16ELU - MM	16	12.7	25.4	25	24.4	22.0	28.7	38.8
18 ELU - MM	18	15.1	27.0	30	24.4	22.0	29.7	39.8
20ELU - MM	20	15.9	31.8	32	26.0	22.0	32.5	42.6
22ELU - MM	22	18.3	31.8	32	26.0	22.0	32.5	42.6
25ELU - MM	25	21.8	36.0	38	31.3	26.5	36.8	49.1

Union Tee



Fractional Range

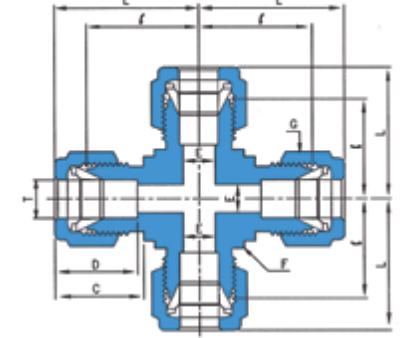
Part No.	Tube O.D.	E Min	Width across flat		D	C	I	L
	T		F	G				
	inches		Min	inches				
1TTT	1/16	1.27	3/8	5/16	8.63	10.92	14.07	17.88
2TTT	1/8	2.28	3/8	7/16	12.70	15.24	15.75	22.35
3TTT	3/16	3.04	1/2	1/2	13.71	16.00	17.77	24.38
4TTT	1/4	4.82	1/2	9/16	15.24	17.78	19.56	26.92
5TTT	5/16	6.35	9/16	5/8	16.25	18.54	21.34	28.70
6TTT	3/8	7.11	5/8	11/16	16.76	19.30	23.12	30.48
8TTT	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06
10TTT	5/8	12.70	15/16	1	24.38	21.84	28.64	38.80
12TTT	3/4	15.74	1 1/16	1 1/8	24.38	21.84	29.71	39.87
14TTT	7/8	18.28	1 1/4	1 1/4	25.90	21.84	34.54	44.70
16TTT	1	22.35	1 27/64	1 1/2	31.24	26.41	36.83	49.02

Metric Range

Part No.	Tube O.D.	E Min	Width across flat		D	C	I	L
	T		F	G				
	mm		mm	mm				
2TTT - MM	2	1.7	9.5	12	12.9	15.3	15.7	22.3
3TTT - MM	3	2.4	9.5	12	12.9	15.3	15.7	22.3
4TTT - MM	4	2.4	12.7	12	13.7	16.1	18.8	25.4
6TTT - MM	6	4.8	12.7	14	15.3	17.7	19.6	27.0
8TTT - MM	8	6.4	14.3	16	16.2	18.6	21.3	28.8
10TTT - MM	10	7.9	17.5	19	17.2	19.5	23.9	31.5
12TTT - MM	12	9.5	20.6	22	22.8	22.0	25.9	36.0
15TTT - MM	15	11.9	25.4	25	24.4	22.0	28.7	38.8
16TTT - MM	16	12.7	25.4	25	24.4	22.0	28.7	38.8
18 TTT - MM	18	15.1	27.0	30	24.4	22.0	29.7	39.8
20TTT - MM	20	15.9	31.8	32	26.0	22.0	32.5	42.6
22TTT - MM	22	18.3	31.8	32	26.0	22.0	32.5	42.6
25TTT - MM	25	21.8	36.0	38	31.3	26.5	36.8	49.1

Dimensions are for reference only and are subject to change.

Union Cross



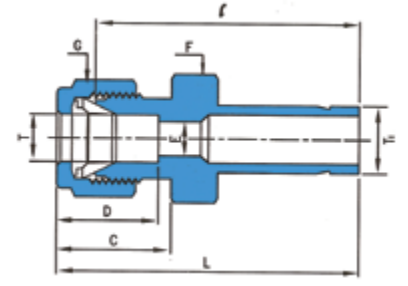
Fractional Range

Part No.	Tube O.D.	E Min	Width across flat		D	C	I	L
	T		F	G				
	inches		Min	inches				
1UC	1/16	1.27	3/8	5/16	8.63	10.91	14.07	17.88
2UC	1/8	2.28	3/8	7/16	12.70	15.24	15.75	22.35
3UC	3/16	3.04	1/2	1/2	13.71	16.00	17.77	24.38
4UC	1/4	4.82	1/2	9/16	15.24	17.78	19.56	26.92
5UC	5/16	6.35	1/2	5/8	16.25	18.54	21.34	28.70
6UC	3/8	7.11	11/16	11/16	16.76	19.30	23.12	30.48
8UC	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06
10UC	5/8	12.70	13/16	1	24.38	21.84	28.64	38.80
12UC	3/4	15.74	1	1 1/8	24.38	21.84	29.71	39.87
14UC	7/8	18.28	1 1/4	1 1/4	25.90	21.84	34.54	44.70
16UC	1	22.35	1 27/64	1 1/2	31.24	26.41	36.83	49.02

Metric Range

Part No.	Tube O.D.	E Min	Width across flat		D	C	I	L
	T		F	G				
	mm		mm	mm				
3UC - MM	3	2.4	9.5	12	12.9	15.3	15.7	22.3
6UC - MM	6	4.8	12.7	14	15.3	17.7	19.6	27.0
8UC - MM	8	6.4	14.3	16	16.2	18.6	21.3	28.8
10UC - MM	10	7.9	17.5	19	17.2	19.5	23.9	31.5
12UC - MM	12	9.5	20.6	22	22.8	22.0	25.9	36.0
16UC - MM	16	12.7	25.4	25	24.4	22.0	28.7	38.8
18 UC - MM	18	15.1	27.0	30	24.4	22.0	29.7	39.8
20UC - MM	20	15.9	31.8	32	26.0	22.0	32.5	42.6
25UC - MM	25	21.8	36.0	38	31.3	22.0	36.8	49.1

Reducer

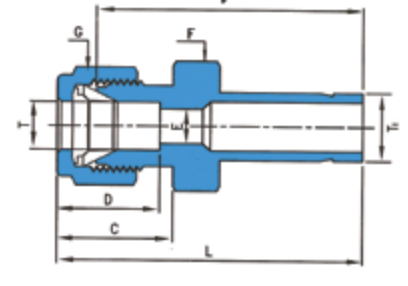


Fractional Range

Part No.	Tube O.D.		E	Width across flat		D	C	I	L
	T	T1		F	G				
	inches	inches	Min						
2RED1	1/8	1/16	0.76	7/16	7/16	12.70	15.24	22.35	28.95
2RED2	1/8	1/8	2.03	7/16	7/16	12.70	15.24	26.92	33.52
2RED3	1/8	3/16	2.28	7/16	7/16	12.70	15.24	27.69	34.29
2RED4	1/8	1/4	2.28	7/16	7/16	12.70	15.24	29.46	36.06
2RED6	1/8	3/8	2.28	7/16	7/16	12.70	15.24	30.99	37.59
2RED8	1/8	1/2	2.28	9/16	7/16	12.70	15.24	37.59	44.19
3RED2	3/16	1/8	2.03	7/16	1/2	13.71	16.00	28.18	34.79
3RED4	1/16	1/4	3.04	7/16	1/2	13.71	16.00	30.47	37.08
4RED2	1/4	1/8	2.03	1/2	9/16	15.24	17.78	29.47	36.83
4RED3	1/4	3/16	3.04	1/2	9/16	15.24	17.78	30.23	37.59
4RED4	1/4	1/4	4.82	1/2	9/16	15.24	17.78	31.75	39.11
4RED5	1/4	5/16	4.82	1/2	9/16	15.24	17.78	32.51	39.87
4RED6	1/4	3/8	4.82	1/2	9/16	15.24	17.78	33.28	40.64
4RED8	1/4	1/2	4.82	9/16	9/16	15.24	17.78	38.86	46.22
4RED10	1/4	5/8	4.82	11/16	9/16	15.24	17.78	40.64	48.00
4RED12	1/4	3/4	4.82	13/16	9/16	15.24	17.78	40.39	47.75
5RED6	5/16	3/8	6.35	9/16	5/8	16.25	18.54	34.55	41.91
5RED8	5/16	1/2	6.35	9/16	5/8	16.25	18.54	40.13	47.49
6RED4	3/8	1/4	4.82	5/8	11/16	16.76	19.30	34.04	41.40
6RED6	3/8	3/8	7.11	5/8	11/16	16.76	19.30	35.82	43.18
6RED8	3/8	1/2	7.11	5/8	11/16	16.76	19.30	41.15	48.51
6RED10	3/8	5/8	7.11	11/16	11/16	16.76	19.30	42.93	50.29
6RED12	3/8	3/4	7.11	13/16	11/16	16.76	19.30	42.93	50.29
8RED4	1/2	1/4	4.82	13/16	7/8	22.86	21.84	34.79	44.95
8RED6	1/2	3/8	7.11	13/16	7/8	22.86	21.84	36.57	46.73
8RED8	1/2	1/2	9.90	13/16	7/8	22.86	21.84	42.16	52.32
8RED10	1/2	5/8	10.41	13/16	7/8	22.86	21.84	43.68	53.84
8RED12	1/2	3/4	10.41	13/16	7/8	22.86	21.84	43.68	53.84
8RED16	1/2	1	10.41	1 1/16	7/8	22.86	21.84	50.03	60.19
10RED12	5/8	3/4	12.70	15/16	1	24.38	21.84	44.45	54.61
10RED14	5/8	7/8	12.70	15/16	1	24.38	21.84	45.97	56.13
10RED16	5/8	1	12.70	1 1/16	1	24.38	21.84	50.80	60.96
12RED8	3/4	1/2	9.90	1 1/16	1 1/8	24.38	21.84	44.45	54.61
12RED16	3/4	1	15.74	1 1/16	1 1/8	24.38	21.84	52.32	62.48

Dimensions are for reference only and are subject to change.

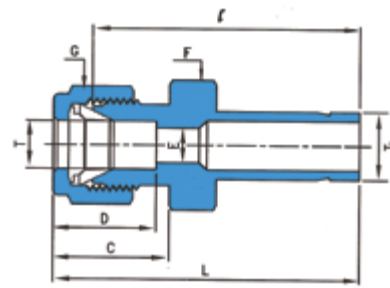
Reducer



Metric Range

Part No.	Tube O.D.		E	Width across flat		D	C	I	L
	T	T1		F	G				
	mm	mm	Min						
3RED4 - MM	3	4	2.4	12	12	12.9	15.3	28.4	35.0
3RED6 - MM	3	6	2.4	12	12	12.9	15.3	29.5	36.1
3RED10 - MM	3	10	2.4	12	12	12.9	15.3	31.8	38.4
4RED6 - MM	4	6	2.4	12	12	13.7	16.1	30.5	37.1
6RED3 - MM	6	3	1.8	14	14	15.3	17.7	29.5	36.9
6RED8 - MM	6	8	4.8	14	14	15.3	17.7	32.5	36.9
6RED10 - MM	6	10	4.8	14	14	15.3	17.7	33.3	40.7
6RED12 - MM	6	12	4.8	14	14	15.3	17.7	38.9	46.3
8RED6 - MM	8	6	4.6	15	16	16.2	18.6	32.8	40.3
8RED10 - MM	8	10	6.4	15	16	16.2	18.6	34.5	42.0
8RED12 - MM	8	12	6.4	15	16	16.2	18.6	40.1	47.6
10RED6 - MM	10	6	4.6	18	19	17.2	19.5	34.8	42.4
10RED12 - MM	10	12	7.9	18	19	17.2	19.5	42.2	49.8
10RED15 - MM	10	15	7.9	18	19	17.2	19.5	43.7	51.3
10RED18 - MM	10	18	7.9	19	19	17.2	19.5	43.7	51.3
12RED6 - MM	12	6	4.6	22	22	22.8	22.0	34.8	44.9
12RED10 - MM	12	10	7.7	22	22	22.8	22.0	36.6	46.7
12RED16 - MM	12	16	9.5	22	22	22.8	22.0	43.7	53.8
12RED18 - MM	12	18	9.5	22	22	22.8	22.0	43.7	53.8
12RED20 - MM	12	20	9.5	22	22	22.8	22.0	46.0	56.1
12RED22 - MM	12	22	9.5	24	22	22.8	22.0	46.0	56.1
12RED25 - MM	12	25	9.5	27	22	22.8	22.0	52.3	62.4
16RED12 - MM	16	12	9.1	24	25	24.4	22.0	42.9	53.0
18RED12 - MM	18	12	9.1	27	30	24.4	22.0	44.5	54.6
18RED16 - MM	18	16	12.7	27	30	24.4	22.0	46.0	56.1
18RED20 - MM	18	20	15.1	27	30	24.4	22.0	47.5	57.6
18RED22 - MM	18	22	15.1	27	30	24.4	22.0	47.5	57.6
18RED25 - MM	18	25	15.1	27	30	24.4	22.0	52.3	62.4
20RED16 - MM	20	16	12.7	30	32	24.4	22.0	47.8	57.9
20RED18 - MM	20	18	13.9	30	32	26.0	22.0	47.8	57.9
20RED22 - MM	20	22	15.8	30	32	26.0	22.0	49.3	59.4
20RED25 - MM	20	25	15.8	30	32	26.0	22.0	54.1	64.2
22RED18 - MM	22	18	13.9	30	32	26.0	22.0	47.8	57.9
22RED20 - MM	22	20	15.1	30	32	26.0	22.0	49.3	59.4
22RED25 - MM	22	25	18.3	30	32	26.0	22.0	54.1	64.2
25RED18 - MM	25	18	13.9	35	38	31.3	26.5	50.8	63.1
25RED20 - MM	25	20	15.1	35	38	31.3	26.5	52.3	64.6

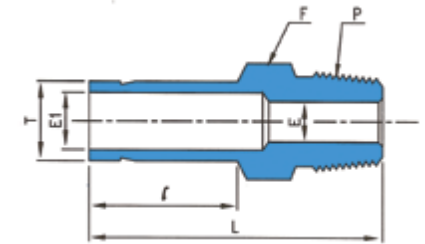
Reducer



Metric to Fractional Range

Part No.	Tube O.D.		E Min	Width across flat		D	C	I	L
	T	T1		F	G				
	mm	inches							
3MREDF2	3	1/8	2.0	12	12	12.9	15.3	26.9	33.5
3MREDF4	3	1/4	2.4	12	12	12.9	15.3	29.5	36.1
6MREDF4	6	1/4	4.8	14	14	15.3	17.7	31.8	39.2
6MREDF5	6	5/16	4.8	14	14	15.3	17.7	32.5	39.9
6MREDF6	6	3/8	4.8	14	14	15.3	17.7	33.3	40.7
6MREDF8	6	1/2	4.8	14	14	15.3	17.7	38.9	46.3
8MREDF6	8	3/8	6.4	15	16	16.2	18.6	34.5	42.0
8MREDF8	8	1/2	6.4	15	16	16.2	18.6	40.1	47.6
10MREDF6	10	3/8	7.1	18	19	17.2	19.5	36.6	44.2
10MREDF8	10	1/2	7.9	18	19	17.2	19.5	42.2	49.8
12MREDF8	12	1/2	9.5	22	22	22.8	22.0	42.2	52.3
12MREDF12	12	3/4	9.5	22	22	22.8	22.0	43.7	53.8
18MREDF12	18	3/4	15.1	27	30	24.4	22.0	46.0	56.1
18MREDF16	18	1	15.1	27	30	24.4	22.0	52.3	62.4

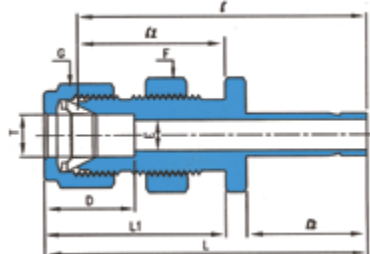
Male Adapter



Fractional Range

Part No	Tube O.D. T inches	P* (NPT)	E min	E1	Width Across Flat		I	L
					F inches	L1		
2ATPM2	1/8	1/8	4.57	1.77	7/16	13.45	29.50	
2ATPM4	1/8	1/4	7.11	1.77	9/16	13.45	34.80	
3ATPM2	3/16	1/8	4.57	3.04	7/16	14.20	30.22	
3ATPM4	3/16	1/4	7.11	3.04	9/16	14.20	35.56	
4ATPM2	1/4	1/8	4.57	4.57	7/16	15.75	31.80	
4ATPM4	1/4	1/4	7.11	4.57	9/16	15.75	37.08	
4ATPM6	1/4	3/8	10.41	4.57	11/16	15.75	37.84	
4ATPM8	1/4	1/2	12.70	4.57	7/8	16.80	43.43	
5ATPM2	5/16	1/8	4.57	6.35	7/16	16.80	32.76	
5ATPM4	5/16	1/4	7.11	6.35	9/16	17.50	38.10	
6ATPM2	3/8	1/8	4.57	7.11	7/16	17.50	33.50	
6ATPM4	3/8	1/4	7.11	7.11	9/16	17.50	38.90	
6ATPM6	3/8	3/8	10.41	7.11	11/16	17.50	39.60	
6ATPM8	3/8	1/2	12.70	7.11	7/8	23.20	45.20	
8ATPM4	1/2	1/4	7.11	9.90	9/16	23.20	44.50	
8ATPM6	1/2	3/8	10.41	9.90	11/16	23.20	45.20	
8ATPM8	1/2	1/2	12.70	9.90	7/8	24.70	50.50	
10ATPM6	5/8	3/8	10.41	12.70	11/16	24.70	47.40	
10ATPM8	5/8	1/2	12.70	12.70	7/8	24.70	52.30	
10ATPM12	5/8	3/4	18.28	12.70	1 1/16	24.70	52.30	
12ATPM8	3/4	1/2	12.70	14.98	7/8	24.70	52.30	
12ATPM12	3/4	3/4	18.28	14.98	1 1/16	24.70	52.30	
12ATPM16	3/4	1	22.35	14.98	1 3/8	24.70	57.91	
14ATPM12	7/8	3/4	18.28	17.27	1 1/16	26.70	54.30	
16ATPM12	1	3/4	18.28	20.06	1 1/16	31.70	58.70	
16ATPM16	1	1	22.35	20.06	1 3/8	31.70	66.00	

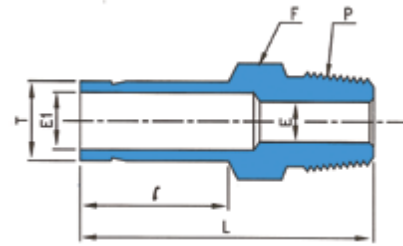
Bulkhead Reducer



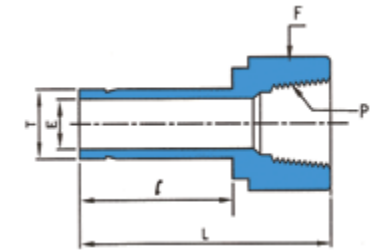
Fractional Range

Part No.	Tube O.D.	E Min	Width across flat		D	I	11	12	L	L1	Panel	Panel
	T		F Min	G inches							Hole	Max
	inches											
2BHR2	1/8	2.03	1/2	7/16	12.70	42.93	24.63	13.46	49.53	31.24	8.33	12.70
4BHR4	1/4	4.82	5/8	9/16	15.24	48.44	26.16	15.74	55.88	33.52	11.50	10.16
6BHR6	3/8	7.11	3/4	11/16	16.76	53.85	29.46	17.52	61.21	36.83	14.68	11.17
8BHR8	1/2	10.41	15/16	7/8	22.86	62.73	31.75	23.11	72.89	41.91	19.44	12.70

Male Adapter



Female Adapter



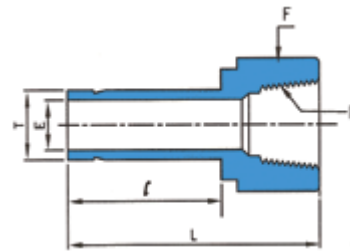
Metric Range

Part No	Tube O.D. T mm	P* (NPT)	E min	E1	Width Across Flat		l	L
					F	l		
					mm			
3ATPM2 - MM	3	1/8	4.0	1.8	12	13.15	29.4	
6ATPM2 - MM	6	1/8	4.6	4.6	12	15.75	32.8	
6ATPM4 - MM	6	1/4	4.6	4.6	14	15.75	38.1	
8ATPM4 - MM	8	1/4	6.3	6.3	14	16.50	39.1	
10ATPM4 - MM	10	1/4	7.7	7.7	14	17.50	39.9	
10ATPM6 - MM	10	3/8	7.7	7.7	17	17.50	40.6	
10ATPM8 - MM	10	1/2	11.9	7.7	22	17.50	45.2	
12ATPM4 - MM	12	1/4	7.1	9.1	14	23.50	46.5	
12ATPM6 - MM	12	3/8	9.1	9.1	17	23.50	46.2	
12ATPM8 - MM	12	1/2	11.9	9.1	22	23.50	51.8	
18ATPM8 - MM	18	1/2	11.9	13.9	22	24.90	53.2	
18ATPM12 - MM	18	3/4	15.9	13.9	27	24.90	53.2	

Fractional Range

Part No	Tube O.D. T inches	P* (NPT)	E min	Width Across Flat		l	L
				F	l		
				inches			
2ATPF2	1/8	1/8	1.77	9/16	13.45	31.50	
2ATPF4	1/8	1/4	1.77	3/4	13.45	35.33	
3ATPF2	3/16	1/8	3.04	9/16	14.20	32.00	
3ATPF4	3/16	1/4	3.04	3/4	14.20	35.81	
4ATPF2	1/4	1/8	4.57	9/16	15.75	33.02	
4ATPF4	1/4	1/4	4.57	3/4	15.75	37.10	
4ATPF6	1/4	3/8	4.57	7/8	15.75	39.37	
4ATPF8	1/4	1/2	4.57	1 1/16	15.75	42.50	
5ATPF2	5/16	1/8	6.35	9/16	16.80	34.29	
5ATPF4	5/16	1/4	6.35	3/4	16.80	37.59	
6ATPF2	3/8	1/8	7.11	9/16	17.50	34.29	
6ATPF4	3/8	1/4	7.11	3/4	17.50	38.10	
6ATPF6	3/8	3/8	7.11	7/8	17.50	40.38	
6ATPF8	3/8	1/2	7.11	1 1/16	17.50	46.73	
8ATPF4	1/2	1/4	9.90	3/4	23.20	43.43	
8ATPF6	1/2	3/8	9.90	7/8	23.20	45.46	
8ATPF8	1/2	1/2	9.90	1 1/16	23.20	51.80	
10ATPF6	5/8	3/8	12.70	7/8	24.70	48.26	
10ATPF8	5/8	1/2	12.70	1 1/16	24.70	53.84	
10ATPF12	5/8	3/4	12.70	1 1/4	24.70	55.37	
12ATPF8	3/4	1/2	14.98	1 1/16	24.70	52.83	
12ATPF12	3/4	3/4	14.88	1 1/4	24.70	54.86	
12ATPF16	3/4	1	14.98	1 5/8	24.70	58.42	
14ATPF12	7/8	3/4	17.27	1 1/4	26.70	57.15	
16ATPF12	1	3/4	20.06	1 1/4	31.70	60.70	
16ATPF16	1	1	20.06	1 5/8	31.70	64.26	

Female Adapter



Metric Range

Part No	Tube O.D. T mm	P* (NPT)	E min	Width Across Flat		l	L
				F mm			
3ATPF2 - MM	3	1/8	1.8	14		13.15	31.15
6ATPF2 - MM	6	1/8	4.6	14		15.75	32.50
6ATPF4 - MM	6	1/4	4.6	19		15.75	37.10
8ATPF4 - MM	8	1/4	6.3	19		16.50	37.60
10ATPF4 - MM	10	1/4	7.7	19		17.50	38.10
10ATPF6 - MM	10	3/8	7.7	22		17.50	40.10
10ATPF8 - MM	10	1/2	7.7	27		17.50	46.50
12ATPF4 - MM	12	1/4	9.1	19		23.50	43.70
12ATPF6 - MM	12	3/8	9.1	22		23.50	46.00
12ATPF8 - MM	12	1/2	9.1	27		23.50	52.30
18ATPF12 - MM	18	3/4	13.9	32		24.90	54.80

Port Connector



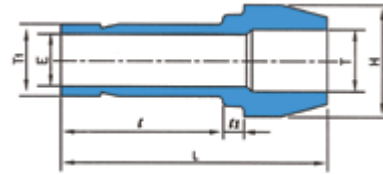
Fractional Range

Part No	Tube O.D. T inches	E min	H	l	L
2PC	1/8	1.77	6.09	15.75	22.35
4PC	1/4	4.57	9.39	18.79	24.63
5PC	5/16	6.35	10.92	20.06	25.90
6PC	3/8	7.11	12.70	20.32	26.16
8PC	1/2	9.90	15.74	25.90	35.81
12PC	3/4	14.98	22.09	27.68	37.33
16PC	1	20.06	28.44	34.54	48.26

Metric Range

Part No	Tube O.D. T mm	E min	H	l	L
3PC - MM	6	2.1	6.0	15.7	22.2
6PC - MM	6	4.4	9.0	18.7	24.6
8PC - MM	8	6.2	11.0	20.0	25.9
10PC - MM	10	8.2	13.1	20.2	26.1
12PC - MM	12	9.1	15.0	26.0	35.8
16PC - MM	16	12.7	19.0	27.6	37.4

Reducing Port Connector



Fractional Range

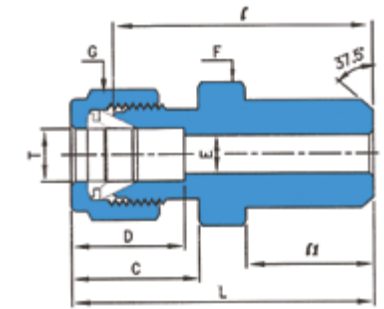
Part No	Tube O.D. T inches	Reduced O.D T1 inches	E min	H	l	l1	L
4RPC2	1/4	1/8	2.28	9.39	13.45	3.30	22.60
6RPC2	3/8	1/8	2.28	12.70	13.45	3.81	23.11
6RPC4	3/8	1/4	4.82	12.70	15.75	3.30	24.89
8RPC4	1/2	1/4	4.82	15.74	15.75	3.81	29.21
8RPC6	1/2	3/8	7.11	15.74	17.50	3.30	30.48
12RPC8	3/4	1/2	9.90	22.09	23.20	3.81	36.57

Metric Range

Part No	Tube O.D. T mm	Reduced O.D T1 mm	E min	H	l	l1	L
6RPC3 - MM	6	3	2.2	9.0	13.5	3.2	22.6
8RPC6 - MM	8	6	4.16	11.0	15.7	3.1	24.7
10RPC6 - MM	10	6	4.6	13.1	15.7	3.4	25.0
12RPC6 - MM	12	6	4.6	15.0	15.7	3.6	29.1
12RPC8 - MM	12	8	6.4	15.0	16.8	3.4	29.8
12RPC10 - MM	12	10	7.7	15.0	17.5	3.1	30.4
16RPC12 - MM	16	12	9.1	19.0	23.1	3.4	36.2

Dimensions are for reference only and are subject to change.

Male Pipe Weld Connector



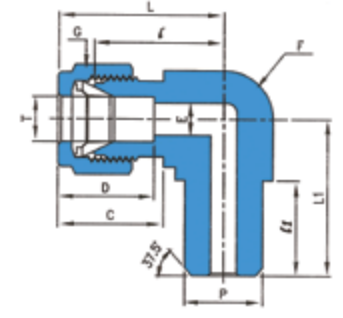
Fractional Range

Part No	Tube O.D. T inches	Male Pipe Size P	E Min	Width across flat		D	C	l	l1	L
				F inches	G inches					
2MPWC2	1/8	1/8	2.28	7/16	7/16	12.70	24.64	9.65	31.24	
3MPWC2	3/16	1/8	3.04	7/16	1/2	13.71	24.63	9.65	31.24	
4MPWC2	1/4	1/8	4.82	1/2	9/16	15.24	25.40	9.65	32.76	
4MPWC4	1/4	1/4	4.82	9/16	9/16	15.21	30.48	14.22	37.84	
5MPWC2	5/16	1/8	5.08	9/16	5/8	16.25	28.66	9.65	37.03	
5MPWC4	5/16	1/4	6.35	9/16	5/8	16.25	31.24	14.22	38.60	
6MPWC4	3/8	1/4	7.11	5/8	11/16	16.76	32.51	14.22	39.87	
6MPWC6	3/8	3/8	7.11	11/16	11/16	16.76	32.51	11.05	39.87	
6MPWC8	3/8	1/2	7.11	7/8	11/16	16.76	35.87	14.22	43.23	
8MPWC6	1/2	3/8	10.41	1	7/8	22.86	33.27	19.05	43.43	
8MPWC8	1/2	1/2	10.41	7/8	7/8	22.86	38.86	14.22	49.02	
8MPWC12	1/2	3/4	10.41	1 1/16	7/8	22.86	40.38	19.05	50.54	
10MPWC8	5/8	1/2	12.70	15/16	1	24.38	38.86	19.05	49.02	
12MPWC12	3/4	3/4	15.74	1 1/16	1 1/8	24.38	40.38	19.05	50.54	
16MPWC16	1	1	22.35	1 3/8	1 1/2	31.24	50.04	23.87	62.23	

Metric Range

Part No	Tube O.D. T mm	Male Pipe Size P	E Min	Width across flat		D	C	l	l1	L
				F mm	G mm					
3MPWC2 - MM	3	1/8	2.4	12	12	12.9	15.3	23.10	9.7	29.70
4MPWC2 - MM	4	1/8	2.4	12	12	13.7	16.1	24.10	9.7	30.70
6MPWC2 - MM	6	1/8	4.8	14	14	15.3	17.7	25.40	9.7	32.80
6MPWC4 - MM	6	1/4	4.8	14	14	15.3	17.7	30.20	14.2	37.60
8MPWC2 - MM	8	1/8	5.1	15	16	16.2	18.6	26.70	9.7	34.20
8MPWC4 - MM	8	1/4	6.4	15	16	16.2	18.6	31.20	14.2	38.70
8MPWC8 - MM	8	1/2	6.4	22	16	16.2	18.6	37.30	19.0	44.80
10MPWC4 - MM	10	1/4	7.1	18	19	17.2	19.5	33.30	14.2	40.90
10MPWC6 - MM	10	3/8	7.9	18	19	17.2	19.5	32.50	14.2	40.10
10MPWC8 - MM	10	1/2	7.9	22	19	17.2	19.5	38.10	19.0	45.70
12MPWC4 - MM	12	1/4	7.1	22	22	22.8	22.0	33.30	14.2	43.40
12MPWC6 - MM	12	3/8	9.5	22	22	22.8	22.0	33.30	14.2	43.40
12MPWC8 - MM	12	1/2	9.5	24	22	22.8	22.0	38.10	19.0	48.20
15MPWC8 - MM	15	1/2	11.9	24	25	24.4	22.0	38.90	19.0	49.00
16MPWC8 - MM	16	1/2	12.7	24	25	24.4	22.0	38.90	19.0	49.00
18MPWC8 - MM	18	1/2	13.5	27	30	24.4	22.0	39.95	19.0	50.05

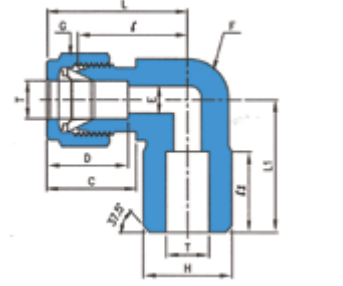
Male Pipe Weld Elbow



Fractional Range

Part No	Tube O.D. T inches	Pipe Weld Size P	E Min	Width across flat		D	C	l	l1	L	L1
				F inches	G inches						
2MPWE2	1/8	1/8	4.82	1/2	9/16	12.70	15.24	20.32	9.65	26.92	18.79
4MPWE4	1/4	1/4	4.82	1/2	9/16	15.24	17.76	19.56	14.22	26.92	23.36
6MPWE4	3/8	1/4	7.11	5/8	11/16	16.75	19.30	23.13	14.22	30.48	25.40
8MPWE8	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.9	19.05	36.06	33.02
12MPWE12	3/4	3/4	15.74	1 1/16	1 1/8	24.38	21.84	29.71	19.05	39.87	36.83

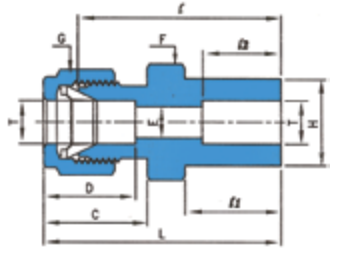
Tube Socket Weld Elbow



Fractional Range

Part No	Tube O.D. T inches	E Min	H	Width across flat		D	C	l	l1	L	L1
				F inches	G inches						
4TSWE4	1/4	4.82	12.70	1/2	9/16	15.24	17.78	19.56	7.87	26.92	19.55
6TSWE6	3/8	7.11	15.74	5/8	11/16	16.76	19.30	23.12	9.65	30.48	23.11
8TSWE8	1/2	10.41	20.57	13/16	7/8	22.86	21.84	25.90	12.70	36.06	25.90

Tube Socket Weld Connector

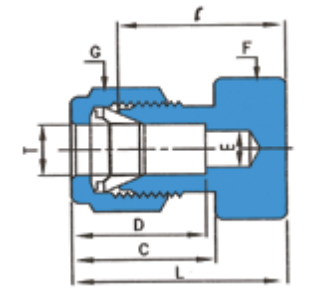


Fractional Range

Part No	Tube O.D. T inches	E Min	H	Width across flat		D	C	l	l1	l2	L
				F inches	G inches						
2TSWC2	1/8	2.28	7.87	7/16	7/16	12.70	15.24	22.55	8.63	6.35	28.95
4TSWC4	1/4	4.82	11.17	1/2	9/16	15.24	17.78	28.16	10.41	7.87	35.52
6TSWC4	3/8	7.11	15.74	5/8	11/16	16.76	19.30	30.23	11.93	9.65	37.59
8TSWC8	1/2	10.41	19.06	13/16	7/8	22.86	21.84	30.98	11.93	12.70	41.14
12TSWC12	3/4	15.74	26.67	1 1/16	1 1/8	24.38	21.84	33.27	11.93	14.22	43.43
16TSWC16	1	22.85	33.27	1 3/8	1 1/2	31.24	26.41	40.38	14.22	19.05	52.57

Dimensions are for reference only and are subject to change.

Tube Cap



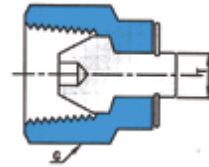
Fractional Range

Part No	Tube O.D. T inches	Width across flat		D	C	l	L
		F inches	G inches				
1BE	1/16	5/16	5/16	8.63	10.92	11.20	14.18
2BE	1/8	7/16	7/16	15.24	15.24	13.46	20.06
3BE	3/16	7/16	1/2	13.71	16.00	14.73	21.33
4BE	1/4	1/2	9/16	15.24	17.78	16.00	23.26
5BE	5/16	9/16	5/8	16.25	18.54	17.01	24.38
6BE	3/8	5/8	11/16	16.76	19.30	18.28	25.65
8BE	1/2	13/16	7/8	22.86	21.84	19.05	29.21
10BE	5/8	15/16	1	24.38	21.84	19.81	29.97
12BE	3/4	1 1/16	1 1/8	24.38	21.84	21.33	31.49
14BE	7/8	1 3/16	1 1/4	25.90	21.84	23.87	34.03
16BE	1	1 3/8	1 1/2	31.24	26.41	26.16	38.35

Metric Range

Part No	Tube O.D. T mm	Width across flat		D	C	l	L
		F mm	G mm				
2BE - MM	2	12	12	12.9	15.3	13.5	20.1
3BE - MM	3	12	12	12.9	15.3	13.5	20.1
4BE - MM	4	12	12	13.7	16.1	14.7	21.3
6BE - MM	6	14	14	15.3	17.7	15.7	23.1
8BE - MM	8	15	16	16.2	18.6	17.0	24.5
10BE - MM	10	18	19	17.2	19.5	19.0	26.6
12BE - MM	12	22	22	22.8	22.0	19.0	29.1
15BE - MM	15	24	25	24.4	22.0	19.8	29.9
16BE - MM	16	24	25	25.4	22.0	19.8	29.9
18BE - MM	18	27	30	24.4	22.0	21.3	31.4
20BE - MM	20	30	32	26.0	22.0	23.9	34.0
22BE - MM	22	3	32	26.0	22.0	23.9	34.0
25BE - MM	25	35	38	31.3	26.5	26.2	38.5

Tube Plug



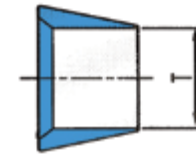
Fractional Range

Part No	Tube O.D.	Width across flat
	T inches	G inches
2BP	1/8	7/16
3BP	3/16	1/2
4BP	1/4	9/16
5BP	5/16	5/8
6BP	3/8	11/16
8BP	1/2	7/8
10BP	5/8	1
12BP	3/4	1 1/8
14BP	7/8	1 1/4
16BP	1	1 1/2

Metric Range

Part No	Tube O.D.	Width across flat
	T mm	G mm
2BP - MM	2	12
3BP - MM	3	12
4BP - MM	4	12
6BP - MM	6	14
8BP - MM	8	16
10BP - MM	10	19
12BP - MM	12	22
15BP - MM	15	25
16BP - MM	16	25
18BP - MM	18	30
20BP - MM	20	32
22BP - MM	22	32
25BP - MM	25	38

Front Ferrule



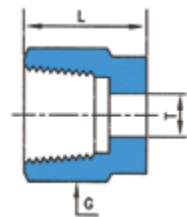
Fractional Range

Part No	Tube O.D.
	T inches
1FF	1/16
2FF	1/8
3FF	3/16
4FF	1/4
5FF	5/16
6FF	3/8
8FF	1/2
10FF	5/8
12FF	3/4
14FF	7/8
16FF	1

Metric Range

Part No	Tube O.D.
	T mm
2FF - MM	2
3FF - MM	3
4FF - MM	4
6FF - MM	6
8FF - MM	8
10FF - MM	10
12FF - MM	12
15FF - MM	15
16FF - MM	16
18FF - MM	18
20FF - MM	20
22FF - MM	22
25FF - MM	25

Nut



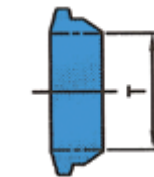
Fractional Range

Part No	Tube O.D.	Width across flat	L
	T inches	G inches	
1N	1/16	5/16	7.93
2N	1/8	7/16	11.93
3N	3/16	1/2	11.93
4N	1/4	9/16	12.70
5N	5/16	5/8	13.46
6N	3/8	11/16	14.22
8N	1/2	7/8	17.52
10N	5/8	1	17.52
12N	3/4	1 1/8	17.52
14N	7/8	1 1/4	17.52
16N	1	1 1/2	20.57

Metric Range

Part No	Tube O.D.	Width across flat	L
	T mm	G mm	
3N - MM	3	12	11.9
4N - MM	4	12	11.9
6N - MM	6	14	12.7
8N - MM	8	16	13.5
10 - MM	10	19	15.1
12N - MM	12	22	17.4
15N - MM	15	25	17.4
16N - MM	16	25	17.4
18N - MM	18	30	17.4
20N - MM	20	32	17.4
22N - MM	22	32	17.4
25N - MM	25	38	20.6

Rear Ferrule



Fractional Range

Part No	Tube O.D.
	T inches
1FR	1/16
2FR	1/8
3FR	3/16
4FR	1/4
5FR	5/16
6FR	3/8
8FR	1/2
10FR	5/8
12FR	3/4
14FR	7/8
16FR	1

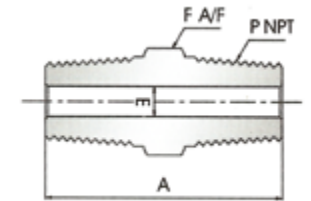
Metric Range

Part No	Tube O.D.
	T mm
2FR - MM	2
3FR - MM	3
4FR - MM	4
6FR - MM	6
8FR - MM	8
10FR - MM	10
12FR - MM	12
15FR - MM	15
16FR - MM	16
18FR - MM	18
20FR - MM	20
22FR - MM	22
25FR - MM	25

Sync-Lok

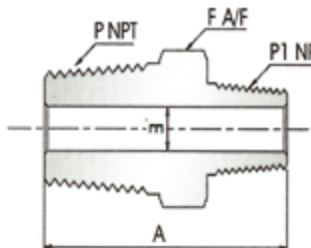
Pipe Fitting Section

Hex Nipple



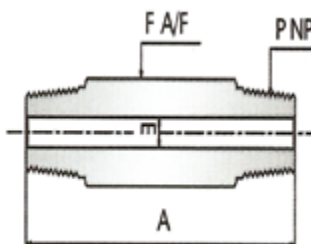
Part No	Pipe Size P-PT, NPT	Dimensions		
		A	E	F
SHN-01	1/16	25.7	3.0	5/16
SHN-02	1/8	25.7	4.8	7/16
SHN-04	1/4	35.6	7.1	9/16
SHN-06	3/8	36.3	9.6	11/16
SHN-08	1/2	46.7	11.9	7/8
SHN-12	3/4	46.7	15.8	1 1/16
SHN-16	1	58.9	22.4	1 3/8

Hex Reducing Nipple



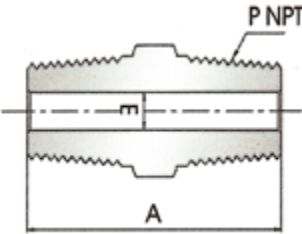
Part No	Pipe Size		Dimensions		
	P-PT, NPT	P1-PT, NPT	A	E	F
SHRN-02-01	1/8	1/16	25.7	3.0	7/16
SHRN-04-02	1/4	1/8	31.0	4.8	9/16
SHRN-06-02	3/8	1/8	31.8	4.8	11/16
SHRN-06-04	3/8	1/4	36.3	7.1	11/16
SHRN-06-12	1/2	1/8	37.3	4.8	7/8
SHRN-08-04	1/2	1/4	41.9	7.1	7/8
SHRN-08-06	1/2	3/8	41.9	9.6	7/8
SHRN-12-04	3/4	1/4	41.9	7.1	1 1/16
SHRN-12-08	3/4	1/2	46.7	11.9	1 1/16
SHRN-16-08	1	1/2	54.1	11.9	1 3/8
SHRN-16-12	1	3/4	54.1	15.8	1 3/8

Hex Long Nipple



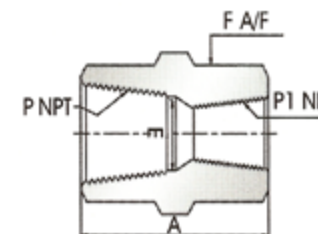
Part No	Pipe Size P-PT, NPT	Dimensions-A						
		1.5	2	2.5	3	4	E	F
SHLN-02	1/8	1.5	2	2.5	3	4	4.8	7/16
SHLN-04	1/4	1.5	2	2.5	3	4	7.1	9/16
SHLN-06	3/8	1.5	2	2.5	3	4	9.6	11/16
SHLN-08	1/2	1.5	2	2.5	3	4	11.9	7/8
SHLN-12	3/4	1.5	2	2.5	3	4	15.8	1 1/16
SHLN-16	1		2	2.5	3	4	22.4	1 3/8

Close Nipple



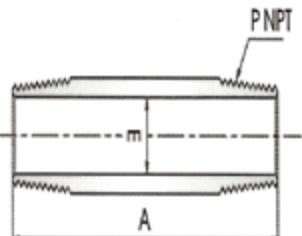
Part No	Pipe Size	Dimensions	
	P-PT, NPT	A	E
SCN-02	1/8	19.05	4.8
SCN-04	1/4	28.40	7.1
SCN-06	3/8	28.40	9.6
SCN-08	1/2	31.70	11.9
SCN-12	3/4	31.70	15.8
SCN-16	1	47.80	22.4

Reducing Coupling



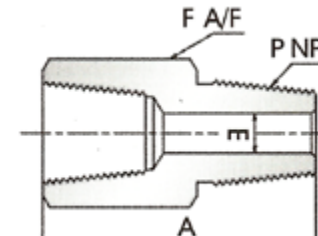
Part No	Pipe Size		Dimensions		
	P-PT, NPT	P1-PT, NPT	A	E	F
SRCN-04-02	1/4	1/8	31.0	8.6	9/16
SRCN-06-04	3/8	1/4	35.1	11.4	11/16
SRCN-08-02	1/2	1/8	39.6	8.6	1 1/16
SRCN-08-04	1/2	1/4	44.5	11.4	1 1/16
SRCN-08-06	1/2	3/8	45.2	15.0	1 1/16
SRCN-12-04	3/4	1/4	46	11.4	1 5/16
SRCN-12-08	3/4	1/2	52.3	18.5	1 5/16
SRCN-16-08	1	1/2	55.6	18.5	1 5/8
SRCN-16-12	1	3/4	57.2	23.9	1 5/8

Long Pipe Nipple



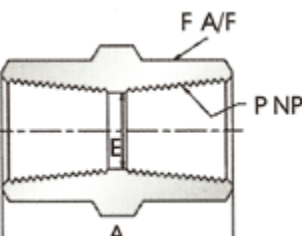
Part No	Pipe Size	Dimensions-A					
	P-PT, NPT	1.5	2	2.5	3	4	E
SLPN-02	1/8	1.5	2	2.5	3	4	5.7
SLPN-04	1/4	1.5	2	2.5	3	4	7.8
SLPN-06	3/8	1.5	2	2.5	3	4	10.9
SLPN-08	1/2	1.5	2	2.5	3	4	14.3
SLPN-12	3/4	1.5	2	2.5	3	4	19.4
SLPN-16	1	2	2.5	3	4	25.0	

Adapter



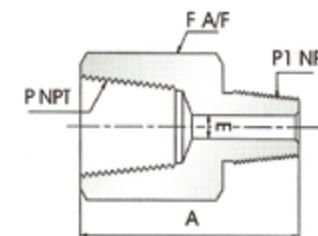
Part No	Pipe Size	Dimensions		
	P-PT, NPT	A	E	F
SA-02	1/8	27.9	4.8	9/16
SA-04	1/4	35.6	7.1	3/4
SA-06	3/8	38.4	9.6	7/8
SA-08	1/2	49.3	11.9	1 1/16
SA-12	3/4	51.3	15.7	1 5/16
SA-16	1	57.9	22.1	1 5/8

Coupling



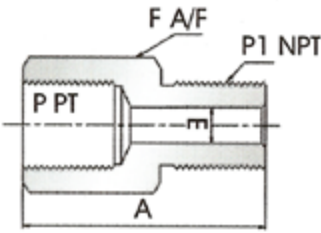
Part No	Pipe Size	Dimensions		
	P-PT, NPT	A	E	F
SHC-02	1/8	20.6	8.6	9/16
SHC-04	1/4	30.2	11.4	3/4
SHC-06	3/8	33.3	15.0	7/8
SHC-08	1/2	39.6	18.5	1 1/16
SHC-12	3/4	41.1	23.9	1 5/16
SHC-16	1	47.8	29.7	1 5/8

Reducing Adapter



Part No	Pipe Size		Dimensions		
	P-PT, NPT	P1-PT, NPT	A	E	F
SRA-02-01	1/8	1/16	27.7	3.0	9/16
SRA-04-02	1/4	1/8	31.0	5.0	3/4
SRA-06-02	3/8	1/8	33.6	5.0	7/8
SRA-06-04	3/8	1/4	38.0	7.0	7/8
SRA-08-02	1/2	1/8	40.1	4.8	1 1/16
SRA-08-04	1/2	1/4	44.7	7.1	1 1/16
SRA-08-06	1/2	3/8	44.5	9.5	1 1/16
SRA-12-04	3/4	1/4	46.2	7.1	1 5/16
SRA-12-06	3/4	3/8	46.2	9.5	1 5/16
SRA-12-08	3/4	1/2	51.3	11.9	1 5/16
SRA-16-04	1	1/4	49.8	7.1	1 5/8
SRA-16-08	1	1/2	54.9	11.9	1 5/8
SRA-16-12	1	3/4	55.1	15.7	1 5/8

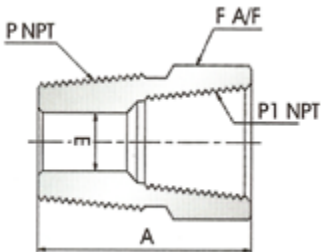
Gauge Adapter



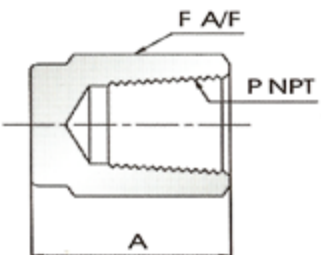
Part No	Pipe Size		Dimensions		
	P-PT, FF, BSPP	P1-PT, NPT	A	E	F
SGA-04-04	1/4 19	1/4	27.7	3.0	9/16
SGA-06-06	3/8 19	3/8	31.0	5.0	3/4
SGA-08-08	1/2 14	1/2	33.6	7.1	7/8

Part No	Pipe Size		Dimensions		
	P-PT, NPT	P1-PT, NPT	A	E	F
SRB-02-01	1/8	1/16	26.2	4.8	7/16
SRB-04-02	1/4	1/8	26.9	7.1	9/16
SRB-06-02	3/8	1/8	21.8	8.6	11/16
SRB-06-04	3/8	1/4	30.2	9.5	3/4
SRB-08-02	1/2	1/8	27.4	8.6	7/8
SRB-08-04	1/2	1/4	27.4	11.4	7/8
SRB-08-06	1/2	3/8	35.8	11.9	7/8
SRB-12-04	3/4	1/4	27.4	11.4	1 1/16
SRB-12-06	3/4	3/8	27.4	15.0	1 1/16
SRB-12-08	3/4	1/2	41.4	15.7	1 1/16
SRB-16-04	1	1/4	34.8	11.4	1 3/8
SRB-16-06	1	3/8	34.8	15.0	1 3/8
SRB-16-08	1	1/2	34.8	18.5	1 3/8
SRB-16-12	1	3/4	47.0	22.4	1 3/8

Reducing Bushing

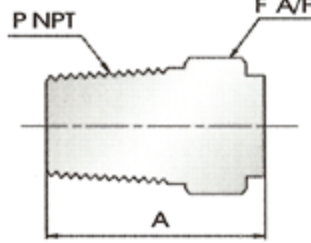


Pipe Cap

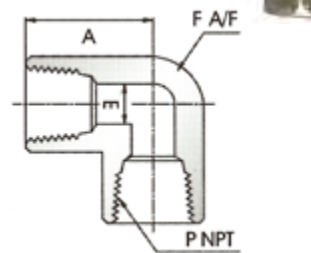


Part No	Pipe Size P-PT, NPT	Dimensions	
		A	F
SPC-02	1/8	19.1	9/16
SPC-04	1/4	23.1	3/4
SPC-06	3/8	26.2	7/8
SPC-08	1/2	34.0	1 1/16
SPC-12	1/2	36.6	1 5/16
SPC-16	1	41.1	1 5/8

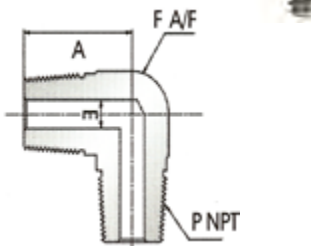
Pipe Plug



Female Elbow



Male Elbow

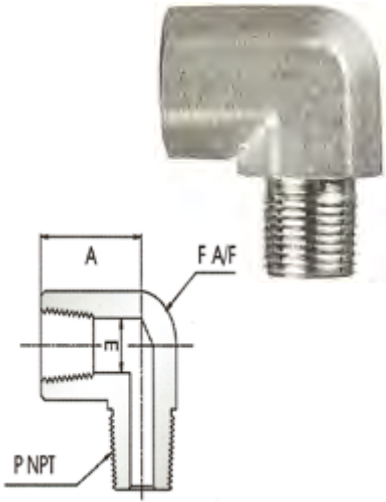


Part No	Pipe Size P-PT, NPT	Dimensions	
		A	F
SPP-01	1/16	19.0	5/16
SPP-02	1/8	19.0	7/16
SPP-04	1/4	24.4	9/16
SPP-06	3/8	25.2	11/16
SPP-08	1/2	30.7	7/8
SPP-12	3/4	30.7	1 1/16
SPP-16	1	38.1	1 3/8

Part No	Pipe Size P-PT, NPT	Dimensions		
		A	E	F
SFE-02	1/8	26.4	8.6	5/8
SFE-04	1/4	29.7	11.4	13/16
SFE-06	3/8	36.1	15.0	15/16
SFE-08	1/2	39.6	18.5	1 1/8
SFE-12	3/4	48.8	23.9	1 3/8
SFE-16	1	48.5	29.7	1 11/16

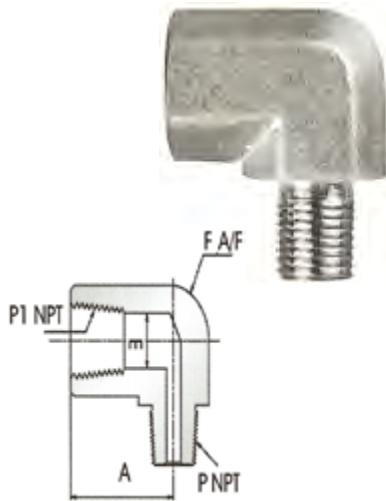
Part No	Pipe Size P-PT, NPT	Dimensions		
		A	E	F
SME-02	1/8	22.4	4.8	7/16
SME-04	1/4	26.7	7.1	1/2
SME-06	3/8	29.7	9.6	13/16
SME-08	1/2	36.8	11.9	15/16

Street Elbow



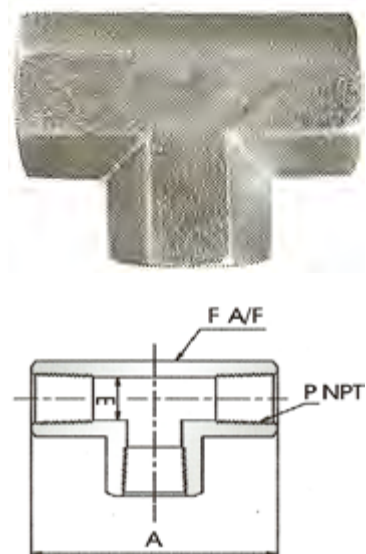
Part No	Pipe Size		Dimensions		
	P-PT, NPT		A	E	F
SSE-01	1/16		21.8	3.1	7/16
SSE-02	1/8		26.4	4.8	5/8
SSE-04	1/4		29.7	7.1	13/16
SSE-06	3/8		36.1	9.6	15/16
SSE-08	1/2		39.6	11.9	1 1/8
SSE-12	3/4		48.8	15.8	1 3/8
SSE-16	1		48.5	22.4	1 11/16

Reducing Street Elbow



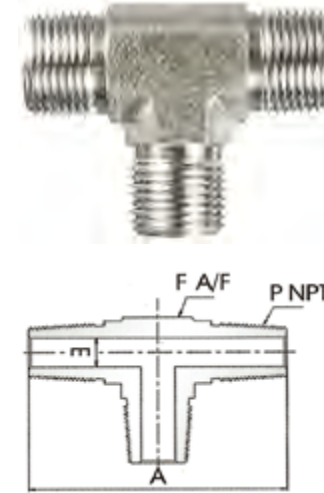
Part No	Pipe Size		Dimensions		
	P-PT, NPT	P1-PT, NPT	A	E	F
SRSE-04-02	1/4	1/8	29.7	4.8	11/16
SRSE-06-04	3/8	1/4	34.5	7.1	13/16
SRSE-08-04	1/2	1/4	37.0	7.1	1
SRSE-08-06	1/2	3/8	37.0	9.6	1
SRSE-12-08	3/4	1/2	39.6	11.9	1 1/4
SRSE-16-08	1	1/2	48.8	11.9	1 3/8

Female Tee



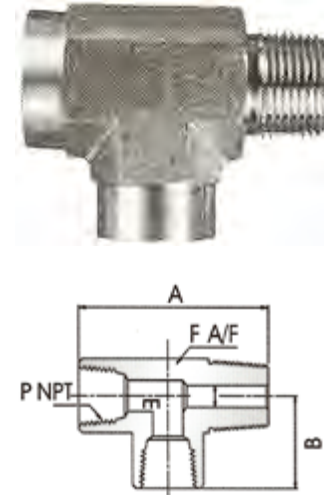
Part No	Pipe Size		Dimensions		
	P-PT, NPT		A	E	F
SFT-02	1/8		26.4	8.6	5/8
SFT-04	1/4		29.7	11.4	13/16
SFT-06	3/8		36.1	15.0	15/16
SFT-08	1/2		39.6	18.5	1 1/8
SFT-12	3/4		48.8	23.9	1 3/8
SFT-16	1		48.5	29.7	1 11/16

Male Tee



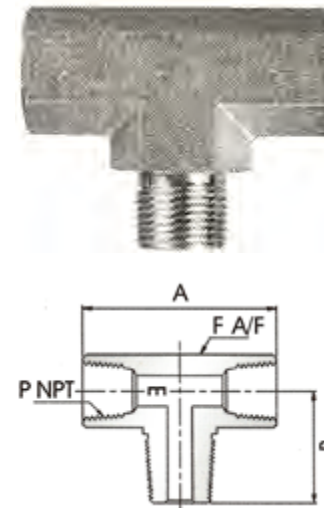
Part No	Pipe Size		Dimensions		
	P-PT, NPT		A	E	F
SMT-02	1/8		22.4	4.8	7/16
SMT-04	1/4		26.7	7.1	1/2
SMT-06	3/8		29.7	9.6	13/16
SMT-08	1/2		36.8	11.9	15/16

Street Tee



Part No	Pipe Size		Dimensions			
	P-PT, NPT		A	B	E	F
SST-02	1/8		26.4	22.1	4.8	5/8
SST-04	1/4		29.7	29.7	7.1	13/16
SST-06	3/8		36.1	32.0	9.6	15/16
SST-08	1/2		39.6	39.6	11.9	1 1/8

Branch Tee



1. Part No	Pipe Size		Dimensions			
	P-PT, NPT		A	B	E	F
SBT-02	1/8		26.4	22.1	4.8	5/8
SBT-04	1/4		29.7	29.7	7.1	13/16
SBT-06	3/8		36.1	32.0	9.6	15/16
SBT-08	1/2		39.6	39.6	11.9	1 1/8



***Other Sync-Lok products include:
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Single Ferrule Tube Fittings
Bronze Alloy Fittings
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