

PANAM

TUBE FITTINGS



Catalogue No. TF-2
June 2004.

Introduction

PANAM ENGINEERS has been in the field of manufacturing precision Tube Fittings and Instrumentation valves since the last TWO decades. With a team of dedicated specialists **PANAM** has always endeavoured to satisfy their customers ever widening demands with unmatched precision.

With the latest in-house machinery and infrastructure under one roof, **PANAM ENGINEERS** is manufacturing a wide range of Tube Fittings and Instrumentation products in different sizes and metals like brass, stainless steel, monel and in various other metals as per the customer's specific requirements.

PANAM ENGINEERS is now not only manufacturing but also exporting products to meet power demands the world over and can proudly say that **PANAM** products are now being used in the Oil and Gas refinery, power generation, chemical and fertilizer fields, etc.

PANAM ENGINEERS stand for PRECISION and DURABILITY.

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All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

General Information

Introduction to **PANAM** Tube Fittings

We are pleased to introduce Tube Fittings Catalogue to our existing customers and as well as to our potential ones globally.

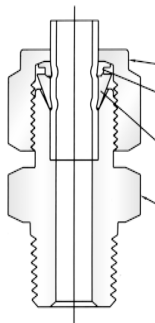
PANAM instrumentation tube fittings provides a zero leak proof seal which will withstand high pressure, impulse, vibration and temperature. These features offers highest safety and maintenance free smooth working guarantee. Each component of **PANAM** tube fittings is precision machined to the most accurate tolerance, maintaining TQM practices throughout manufacturing process.

Our engineers, who have enormous experience and capabilities, can also design & produce the product on behalf of the customer, as per their given specification.

PANAM Q.A. department which is the most important part, continues to control and update the quality in accordance with ISO 9001 and CE marking requirements. Complete traceable records are available upon request.

PANAM Tube Fittings are available in 316 SS, Brass, CS, Monel materials in variety of end connections. Straight fittings are machined from bar stock and shaped bodies are machined from forgings.

PANAM Tube Fittings are used on instrumentation, process control systems, analysers and environmental equipments in oil & gas, Petro-chemical, Power generation, Pulp & Paper industry and many more.

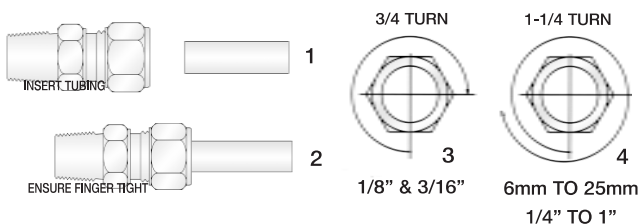


Functions

- Compression nut threads are silver plated which prevents galling.
- Back ferrule locks together the fitting and tube forms a primary Seal which absorbs the pressure pulses & vibration.
- Front ferrule forms a secondary seal which achieves the connection tube and fitting and guarantee a bubble tight Zero Leak Sealing.
- Rugged body construction, High precision machined surface finished and standardised tolerances provides maximum trouble free service life in severe working conditions.

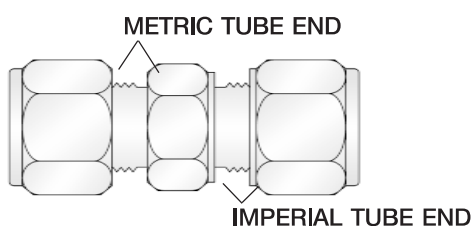
Note: The above illustrated sealing action of a **PANAM** Tube Fitting which takes place when the assembly is fully tightened.

Assembly Instructions



1. Insert the tubing in to the **PANAM** Tube Fitting until it comes up to the tube-stop.
2. Ensure that the nut is finger tight and tighten the nut 1-1/4 turns as shown in fig-4
3. For 1/8" and 3/16" Fittings only 3/4 turns as shown in fig-3.

Identification of **PANAM** Tube Fittings



The metric size of **PANAM** Tube Fittings have extra stepped shoulder on the body and nut to distinguish them from the imperial size.

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General Information

Material Standards

Material	Bar Stock a	Forging b	Tubing
316 S. S.	ASTM A276 ASME SA479	ASTM A182 ASME SA182	ASME-SA-213 / ASTM-A-213 / 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 ASME SB164	ASTM B564 ASME SB564	
Alloy 600	ASTM B166 ASME SB166	ASTM B564 ASME SB564	ASTM-B-163
Alloy C-276	ASTM B574	ASTM SB564	ASTM-B-622 / ASTM-B-626
Carbon Steel	ASTM A108	-	SAE J524b / SAE J525b / ASTM-A-179
PTFE	ASTM D1710	ASTM D3293	

a Includes straight configurations.

b Includes all 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	450	4000	270	3300	220
3/8	7800	540	5300	360	3900	270	2600	180
1/2	7700	530	4900	330	3800	260	2400	160
3/4	7300	500	4600	320	3600	250	2300	160
1	5300	370	4400	300	2600	180	2200	150
1 1/4	6000	410	5000	350	3000	200	2500	170
1 1/2	5000	340	4600	310	2500	170	2300	150
2	3900	270	3900	270	1900	130	1900	130

To determine working pressure ratings in accordance with ASME B31.1 Power Piping for 316 stainless steel, multiply psig by 0.94; for carbon steel, multiply psig by 0.75. Brass ratings remain the same. To determine working kPa, multiply psig by 6.89.

Stress values based on ASME B31.3 Code for Process Piping

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

SAE/MS Pressure Ratings.

Pressure ratings are from SAE J1926/3.

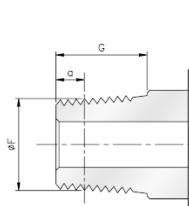
SAE/MS Thread Size	316 SS and Carbon Steel			
	(Nonpositionable)		(Positionable)	
	psig	bar	psig	bar
5/16-24	4568	315	4568	315
7/16-20				
1/2-20			3626	250
9/16-18				
3/4-16	3626	250	2900	200
7/8-14				
1 1/16-12				
1 3/16-12	2900	200	2320	160
1 5/16-12				
1 5/8-12	2320	160	1813	125
1 7/8-12				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

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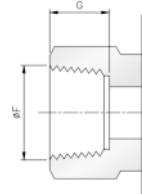
General Information

Standard Thread Sizes

NPT-ANSI B2.1

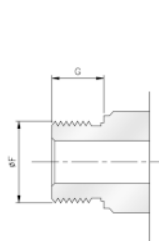


Inches	Ø F	No of threads to inch	a	G
1/8"	10.2	27	4.5	9.5
1/4"	13.5	18	5	14.3
3/8"	17	18	6	14.3
1/2"	21.2	14	8.1	19.1
3/4"	26.5	14	8.6	19.1
1"	33.2	11 1/2	10.1	23.8
1 1/4"	41.9	11 1/2	10.6	23.8
1 1/2"	48	11 1/2	10.6	26.2

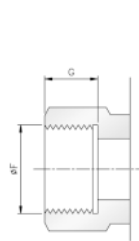


Inches	Ø F	No of threads to inch	G
1/8"	10.2	27	9.5
1/4"	13.5	18	14.3
3/8"	17	18	14.3
1/2"	21.2	14	19.1

BSP Parallel B. S. 2779-1973

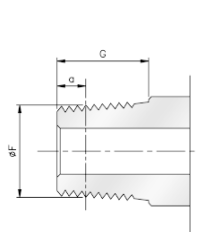


Inches	mm	Ø F	No of threads to inch	G
1/8"	5.10	9.7	28	8
1/4"	8.13	13.1	19	10
3/8"	12.17	16.6	19	10
1/2"	15.21	20.6	14	12
3/4"	21.27	26.4	14	16
1"	26.34	33.2	11	16
1 1/4"	33.42	41.9	11	18
1 1/2"	40.49	47.8	11	18
2"	59.60	59.6	11	20



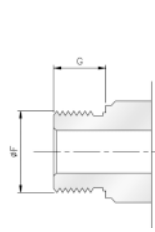
Inches	mm	Ø F	No of threads to inch	G
1/8"	5.10	9.7	28	8
1/4"	8.13	13.1	19	10
3/8"	12.17	16.6	19	10
1/2"	15.21	20.6	14	12
3/4"	21.27	26.4	14	16
1"	26.34	33.2	11	16
1 1/4"	33.42	41.9	11	18
1 1/2"	40.49	47.8	11	18
2"	59.60	59.6	11	20

BSP Taper B. S. 21-1985



Inches	mm	Ø F	No of threads to inch	a	G
1/8"	5.10	9.7	28	4	9.5
1/4"	8.13	13.1	19	6	14.3
3/8"	12.17	16.6	19	6.4	14.3
1/2"	15.21	20.9	14	8.2	19.1
3/4"	21.27	26.4	14	9.5	19.1
1"	26.34	33.2	11	10.4	23.8
1 1/4"	33.42	41.9	11	12.7	23.8
1 1/2"	40.49	47.8	11	12.7	26.2
2"	59.60	59.6	11	15.9	27.0

ISO Metric

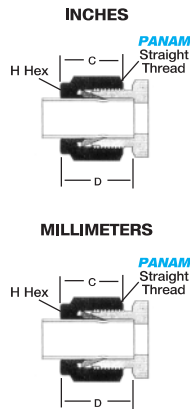


Ø F	G	Ø F	G
8x100	8	24x150	14
10x100	8	26x150	16
12x100	8	27x150	16
12x150	10	30x200	16
12x125	8	33x150	16
14x125	10	33x200	16
14x150	10	39x200	18
16x150	10	42x200	18
18x150	12	45x200	18
20x150	12	48x200	18

Tube End Dimensional Data

INCHES

Size No.	Tube O.D.	PANAM Straight Thread	C	H Hex	E Dia.	D Tube Ins. Depth
1	1/16	10-32	.43	5/16	.052	.34
2	1/8	5/16-20	.60	7/16	.093	.50
3	3/16	3/8-20	.64	1/2	.125	.54
4	1/4	7/16-20	.70	9/16	.187	.60
5	5/16	1/2-20	.73	5/8	.250	.64
6	3/8	9/16-20	.76	11/16	.281	.67
8	1/2	3/4-20	.87	7/8	.406	.90
10	5/8	7/8-20	.87	1	.500	.96
12	3/4	1-20	.87	1-1/8	.625	.96
14	7/8	1-1/8 - 20	.87	1-1/4	.750	1.03
16	1	1-5/16 - 20	1.05	1-1/2	.875	1.24
20	1-1/4	1-5/8 - 20	1.52	1-7/8	1.09	1.61
24	1-1/2	1-15/16 - 20	1.77	2-1/4	1.34	1.96
32	2	2-5/8 - 20	2.47	2-3/4	1.81	2.65



MILLIMETERS

Size No.	Tube O.D.	PANAM Straight Thread	C	H Hex	E Dia.	D Tube Ins. Depth
2	2mm	5/16 - 20	15.3	12.0	1.7	12.9
3	3mm	5/16 - 20	15.3	12.0	2.4	12.9
4	4mm	3/8 - 20	16.1	12.0	2.4	13.7
6	6mm	7/16 - 20	17.7	14.0	4.8	15.3
8	8mm	1/2 - 20	18.6	15.0	6.4	16.2
10	10mm	5/8 - 20	19.5	18.0	7.9	17.2
12	12mm	3/4 - 20	22.0	22.0	9.5	22.8
14	14mm	7/8 - 20	22.0	24.0	11.1	24.4
15	15mm	7/8 - 20	22.0	24.0	11.9	24.4
16	16mm	7/8 - 20	22.0	24.0	12.7	24.4
18	18mm	1 - 20	22.0	27.0	15.1	24.4
20	20mm	1-1/8 - 20	22.0	30.0	15.9	26.0
22	22mm	1-1/8 - 20	22.0	30.0	18.3	26.0
25	25mm	1-5/16 - 20	26.5	35.0	21.8	31.3

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Ordering Information

Fitting Designator

Identifier	Description
PMC	Male Connector
PMCBT	Male Bore Through Connector
PBMC	Bulkhead Male Connector
PME	Male Elbow
PLME	Male Elbow 45°
PMRT	Male Run Tee
PMBT	Male Branch Tee
PFC	Female Connector
PBFC	Bulkhead Female Connector
PFE	Female Elbow
PFRT	Female Run Tee
PFBT	Female Branch Tee
PU	Union
PRU	Reducing Union
PBU	Bulkhead Union
PUE	Union Elbow
PUT	Union Tee
PUC	Union Cross
PR	Reducer
PBR	Bulkhead Reducer
PMA	Male Adapter
PFA	Female Adapter
PPC	Port Connector
PRPC	Reducing Port Connector
PMWC	Male Pipe Weld Connector
PMWE	Male Pipe Weld Elbow
PSWC	Tube Socket Weld Connector
PSWE	Tube Socket Weld Elbow
PTP	Tube Plug
PTC	Tube Cap
PN	Nut
PFF	Front Ferrule
PBF	Back Ferrule

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.

P	MC	04	04	SS
1	2	3	4	5

1. **PANAM** Tube Fitting designated as "P"
2. Name of fittings: see fitting type designator
3. Tube O. D.: see tube O.D. designator
4. Pipe thread end: see pipe threads designator
5. Material: see fitting material designator

Example 1 - Tube to Tube ends.

PANAM Union tube O.D. 1/4" material SS316

P	U	04	04	SS
1	2	3	4	5

Refer to respective designator and symbol.

Example 3 - Tees and Crosses

For tees, the run (1+2) shall precede the branch (3). For Crosses, the run (1 to 2) shall precede the branch (3 to 4).



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

Minimum order quantities may apply to certain materials and configurations. Dimensions, in inches (millimeters).

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	01	02	03	04	05	06	08	10	12	14	16
Tube O.D. (Metric)	2mm	3mm	4mm	6mm	8mm	10mm	12mm	16mm	20mm	22mm	25mm
Identifier	M02	M03	M04	M06	M08	M10	M12	M16	M20	M22	M25

Pipe Thread Size Designator

Nom. Size	Identifier
1/8	02
1/4	04
3/8	06
1/2	08
3/4	12
1	16

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, BS 21, JIS B 0203
ISO/BSP (gauge)	
(Based on DIN 16288-1987)	ISO 228, BS 2779
Unified (SAE)	ASME B 1.1

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Tube Selection Data

Copper Imperial 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	1.0	1.25	1.5	1.65	2.0	2.11	2.41	2.5	2.77	3.0	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	1260	1390	1710	1810	2100	2190	-	-	-
18	-	-	-	915	1100	1220	1510	1600	1840	1930	2160	-	-
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-75 or equivalent
 Allowable Stress = 6,500 psi between -20° F and 100° F
 Safety Factor = 5 considering tensile strength to be 30,000 psi at 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	-	-	-	-
3/4	-	-	2200	3000	4000	4600	-	-
1	-	-	-	2200	2900	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 = 18,5000 psi between -20° F and 100° F
 Safety Factor = 4 considering tensil strength to be 70,000 psi at room temperature

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Tube Selection Data

Stainless Steel Imperial Tubing

Tube O.D.	TUBE WALL THICKNESS (inch)												
inch	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	5200	6000	-	-
3/4	-	-	-	-	-	-	-	2400	3300	4200	4900	5800	-
7/8	-	-	-	-	-	-	-	2000	2800	3600	4200	4800	-
1	-	-	-	-	-	-	-	-	2400	3100	3600	4200	4700

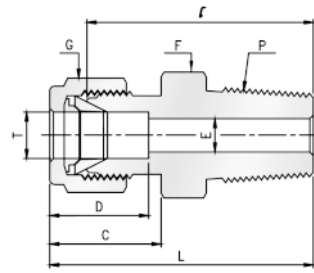
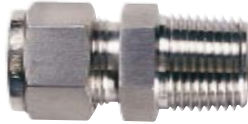
Stainless Steel Metric Tubing

Tube O.D.	TUBE WALL THICKNESS (mm)												
mm	0.71	0.89	1.00	1.25	1.50	1.65	2.0	2.11	2.41	2.580	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 / equal Rb80 or less
 Tubing free of scratches, suitable for bending and flaring
 Allowable Stress = 19,500/6,500 psi between -20° F and 100° F
 Safety Factor= 4 considering tensile strength to be 75,000 psi at room temperature.

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Male Connector

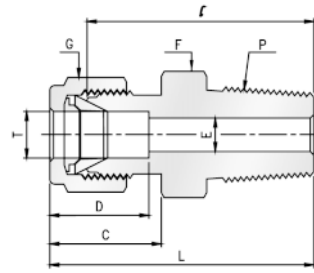
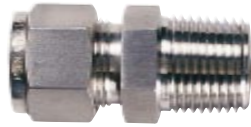


Imperial Range:

Part No.	Tube O. D. T in	P * (NPT)	E Min	Width across flat		D	C	ℓ	L
				F	G				
				in	in				
PMC-01-01	1/16	1/16	1.27	5/16	5/16	8.63	10.92	20.02	23.83
PMC-01-02	1/16	1/8	1.27	7/16	7/16	8.63	10.92	22.52	26.33
PMC-02-02	1/8	1/8	2.28	7/16	7/16	12.70	15.24	23.88	30.48
PMC-02-04	1/8	1/4	2.28	9/16	7/16	12.70	15.24	28.96	35.56
PMC-02-06	1/8	3/8	2.28	11/16	7/16	12.70	15.24	29.21	35.81
PMC-02-08	1/8	1/2	2.28	7/8	7/16	12.70	15.24	35.56	42.16
PMC-03-02	3/16	1/8	3.04	7/16	1/2	13.71	16.00	24.63	31.24
PMC-03-04	3/16	1/4	3.04	9/16	1/2	13.71	16.00	29.71	36.32
PMC-04-02	1/4	1/8	4.82	1/2	9/16	15.24	17.78	25.40	32.76
PMC-04-04	1/4	1/4	4.82	9/16	9/16	15.24	17.78	30.48	37.84
PMC-04-06	1/4	3/8	4.82	11/16	9/16	15.24	17.78	30.99	38.35
PMC-04-08	1/4	1/2	4.82	7/8	9/16	15.24	17.78	37.34	44.70
PMC-04-12	1/4	3/4	4.82	1-1/16	9/16	15.24	17.78	38.86	46.22
PMC-05-02	5/16	1/8	4.82	9/16	5/8	16.25	18.54	26.67	34.03
PMC-05-04	5/16	1/4	6.35	9/16	5/8	16.25	18.54	31.24	38.60
PMC-05-06	5/16	3/8	6.35	11/16	5/8	16.25	18.54	31.75	39.11
PMC-06-02	3/8	1/8	4.82	5/8	11/16	16.76	19.30	27.94	35.30
PMC-06-04	3/8	1/4	7.11	5/8	11/16	16.76	19.30	32.51	39.87
PMC-06-06	3/8	3/8	7.11	11/16	11/16	16.76	19.30	32.51	39.87
PMC-06-08	3/8	1/2	7.11	7/8	11/16	16.76	19.30	38.86	46.22
PMC-06-12	3/8	3/4	7.11	1-1/16	11/16	16.76	19.30	40.39	47.75
PMC-08-02	1/2	1/8	4.82	13/16	7/8	22.86	21.84	28.70	38.86
PMC-08-04	1/2	1/4	7.11	13/16	7/8	22.86	21.84	33.27	43.43
PMC-08-06	1/2	3/8	9.65	13/16	7/8	22.86	21.84	33.27	43.43
PMC-08-08	1/2	1/2	10.41.	7/8	7/8	22.86	21.84	38.86	49.02
PMC-08-12	1/2	3/4	10.41	1-1/16	7/8	22.86	21.84	40.38	50.54
PMC-08-16	1/2	1	10.41	1-3/8	7/8	22.86	21.84	46.99	57.15
PMC-10-06	5/8	3/8	9.65	15/16	1	24.38	21.84	34.03	44.19
PMC-10-08	5/8	1/2	11.93	15/16	1	24.38	21.84	38.86	49.02
PMC-10-12	5/8	3/4	12.70	1-1/16	1	24.38	21.84	40.38	50.54
PMC-12-08	3/4	1/2	11.93	1-1/16	1-1/8	24.38	21.84	40.38	50.54
PMC-12-12	3/4	3/4	15.74	1-1/16	1/1-8	24.38	21.84	40.38	50.54
PMC-12-16	3/4	1	15.74	1- 3/8	1-1/8	24.38	21.84	46.99	57.15
PMC-14-12	7/8	3/4	15.74	1- 3/16	1-1/4	25.90	21.84	40.38	50.54
PMC-14-16	7/8	1	18.28	1-3/8	1-1/4	25.90	21.84	46.99	57.15
PMC-16-08	1	1/2	11.93	1-3/8	1-1/2	31.24	26.41	45.21	57.40
PMC-16-12	1	3/4	15.74	1-3/8	1-1/2	31.24	26.41	45.21	57.40
PMC-16-16	1	1	22.35	1-3/8	1-1/2	31.24	26.41	50.04	62.23

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Male Connector

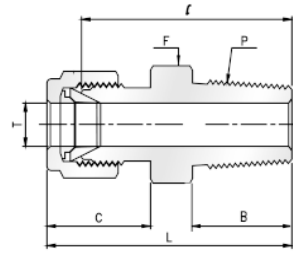
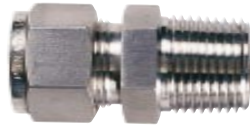


Metric Range:ISO Tapered Thread

Part No.	Tube O. D. T mm	P * R(PT)	E Min	Width across flat		D	C	ℓ	L
				F	G				
				mm	mm				
PMC-M02-02	2	1/8	1.7	12	12	12.9	15.3	23.9	30.5
PMC-M03-02	3	1/8	2.4	12	12	12.9	15.3	23.1	29.7
PMC-M03-04	3	1/4	2.4	14	12	12.9	15.3	29.0	35.6
PMC-M04-02	4	1/8	2.4	12	12	13.7	16.1	24.6	31.2
PMC-M04-04	4	1/4	2.4	14	12	13.7	16.1	29.7	36.3
PMC-M06-02	6	1/8	4.8	14	14	15.3	17.7	25.4	32.8
PMC-M06-04	6	1/4	4.8	14	14	15.3	17.7	30.2	37.6
PMC-M06-06	6	3/8	4.8	17	14	15.3	17.7	31.0	38.4
PMC-M06-08	6	1/2	4.8	22	14	15.3	17.7	36.6	44.0
PMC-M08-02	8	1/8	4.8	15	16	16.2	18.6	26.7	34.2
PMC-M08-04	8	1/4	6.4	15	16	16.2	18.6	31.2	38.7
PMC-M08-06	8	3/8	6.4	17	16	16.2	18.6	31.7	39.2
PMC-M08-08	8	1/2	6.4	22	16	16.2	18.6	37.3	44.8
PMC-M10-02	10	1/8	4.8	18	19	17.2	19.5	28.7	36.3
PMC-M10-04	10	1/4	7.1	18	19	17.2	19.5	33.3	40.9
PMC-M10-06	10	3/8	7.9	18	19	17.2	19.5	33.3	40.9
PMC-M10-08	10	1/2	7.9	22	19	17.2	19.5	38.1	45.7
PMC-M12-04	12	1/4	7.1	22	22	22.8	22.0	33.3	43.4
PMC-M12-06	12	3/8	9.5	22	22	22.8	22.0	33.3	43.4
PMC-M12-08	12	1/2	9.5	22	22	22.8	22.0	38.1	48.2
PMC-M12-12	12	3/4	9.5	27	22	22.8	22.0	38.9	49.0
PMC-M15-08	15	1/2	11.9	24	25	24.4	22.0	38.9	49.0
PMC-M16-04	16	1/4	7.1	24	25	24.4	22.0	34.0	44.1
PMC-M16-06	16	3/8	9.5	24	25	24.4	22.0	34.0	44.1
PMC-M16-08	16	1/2	11.9	24	25	24.4	22.0	38.9	49.0
PMC-M16-12	16	3/4	12.7	27	25	24.4	22.0	38.9	49.0
PMC-M18-08	18	1/2	11.9	27	30	24.4	22.0	40.4	50.5
PMC-M18-12	18	3/4	15.1	27	30	24.4	22.0	40.4	50.5
PMC-M20-08	20	1/2	11.9	30	32	26.0	22.0	42.2	52.3
PMC-M20-12	20	3/4	15.9	30	32	26.0	22.0	42.2	52.3
PMC-M22-12	22	3/4	15.9	30	32	26.0	22.0	42.2	52.3
PMC-M22-16	22	1	18.3	35	32	26.0	22.0	47.8	57.9
PMC-M25-12	25	3/4	15.9	35	38	31.3	26.5	45.2	57.5
PMC-M25-16	25	1	21.8	35	38	31.3	26.5	50.0	62.3

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Male Bore Through Connector

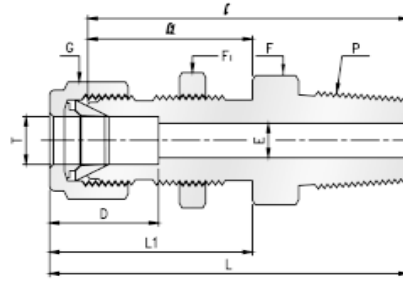


Imperial Range:

Part No.	Tube O. D. T in	P * (NPT)	F HEX	L in	C in	ℓ in	B in
PMCBT-01-01	1/16	1/16	5/16	0.93	0.43	0.78	0.38
PMCBT-01-02	1/16	1/8	7/16	1.03	0.43	0.88	0.38
PMCBT-01-04	1/16	1/4	9/16	1.23	0.43	1.08	0.56
PMCBT-02-01	1/8	1/16	3/8	1.17	0.60	0.91	0.38
PMCBT-02-02	1/8	1/8	7/16	1.20	0.60	0.94	0.38
PMCBT-02-04	1/8	1/4	9/16	1.40	0.60	1.14	0.56
PMCBT-03-02	3/16	1/8	7/16	1.23	0.64	0.97	0.38
PMCBT-03-04	3/16	1/4	9/16	1.43	0.64	1.17	0.56
PMCBT-04-02	1/4	1/8	1/2	1.29	0.70	1.00	0.38
PMCBT-04-04	1/4	1/4	9/16	1.49	0.70	1.20	0.56
PMCBT-04-06	1/4	3/8	11/16	1.60	0.70	1.22	0.56
PMCBT-04-08	1/4	1/2	7/8	1.87	0.70	1.47	0.75
PMCBT-05-04	5/16	1/4	9/16	1.52	0.73	1.22	0.56
PMCBT-06-04	3/8	1/4	5/8	1.57	0.76	1.28	0.56
PMCBT-06-06	3/8	3/8	11/16	1.57	0.76	1.28	0.56
PMCBT-06-08	3/8	1/2	7/8	1.82	0.76	1.53	0.75
PMCBT-06-12	3/8	3/4	1-1/16	1.88	0.76	1.59	0.75
PMCBT-08-08	1/2	1/2	7/8	1.93	0.87	1.53	0.76
PMCBT-08-12	1/2	3/4	1-1/16	1.99	0.87	1.59	0.75
PMCBT-10-12	5/8	3/4	1-1/16	1.99	0.87	1.59	0.75
PMCBT-12-12	3/4	3/4	1-1/16	1.99	0.87	1.59	0.75
PMCBT-16-16	1	1	1-3/8	2.46	1.05	1.97	0.94

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Bulkhead Male Connector



Imperial Range:

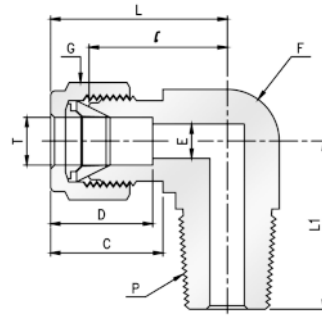
Part No.	Tube O. D. T in	P * (NPT)	E Min	Width across flat			D	l	l ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
				F in	F ₁ in	G in							
PBMC-02-02	1/8	1/8	2.28	1/2	1/2	7/16	12.70	39.88	24.63	46.48	31.24	8.33	12.70
PBMC-04-02	1/4	1/8	4.82	5/8	5/8	9/16	15.24	42.17	26.16	49.53	33.52	11.50	10.16
PBMC-04-04	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
PBMC-06-04	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
PBMC-08-06	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
PBMC-08-08	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	P * (NPT)	E Min	Width across flat			D	l	l ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
				F mm	F ₁ mm	G mm							
PBMC-M06-02	6	1/8	2.28	14	17	14	17	41.90	26.0	51.0	35	11.60	12
PBMC-M06-04	6	1/4	4.82	14	17	14	17	46.90	26.0	56.0	35	11.60	12
PBMC-M10-04	10	1/4	7.11	17	19	19	18	52.10	29.5	60.5	38	16.40	10
PBMC-M12-04	12	1/4	10.40	22	24	22	24	59.70	32.0	71.0	43	19.50	14

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Male Elbow

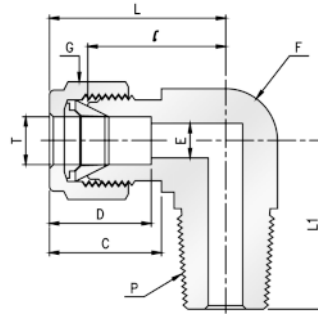


Imperial Range:

Part No.	Tube O. D. T in	P * (NPT)	E Min	Width across flat		D	C	ℓ	L	L ₁
				F in	G in					
PME-02-02	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.31	24.91	18.90
PME-02-04	1/8	1/4	2.28	1/2	7/16	12.70	15.24	18.31	24.91	23.36
PME-03-02	3/16	1/8	3.04	1/2	1/2	13.71	16.00	18.79	25.40	18.79
PME-03-04	3/16	1/4	3.04	1/2	1/2	13.71	16.00	18.79	25.40	23.36
PME-04-02	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.11	26.47	19.10
PME-04-04	1/4	1/4	4.82	1/2	9/16	15.24	17.78	19.82	27.18	23.87
PME-04-06	1/4	3/8	4.82	11/16	9/16	15.24	17.78	22.35	29.71	28.40
PME-04-08	1/4	1/2	4.82	13/16	9/16	15.24	17.78	24.61	31.97	35.10
PME-05-02	5/16	1/8	4.82	9/16	5/8	16.25	18.54	21.34	28.70	19.81
PME-05-04	5/16	1/4	6.35	9/16	5/8	16.25	18.54	22.41	29.77	24.50
PME-05-06	5/16	3/8	6.35	11/16	5/8	16.25	18.54	23.12	30.48	28.40
PME-06-02	3/8	1/8	4.82	5/8	11/16	16.76	19.30	23.12	30.48	20.60
PME-06-04	3/8	1/4	7.11	5/8	11/16	16.76	19.30	23.12	30.48	25.40
PME-06-06	3/8	3/8	7.11	11/16	11/16	16.76	19.30	23.88	31.24	28.44
PME-06-08	3/8	1/2	7.11	13/16	11/16	16.76	19.30	24.06	31.42	33.02
PME-06-12	3/8	3/4	7.11	1-1/16	11/16	16.76	19.30	29.72	37.08	36.83
PME-08-04	1/2	1/4	7.11	13/16	7/8	22.86	21.84	25.90	36.06	28.30
PME-08-06	1/2	3/8	9.65	13/16	7/8	22.86	21.84	25.90	36.06	28.30
PME-08-08	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06	33.02
PME-08-12	1/2	3/4	10.41	1-1/16	7/8	22.86	21.84	29.71	39.87	36.83
PME-10-06	5/8	3/8	9.65	15/16	1	24.38	21.84	26.90	37.06	29.40
PME-10-08	5/8	1/2	11.93	15/16	1	24.38	21.84	26.90	37.06	34.00
PME-10-12	5/8	3/4	12.70	1-1/16	1	24.38	21.84	29.71	39.87	36.83
PME-12-08	3/4	1/2	11.93	1-1/16	1-1/8	24.38	21.84	29.71	39.87	37.00
PME-12-12	3/4	3/4	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87	36.83
PME-14-12	7/8	3/4	15.74	1-1/4	1-1/4	25.90	21.84	34.54	44.70	41.65
PME-16-12	1	3/4	15.74	1- 27/64	1-1/2	31.24	26.41	36.83	49.02	42.20
PME-16-16	1	1	22.35	1- 27/64	1-1/2	31.24	26.41	36.83	49.02	46.70

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Male Elbow

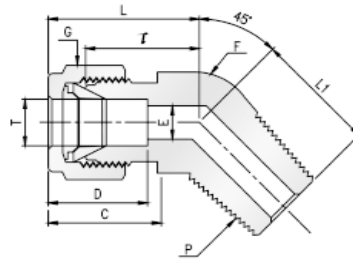


Metric Range: ISO Tapered Thread

Part No.	Tube O. D. T mm	P * R(PT)	E Min	Width across flat		D	C	l	L	L ₁
				F mm	G mm					
PME-M03-02	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
PME-M03-04	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
PME-M04-02	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
PME-M04-04	4	1/4	2.4	12.7	12	13.7	16.1	18.8	25.4	23.4
PME-M06-02	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
PME-M06-04	6	1/4	4.8	12.7	14	15.3	17.7	19.6	27.0	23.4
PME-M06-06	6	3/8	4.8	17.5	14	15.3	17.7	22.4	29.8	26.2
PME-M06-08	6	1/2	4.8	20.6	14	15.3	17.7	24.4	31.8	33.0
PME-M08-02	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
PME-M08-04	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
PME-M08-06	8	3/8	6.4	17.5	16	16.2	18.6	23.1	30.6	28.5
PME-M08-08	8	1/2	6.4	20.6	16	16.2	18.6	25.1	32.6	33.0
PME-M10-02	10	1/8	4.8	17.5	19	17.2	19.5	23.9	31.5	23.6
PME-M10-04	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
PME-M10-06	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	28.2
PME-M10-08	10	1/2	7.9	20.6	19	17.2	19.5	25.9	33.5	33.0
PME-M12-02	12	1/8	4.8	20.6	22	22.8	22.0	25.9	36.0	23.6
PME-M12-04	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
PME-M12-06	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
PME-M12-08	12	1/2	9.5	20.6	22	22.8	22.0	29.7	36.0	33.0
PME-M12-12	12	3/4	9.5	27.0	22	22.8	22.0	27.9	39.8	36.8
PME-M16-06	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.0	30.2
PME-M16-08	16	1/2	11.9	25.4	25	24.4	22.0	29.7	38.0	35.1
PME-M16-12	16	3/4	12.7	27.0	25	24.4	22.0	29.7	39.8	36.8
PME-M18-08	18	1/2	11.9	27.0	30	24.4	22.0	29.7	39.8	36.8
PME-M18-12	18	3/4	15.1	27.0	30	24.4	22.0	34.5	39.8	36.8
PME-M20-08	20	1/2	11.9	31.8	32	26.0	22.0	34.5	44.6	41.7
PME-M20-12	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7
PME-M22-12	22	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7
PME-M22-16	22	1	18.3	36.0	32	26.0	22.0	34.5	44.6	46.5
PME-M25-12	25	3/4	15.9	36.0	38	31.3	26.5	36.8	49.1	41.7
PME-M25-16	25	1	21.8	36.0	38	31.3	26.5	36.8	49.1	46.5

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Male Elbow 45°

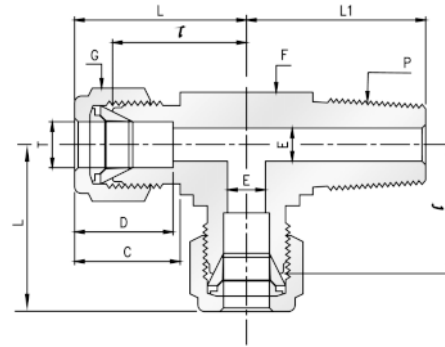


Imperial Range:

Part No.	Tube O. D. T in	p * (NPT)	E Min	Width across flat		D	C	ℓ	L	L ₁
				F in	G in					
PLME-04-02	1/4	1/8	4.82	1/2	9/16	15.24	17.78	17.27	24.63	16.51
PLME-04-04	1/4	1/4	4.82	1/2	9/16	15.24	17.78	17.27	24.63	21.08
PLME-06-02	3/8	1/8	4.82	5/8	11/16	16.76	19.30	20.57	27.94	18.28
PLME-06-04	3/8	1/4	7.11	5/8	11/16	16.76	19.30	20.57	27.94	22.86
PLME-06-06	3/8	3/8	7.11	13/16	11/16	16.76	19.30	21.84	29.21	24.13
PLME-08-06	1/2	3/8	9.65	13/16	7/8	22.86	21.84	21.84	32.00	24.13

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Male Run Tee



Imperial Range:

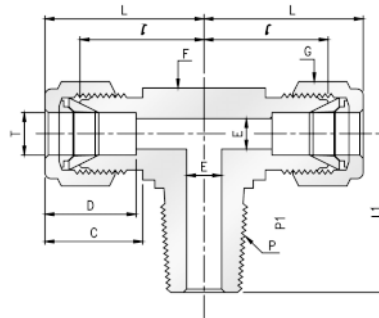
Part No.	Tube O. D. T in	P * (NPT)	E Min	Width across flat		D	C	ℓ	L	L ₁
				F in	G in					
PMRT-02-02	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.31	24.91	18.90
PMRT-02-04	1/8	1/4	2.28	1/2	7/16	12.70	15.24	18.31	24.91	23.36
PMRT-03-02	3/16	1/8	3.04	1/2	1/2	13.71	16.00	17.77	24.38	17.78
PMRT-04-02	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.56	26.92	18.79
PMRT-04-04	1/4	1/4	4.82	1/2	9/16	15.24	17.78	19.72	27.08	23.37
PMRT-05-02	5/16	1/8	4.82	9/16	5/8	16.25	18.54	22.35	29.71	20.82
PMRT-06-04	3/8	1/4	7.11	5/8	1/16	16.76	19.30	23.12	30.48	25.40
PMRT-06-06	3/8	3/8	7.11	11/16	11/16	16.76	19.30	23.88	31.24	26.20
PMRT-08-06	1/2	3/8	9.65	13/16	7/8	22.86	21.84	25.90	36.06	28.19
PMRT-08-08	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06	33.02
PMRT-10-08	5/8	1/2	11.93	15/16	1	24.86	21.84	27.46	38.10	35.05
PMRT-12-12	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	L ₁
				F mm	G mm					
PMRT-M03-02	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.6
PMRT-M03-04	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
PMRT-M04-02	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
PMRT-M06-02	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
PMRT-M06-04	6	1/4	4.8	14.2	14	15.3	17.7	19.6	27.0	23.4
PMRT-M08-02	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
PMRT-M08-04	8	1/4	6.4	17.5	16	16.2	18.6	21.3	28.8	24.4
PMRT-M10-04	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
PMRT-M10-06	10	3/8	7.9	20.6	19	17.2	19.5	23.9	31.5	28.2
PMRT-M12-04	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
PMRT-M12-06	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
PMRT-M12-08	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
PMRT-M16-06	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.0	30.2
PMRT-M16-08	16	1/2	11.9	25.4	25	24.4	22.0	27.9	38.0	35.1
PMRT-M20-12	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Male Branch Tee



Imperial Range:

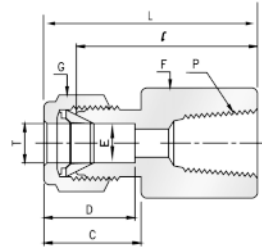
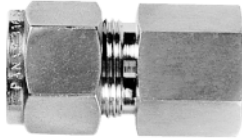
Part No.	Tube O. D. T in	P * (NPT)	E Min	Width across flat		D	C	ℓ	L	L ₁
				F in	G in					
PMBT-02-02	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.31	24.91	18.90
PMBT-02-04	1/8	1/4	2.28	1/2	7/16	12.70	15.24	18.31	24.91	23.36
PMBT-03-02	3/16	1/8	3.04	1/2	1/2	13.71	16.00	17.77	24.38	17.78
PMBT-04-02	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.56	26.92	18.79
PMBT-04-04	1/4	1/4	4.82	1/2	9/16	15.24	17.78	19.72	27.08	23.37
PMBT-05-02	5/16	1/8	4.82	9/16	5/8	16.25	18.54	22.35	29.71	20.82
PMBT-06-04	3/8	1/4	7.11	5/8	1/16	16.76	19.30	23.12	30.48	25.40
PMBT-06-06	3/8	3/8	7.11	11/16	11/16	16.76	19.30	23.88	31.24	26.20
PMBT-08-06	1/2	3/8	9.65	13/16	7/8	22.86	21.84	25.9	36.06	28.19
PMBT-08-08	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.9	36.06	33.02
PMBT-10-08	5/8	1/2	11.93	15/16	1	24.86	21.84	27.46	38.10	35.05
PMBT-12-12	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	L ₁
				F mm	G mm					
PMBT-M03-02	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
PMBT-M03-04	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
PMBT-M04-02	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
PMBT-M06-02	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
PMBT-M06-04	6	1/4	4.8	14.2	14	15.3	17.7	19.6	27.0	23.4
PMBT-M08-02	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
PMBT-M08-04	8	1/4	6.4	17.5	16	16.2	18.6	21.3	28.8	24.4
PMBT-M10-04	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
PMBT-M10-06	10	3/8	7.9	20.6	19	17.2	19.5	23.9	31.5	28.2
PMBT-M12-04	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
PMBT-M12-06	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
PMBT-M12-08	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
PMBT-M16-06	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.0	30.2
PMBT-M16-08	16	1/2	11.9	25.4	25	24.4	22.0	27.9	38.0	35.1
PMBT-M20-12	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7

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Female Connector

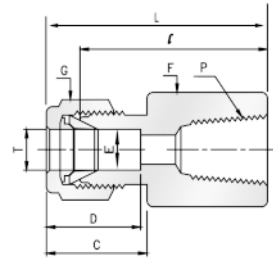
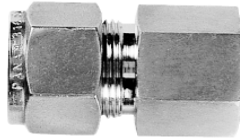


Imperial Range:

Part No.	Tube O. D. T in	P (NPT)	E Min	Width across flat		D	C	l	L
				F	G				
				in	in				
PFC-02-02	1/8	1/8	2.28	9/16	7/16	12.70	15.24	22.10	28.70
PFC-02-04	1/8	1/4	2.28	3/4	7/16	12.70	15.24	26.92	33.52
PFC-03-02	3/16	1/8	3.04	9/16	1/2	13.71	16.00	23.10	29.71
PFC-04-02	1/4	1/8	4.82	9/16	9/16	15.24	17.78	23.88	31.24
PFC-04-04	1/4	1/4	4.82	3/4	9/16	15.24	17.78	28.45	35.81
PFC-04-06	1/4	3/8	4.82	7/8	9/16	15.24	17.78	30.23	37.59
PFC-04-08	1/4	1/2	4.82	1-1/16	9/16	15.24	17.78	35.05	42.41
PFC-05-02	5/16	1/8	6.35	9/16	5/8	16.25	17.78	24.64	32.00
PFC-05-04	5/16	1/4	6.35	3/4	5/8	16.25	18.54	29.47	36.83
PFC-06-02	3/8	1/8	7.11	5/8	11/16	16.76	18.54	25.40	32.76
PFC-06-04	3/8	1/4	7.11	3/4	11/16	16.76	19.30	30.23	37.59
PFC-06-06	3/8	3/8	7.11	7/8	11/16	16.76	19.30	31.75	39.11
PFC-06-08	3/8	1/2	7.11	1-1/16	11/16	16.76	19.30	36.58	43.94
PFC-06-12	3/8	3/4	7.11	1-5/16	11/16	22.86	19.30	40.39	47.75
PFC-08-04	1/2	1/4	10.41	1-3/16	7/8	22.86	19.30	30.22	40.38
PFC-08-06	1/2	3/8	10.41	7/8	7/8	22.86	21.84	31.75	41.91
PFC-08-08	1/2	1/2	10.41	1-1/16	7/8	22.86	21.84	36.57	46.73
PFC-08-12	1/2	3/4	10.41	1-5/16	7/8	24.38	21.84	38.10	48.26
PFC-10-06	5/8	3/8	12.70	15/16	1	24.38	21.84	31.75	41.91
PFC-10-08	5/8	1/2	12.70	1-1/16	1	24.38	21.84	36.57	46.73
PFC-12-08	3/4	1/2	15.74	1-1/16	1-1/8	24.38	21.84	36.57	46.73
PFC-12-12	3/4	3/4	15.74	1-5/16	1-1/8	24.38	21.84	38.10	48.26
PFC-14-12	7/8	3/4	18.28	1-5/16	1-1/4	25.90	21.84	39.62	49.78
PFC-16-12	1	3/4	22.35	1-3/8	1-1/2	31.24	26.41	41.05	53.24
PFC-16-16	1	1	22.35	1-5/8	1-1/2	31.24	26.41	50.04	62.23

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Female Connector

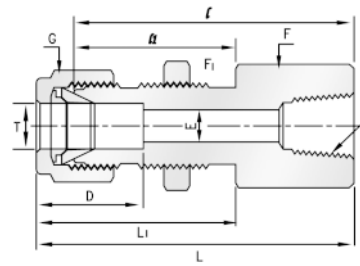


Metric Range: ISO Tapered Thread

Part No.	Tube O. D. T mm	p * R(PT)	E Min	Width across flat		D	C	ℓ	L
				F mm	G mm				
PFC-M03-02	3	1/8	2.4	14	12	12.9	15.3	22.1	28.7
PFC-M03-04	3	1/4	2.4	19	12	12.9	15.3	26.9	33.5
PFC-M04-02	4	1/8	2.4	14	12	13.7	16.1	23.1	29.7
PFC-M06-02	6	1/8	4.8	14	14	15.3	17.7	23.9	31.3
PFC-M06-04	6	1/4	4.8	19	14	15.3	17.7	28.4	35.8
PFC-M06-06	6	3/8	4.8	22	14	15.3	17.7	29.5	36.9
PFC-M06-08	6	1/2	4.8	27	14	15.3	17.7	35.1	42.5
PFC-M08-02	8	1/8	6.4	15	16	16.2	18.6	24.6	32.1
PFC-M08-04	8	1/4	6.4	19	16	16.2	18.6	29.5	37.0
PFC-M08-06	8	3/8	6.4	22	16	16.2	18.6	30.2	37.7
PFC-M08-08	8	1/2	6.4	27	16	16.2	19.5	35.8	43.3
PFC-M10-02	10	1/8	7.9	18	19	17.2	19.5	25.4	33.0
PFC-M10-04	10	1/4	7.9	19	19	17.2	19.5	30.2	37.8
PFC-M10-06	10	3/8	7.9	22	19	17.2	19.5	31.0	38.6
PFC-M10-08	10	1/2	7.9	27	19	17.2	22.0	36.6	44.2
PFC-M12-02	12	1/8	8.3	22	22	22.8	22.0	28.4	38.5
PFC-M12-04	12	1/4	9.5	22	22	22.8	22.0	30.2	40.3
PFC-M12-06	12	3/8	9.5	22	22	22.8	22.0	31.0	41.1
PFC-M12-08	12	1/2	9.5	27	22	22.8	22.0	36.6	46.7
PFC-M12-12	12	3/4	9.5	35	22	22.8	22.0	38.9	49.0
PFC-M15-08	15	1/2	11.9	27	25	24.4	22.0	36.6	46.7
PFC-M16-08	16	1/2	12.7	27	25	24.4	22.0	36.8	46.9
PFC-M20-08	20	1/2	15.9	30	32	26.0	22.0	37.8	47.9
PFC-M20-12	20	3/4	15.9	35	32	26.0	22.0	39.6	49.7
PFC-M22-12	22	3/4	18.3	35	32	26.0	22.0	39.6	49.7
PFC-M22-16	22	1	18.3	41	32	26.0	22.0	47.8	57.9
PFC-M25-12	25	3/4	21.8	35	38	31.3	26.5	41.1	53.4
PFC-M25-16	25	1	21.8	41	38	31.3	26.5	50.0	62.3

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Bulkhead Female Connector



Imperial Range:

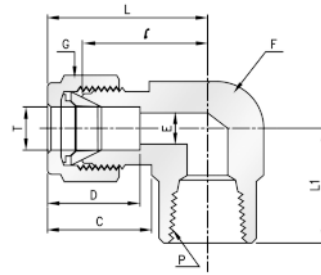
Part No.	Tube O. D. T in	P * (NPT)	E Min	Width across flat			D	l	l ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
				F in	F ₁ in	G in							
PBFC-02-02	1/8	1/8	2.28	9/16	1/2	7/16	12.70	38.10	24.63	44.70	31.24	8.33	12.70
PBFC-04-02	1/4	1/8	4.82	5/8	5/8	9/16	15.24	39.63	26.16	46.99	33.52	11.50	10.16
PBFC-04-04	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
PBFC-06-04	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
PBFC-08-06	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
PBFC-08-08	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
PBFC-12-12	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	P * (NPT)	E Min	Width across flat			D	l	l ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
				F mm	F ₁ mm	G mm							
PBFC-M06-02	6	1/8	4.8	15.8	15.8	14	15.3	39.50	27.7	46.90	35.00	11.5	10.2
PBFC-M06-04	6	1/4	4.8	19.0	16.0	14	15.3	44.40	26.2	51.80	33.60	11.5	10.2
PBFC-M08-04	8	1/4	6.3	19.0	17.4	16	16.2	46.35	28.4	53.85	35.55	13.1	11.2
PBFC-M12-08	12	1/2	9.5	27.0	24.0	22	22.8	56.40	31.8	66.50	41.90	19.5	12.7

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Female Elbow



Imperial Range:

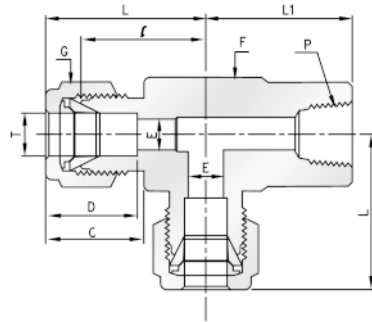
Part No.	Tube O. D. T in	P * (NPT)	E Min	Width across flat		D	C	ℓ	L	L ₁
				F in	G in					
PFE-02-02	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.03	24.63	19.05
PFE-02-04	1/8	1/4	2.28	11/16	7/16	12.70	15.24	21.22	27.82	22.35
PFE-03-02	3/16	1/8	3.04	1/2	1/2	13.71	16.00	18.79	25.40	19.05
PFE-04-02	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.56	26.92	19.05
PFE-04-04	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
PFE-04-06	1/4	3/8	4.82	13/16	9/16	15.24	17.78	24.39	31.75	22.35
PFE-04-08	1/4	1/2	4.82	1	9/16	15.24	17.78	27.18	34.54	28.44
PFE-05-02	5/16	1/8	6.35	9/16	5/8	16.25	18.54	21.34	28.70	19.05
PFE-05-04	5/16	1/4	6.35	11/16	5/8	16.25	18.54	23.12	30.48	22.35
PFE-06-02	3/8	1/8	7.11	5/8	11/16	16.76	19.30	23.12	30.48	19.05
PFE-06-04	3/8	1/4	7.11	11/16	11/16	16.76	19.30	23.88	31.24	22.35
PFE-06-06	3/8	3/8	7.11	13/16	11/16	16.76	19.30	25.91	33.27	22.35
PFE-06-08	3/8	1/2	7.11	1	11/16	16.76	19.30	28.70	36.06	28.44
PFE-08-04	1/2	1/4	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
PFE-08-06	1/2	3/8	10.41	13/16	7/8	22.86	21.84	25.92	36.06	22.35
PFE-08-08	1/2	1/2	10.41	1	7/8	22.86	21.84	28.70	38.86	28.44
PFE-10-06	5/8	3/8	12.70	15/16	1	24.38	21.84	27.94	38.10	20.35
PFE-10-08	5/8	1/2	12.70	1	1	24.38	21.84	29.71	39.87	28.44
PFE-12-08	3/4	1/2	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87	28.44
PFE-12-12	3/4	3/4	15.74	1-1/4	1-1/8	24.38	21.84	34.54	44.70	31.75
PFE-14-12	7/8	3/4	18.28	1-1/4	1-1/4	25.90	21.84	34.54	44.70	31.75
PFE-16-12	1	3/4	22.35	1-27/64	1-1/2	31.24	26.41	36.83	49.02	31.75
PFE-16-16	1	1	22.35	1-11/16	1-1/2	31.24	26.41	38.10	50.29	38.10

Metric Range: ISO Tapered Thread

Part No.	Tube O. D. T mm	P * R(PT)	E Min	Width across flat		D	C	ℓ	L	L ₁
				F mm	G mm					
PFE-M06-04	6	1/4	4.8	17.46	14	15.3	17.7	19.6	27.0	22.40
PFE-M06-06	6	3/8	4.8	20.63	14	15.3	17.7	22.4	29.8	22.40
PFE-M06-08	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.6	28.40
PFE-M08-04	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.40
PFE-M08-08	8	1/2	6.4	20.63	16	16.2	18.6	27.7	35.2	28.40
PFE-M10-04	10	1/4	7.9	17.46	19	17.2	19.5	25.9	33.5	22.35
PFE-M10-06	10	3/8	7.9	20.63	19	17.2	19.5	25.9	33.5	22.40
PFE-M10-08	10	1/2	7.9	25.40	19	17.2	19.5	28.5	36.1	28.40
PFE-M12-06	12	3/8	9.5	20.63	22	22.8	22.0	26.1	36.2	22.35
PFE-M12-08	12	1/2	9.5	25.40	22	22.8	22.0	28.7	38.8	28.40

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Female Run Tee



Imperial Range:

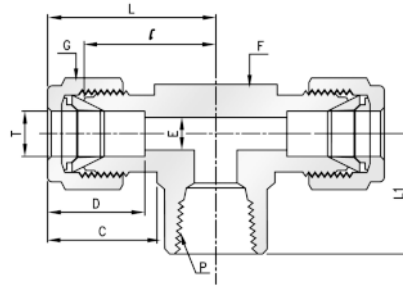
Part No.	Tube O. D. T in	P * (NPT)	E Min	Width across flat		D	C	ℓ	L	L ₁
				F in	G in					
PFRT-02-02	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.03	24.63	19.05
PFRT-04-02	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.56	26.92	19.05
PFRT-04-04	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
PFRT-06-04	3/8	1/4	7.11	11/16	11/16	16.76	19.30	23.88	31.24	22.35
PFRT-08-06	1/2	3/8	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
PFRT-08-08	1/2	1/2	10.41	1	7/8	22.86	21.84	29.71	39.87	28.44
PFRT-12-12	3/4	3/4	15.74	1-1/4	1-1/8	24.38	21.84	34.54	44.70	31.75

Metric Range: ISO Tapered Thread

Part No.	Tube O. D. T mm	P * R(PT)	E Min	Width across flat		D	C	ℓ	L	L ₁
				F mm	G mm					
PFRT-M06-02	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.0
PFRT-M06-04	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.4
PFRT-M06-08	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.6	28.4
PFRT-M08-02	8	1/8	6.4	15.87	16	16.2	18.6	22.4	29.9	19.0
PFRT-M08-04	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.4
PFRT-M08-06	8	3/8	6.4	20.63	16	16.2	18.6	25.2	32.7	22.4
PFRT-M08-08	8	1/2	6.4	25.40	16	16.2	28.6	28.0	35.5	28.4
PFRT-M12-04	12	1/4	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
PFRT-M12-06	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
PFRT-M12-08	12	1/2	9.5	26.98	22	22.8	22.0	29.7	39.8	28.4
PFRT-M16-08	16	1/2	12.7	25.40	25	24.4	22.0	29.7	39.8	28.4

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Female Branch Tee



Imperial Range:

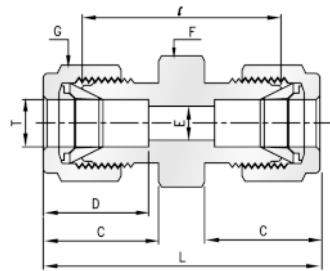
Part No.	Tube O. D. T in	P * (NPT)	E Min	Width across flat		D	C	ℓ	L	L ₁
				F in	G in					
PFBT-02-02	1/8	1/8	2.28	1/2	7/16	12.70	15.24	17.78	24.38	19.05
PFBT-04-02	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.56	26.92	19.05
PFBT-04-04	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
PFBT-06-04	3/8	1/4	7.11	11/16	11/16	16.76	19.30	23.88	31.24	22.35
PFBT-08-04	1/2	1/4	10.41	13/16	7/8	22.86	21.34	25.90	36.06	22.35
PFBT-08-06	1/2	3/8	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
PFBT-08-08	1/2	1/2	10.41	1	1	22.86	21.84	28.70	38.86	28.44
PFBT-10-08	5/8	1/2	12.70	1	1-1/8	24.38	21.84	28.70	38.86	28.44
PFBT-12-12	3/4	3/4	15.74	1-1/4	1-1/8	24.38	21.84	34.54	44.70	31.75
PFBT-16-12	1	3/4	22.35	1-27/64	1-1/2	31.24	26.41	36.83	49.02	31.75
PFBT-16-16	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	L ₁
				F mm	G mm					
PFBT-M06-02	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.0
PFBT-M06-04	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.4
PFBT-M06-06	6	3/8	4.8	20.63	14	15.3	17.7	24.3	31.7	22.4
PFBT-M06-08	6	1/2	4.8	25.40	14	15.3	17.7	27.3	34.7	28.4
PFBT-M08-02	8	1/8	6.4	15.87	16	16.2	18.6	22.4	29.9	19.0
PFBT-M08-04	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.4
PFBT-M08-06	8	3/8	6.4	20.63	16	16.2	18.6	24.9	32.4	22.4
PFBT-M08-08	8	1/2	6.4	25.40	16	16.2	18.6	27.7	35.2	28.4
PFBT-M10-04	10	1/4	7.9	20.63	19	17.2	19.5	25.9	33.5	22.4
PFBT-M10-06	10	3/8	7.9	20.63	19	17.2	19.5	25.7	33.3	22.4
PFBT-M10-08	10	1/2	9.5	25.40	19	17.2	19.5	26.0	33.6	22.4
PFBT-M12-04	12	1/4	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
PFBT-M12-06	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
PFBT-M12-08	12	1/2	9.5	25.40	22	22.8	22.0	29.9	40.0	28.4
PFBT-M16-08	16	1/2	12.7	25.4	25	24.4	22.0	28.7	38.8	28.7

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Union



Imperial Range:

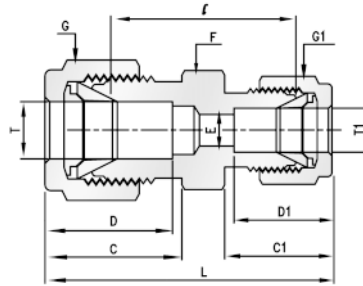
Part No.	Tube O. D. T in	E Min	Width across flat		D	C	ℓ	L
			F	G				
			in	in				
PU-01	1/16	1.27	5/16	5/16	8.63	10.91	17.53	25.15
PU-02	1/8	2.28	7/16	7/16	12.70	15.24	22.36	35.56
PU-03	3/16	3.04	7/16	1/2	13.71	16.00	24.11	37.33
PU-04	1/4	4.82	1/2	9/16	15.24	17.78	26.17	40.89
PU-05	5/16	6.35	9/16	5/8	16.25	18.54	28.20	42.92
PU-06	3/8	7.11	5/8	11/16	16.76	19.30	30.23	44.95
PU-08	1/2	10.41	13/16	5/8	22.86	21.84	30.98	51.30
PU-10	5/8	12.70	15/16	1	24.38	21.84	31.75	52.07
PU-12	3/4	15.74	1-1/16	1-1/8	24.38	21.84	33.27	53.59
PU-14	7/8	18.28	1-3/16	1-1/4	25.90	21.84	35.05	55.37
PU-16	1	22.35	1-3/8	1-1/2	31.24	26.41	40.39	64.77

Metric Range:

Part No.	Tube O. D. T mm	E Min	Width across flat		D	C	ℓ	L
			F	G				
			mm	mm				
PU-M02	2	1.7	12	12	12.9	15.3	22.4	35.6
PU-M03	3	2.4	12	12	12.9	15.3	22.1	35.3
PU-M04	4	2.4	12	12	13.7	16.1	24.1	37.3
PU-M06	6	4.8	14	14	15.3	17.7	26.2	41.0
PU-M08	8	6.4	15	16	16.2	18.6	28.2	43.2
PU-M10	10	7.9	18	19	17.2	19.5	31.0	46.2
PU-M12	12	9.5	22	22	22.8	22.0	31.0	51.2
PU-M15	15	11.9	24	25	24.4	22.0	31.8	52.0
PU-M20	20	15.9	30	32	26.0	22.0	34.8	55.0
PU-M22	22	18.3	30	32	26.0	22.0	34.8	55.0
PU-M25	25	21.8	35	38	31.3	26.5	40.4	65.0

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Reducing Union



Imperial Range:

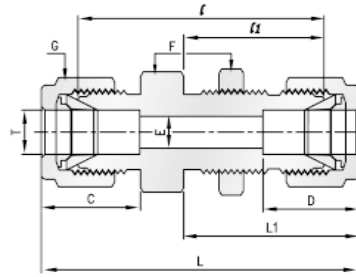
Part No.	Tube O. D.		E Min	Width across flat			D	D ₁	C	C ₁	ℓ	L
	T	T ₁		F	G	G ₁						
	in	in										
PRU-02-01	1/8	1/16	1.27	7/16	7/16	5/16	12.7	8.63	15.24	10.92	17.71	30.91
PRU-03-02	3/16	1/8	2.28	7/16	1/2	7/16	13.71	12.70	16.00	15.24	23.35	36.57
PRU-04-02	1/4	1/8	2.28	1/2	9/16	7/16	15.24	12.70	17.78	15.24	23.88	38.60
PRU-04-03	1/4	3/16	3.04	1/2	9/16	1/2	15.24	13.71	17.78	16.00	25.40	39.37
PRU-05-02	5/16	1/8	2.28	9/16	5/8	7/16	16.25	12.70	18.54	15.24	25.90	39.87
PRU-05-04	5/16	1/4	4.82	9/16	11/16	9/16	16.25	15.24	18.54	17.78	27.43	42.16
PRU-06-02	3/8	1/8	2.28	5/8	11/16	7/16	16.76	12.70	19.30	15.24	26.92	40.89
PRU-06-04	3/8	1/4	4.82	5/8	11/16	9/16	16.76	15.24	19.30	17.78	28.44	43.18
PRU-06-05	3/8	5/16	6.35	5/8	7/8	5/8	16.76	16.25	19.30	18.54	29.46	44.19
PRU-08-02	1/2	1/8	2.28	13/16	7/8	7/16	22.86	12.70	21.84	15.24	28.44	45.21
PRU-08-04	1/2	1/4	4.82	13/16	7/8	9/16	22.86	15.24	21.84	17.78	29.46	46.99
PRU-08-06	1/2	3/8	7.11	13/16	1	11/16	22.86	16.76	17.78	19.30	30.98	48.51
PRU-10-06	5/8	3/8	7.11	15/16	1	11/16	24.38	16.76	21.84	19.30	31.75	49.27
PRU-10-08	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
PRU-12-04	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
PRU-12-06	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
PRU-12-08	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
PRU-12-10	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
PRU-16-08	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
PRU-16-12	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	D ₁	C	C ₁	ℓ	L
	T	T ₁		F	G	G ₁						
	mm	mm										
PRU-M06-03	6	3	2.4	14	14	12	15.3	12.9	17.7	15.3	24.6	38.6
PRU-M06-04	6	4	2.4	14	14	12	15.3	13.7	17.7	16.1	25.4	39.4
PRU-M08-06	8	6	4.8	15	16	14	16.2	15.3	18.6	17.7	27.4	42.3
PRU-M10-06	10	6	4.8	18	19	14	17.2	15.3	19.5	17.7	29.5	44.5
PRU-M10-08	10	8	6.4	18	19	16	17.2	16.2	19.5	18.6	30.0	45.1
PRU-M12-06	12	6	4.8	22	22	14	22.8	15.3	22.0	17.7	29.5	47.0
PRU-M12-08	12	8	6.4	22	22	16	22.8	16.2	22.0	18.6	30.2	47.8
PRU-M12-10	12	10	7.9	22	22	19	22.8	17.2	22.0	19.5	31.0	48.7
PRU-M16-12	16	12	9.5	24	25	22	24.4	22.8	22.0	22.0	31.8	52.0
PRU-M25-18	25	18	15.1	35	38	30	31.3	24.4	26.5	22.0	38.6	61.0
PRU-M25-20	25	20	15.9	35	38	32	31.3	26.0	26.5	22.0	39.9	62.3

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Bulkhead Union



Imperial Range:

Part No.	Tube O. D. T in	E Min	Width across flat		D	C	l	l ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
			F	G								
			Min	in								
PBU-01	1/16	1.27	5/16	5/16	8.63	10.92	23.88	13.46	31.50	17.27	5.16	3.05
PBU-02	1/8	2.28	1/2	7/16	12.70	15.24	38.10	24.63	51.30	31.24	8.33	12.70
PBU-03	3/16	3.04	9/16	1/2	13.71	16.00	40.37	25.40	53.59	32.00	9.92	12.70
PBU-04	1/4	4.82	5/8	9/16	15.24	17.78	42.93	26.16	57.65	35.52	11.50	10.16
PBU-05	5/16	6.35	11/16	5/8	16.25	18.54	45.98	28.44	60.70	35.81	13.09	11.17
PBU-06	3/8	7.11	3/4	11/16	16.76	19.30	47.51	29.46	62.23	36.83	14.65	11.17
PBU-08	1/2	10.41	15/16	7/8	22.86	21.84	50.80	31.75	71.12	41.91	19.44	12.70
PBU-10	5/8	12.70	1-1/16	1	24.38	21.84	52.32	32.51	72.64	42.67	22.62	12.70
PBU-12	3/4	15.74	1-3/16	1-18	24.38	21.84	58.67	37.33	78.99	47.49	25.79	16.76
PBU-14	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
PBU-16	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

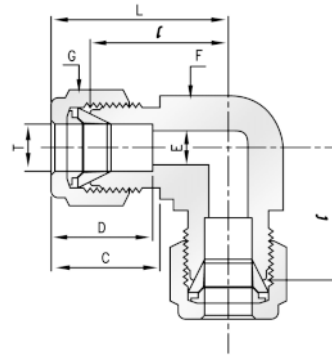
Metric Range:

Part No.	Tube O. D. T mm	E Min	Width across flat			D	C	l	l ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
			F	F ₁	G								
			mm	mm	mm								
PBU-M03	3	2.4	14	12.7	12	12.9	15.3	38.1	24.6	51.3	31.2	8.3	12.7
PBU-M04	4	2.4	14	14.3	12	13.7	15.3	40.4	25.4	53.6	32.0	9.9	12.7
PBU-M06	6	4.8	16	15.9	14	15.3	16.1	42.9	26.2	57.7	33.6	11.5	10.2
PBU-M08	8	6.4	16	17.5	16	16.2	17.7	46.0	28.6	61.0	36.1	13.1	11.2
PBU-M10	10	7.9	22	22.0	19	17.2	18.6	48.5	29.4	63.7	37.0	16.2	11.2
PBU-M12	12	9.5	24	23.8	22	22.8	19.5	50.8	31.8	71.0	41.9	19.5	12.7
PBU-M15	15	11.9	27	27.0	25	24.4	22.0	52.3	32.5	72.5	42.6	22.8	12.7
PBU-M16	16	12.7	27	27.0	25	24.4	22.0	52.3	32.5	72.5	42.6	22.8	12.7
PBU-M18	18	15.1	30	30.0	30	24.4	22.0	58.7	37.7	78.9	47.4	26.0	16.8
PBU-M20	20	15.9	35	35.0	32	26.0	22.0	64.3	42.9	84.5	53.0	29.0	17.0
PBU-M22	22	18.3	35	35.0	32	26.0	22.0	64.3	42.9	84.5	53.0	29.0	19.1
PBU-M25	25	21.8	41.3	41.3	38	31.3	26.5	71.4	45.2	95.9	57.5	33.7	19.1

● Metric Tubes Bulkhead Hexgon Application Only

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Union Elbow



Imperial Range:

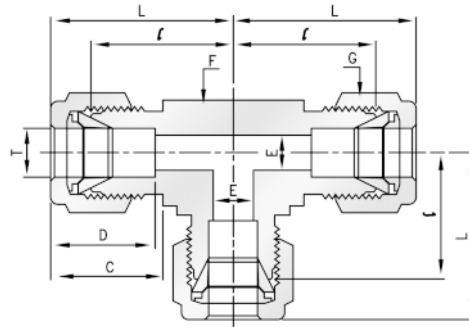
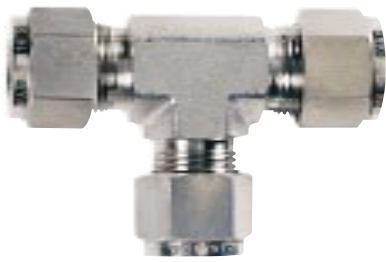
Part No.	Tube O. D. T in	E Min	Width across flat		D	C	ℓ	L
			F	G				
			in	in				
PUE-01	1/16	1.27	3/8	5/16	8.63	10.92	14.07	17.88
PUE-02	1/8	2.28	3/8	7/16	12.70	15.24	15.75	22.35
PUE-03	3/16	3.04	1/2	1/2	13.71	16.00	17.77	24.38
PUE-04	1/4	4.82	1/2	9/16	15.24	17.78	19.56	26.92
PUE-05	5/16	6.35	9/16	5/8	16.25	18.54	21.34	28.70
PUE-06	3/8	7.11	5/8	11/16	16.76	19.30	23.12	30.48
PUE-08	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06
PUE-10	5/8	12.70	15/16	1	24.38	21.84	28.64	38.80
PUE-12	3/4	15.74	1-1/6	1-1/8	24.38	21.84	29.71	39.87
PUE-14	7/8	18.28	1-1/4	1-1/4	25.90	21.84	34.54	44.70
PUE-16	1	22.35	1-27/64	1-1/2	31.24	26.41	36.83	49.02

Metric Range:

Part No.	Tube O. D. T mm	E Min	Width across flat		D	C	ℓ	L
			F	G				
			mm	mm				
PUE-M02	2	1.7	9.5	12	12.9	15.3	15.7	22.3
PUE-M03	3	2.4	9.5	12	12.9	15.3	15.7	22.3
PUE-M04	4	2.4	12.7	12	13.7	16.4	18.8	25.4
PUE-M06	6	4.8	12.7	14	15.3	17.7	19.6	27.0
PUE-M08	8	6.4	14.3	16	16.2	18.6	21.3	28.8
PUE-M10	10	7.9	17.5	19	17.2	19.5	23.9	31.5
PUE-M12	12	9.5	20.6	22	22.8	22.0	25.9	36.0
PUE-M15	15	11.9	25.4	25	24.4	22.0	28.7	38.8
PUE-M16	16	12.7	25.4	25	24.4	22.0	28.7	38.8
PUE-M18	18	15.1	27.0	30	24.4	22.0	29.7	39.8
PUE-M20	20	15.9	31.8	32	26.0	22.0	32.5	42.6
PUE-M22	22	18.3	31.8	32	26.0	22.0	32.5	42.6
PUE-M25	25	21.8	36.0	38	31.3	26.5	36.8	49.1

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Union Tee



Imperial Range:

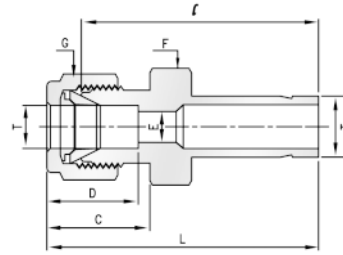
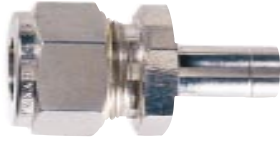
Part No.	Tube O. D. T in	E Min	Width across flat		D	C	ℓ	L
			F in	G in				
PUT-01	1/16	1.27	3/8	5/16	8.63	10.92	14.07	17.88
PUT-02	1/8	2.28	3/8	7/16	12.70	15.24	15.75	22.35
PUT-03	3/16	3.04	1/2	1/2	13.71	16.00	17.77	24.38
PUT-04	1/4	4.82	1/2	9/16	15.24	17.78	19.56	26.92
PUT-05	5/16	6.35	9/16	5/8	16.25	18.54	21.34	28.70
PUT-06	3/8	7.11	5/8	11/16	16.76	19.30	23.12	30.48
PUT-08	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06
PUT-10	5/8	12.70	15/16	1	24.38	21.84	28.64	38.80
PUT-12	3/4	15.74	1-1/6	1-1/8	24.38	21.84	29.71	39.87
PUT-14	7/8	18.28	1-1/4	1-1/4	25.90	21.84	34.54	44.70
PUT-16	1	22.35	1-27/64	1-1/2	31.24	26.41	36.83	49.02

Metric Range:

Part No.	Tube O. D. T mm	E Min	Width across flat		D	C	ℓ	L
			F mm	G mm				
PUT-M02	2	1.7	9.5	12	12.9	15.3	15.7	22.3
PUT-M03	3	2.4	9.5	12	12.9	15.3	15.7	22.3
PUT-M04	4	2.4	12.7	12	13.7	16.1	18.8	25.4
PUT-M06	6	4.8	12.7	14	15.3	17.7	19.6	27.0
PUT-M08	8	6.4	14.3	16	16.2	18.6	21.3	28.8
PUT-M10	10	7.9	17.5	19	17.2	19.5	23.9	31.5
PUT-M12	12	9.5	20.6	22	22.8	22.0	25.9	36.0
PUT-M15	15	11.9	25.4	25	24.4	22.0	28.7	38.8
PUT-M16	16	12.7	25.4	25	24.4	22.0	28.7	38.8
PUT-M18	18	15.1	27.0	30	24.4	22.0	29.7	39.8
PUT-M20	20	15.9	31.8	32	26.0	22.0	32.5	42.6
PUT-M22	22	18.3	31.8	32	26.0	22.0	32.5	42.6
PUT-M25	25	21.8	36.0	38	31.3	26.5	36.8	49.1

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Reducer

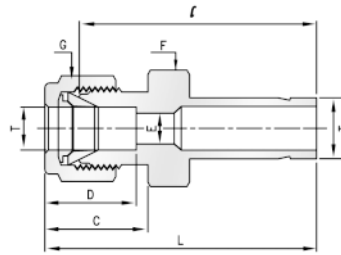


Imperial Range:

Part No.	Tube O. D.		E Min	Width across flat		D	C	l	L
	T in	T ₁ in		F in	G in				
PR-02-01	1/8	1/16	0.76	7/16	7/16	12.70	15.24	22.35	28.95
PR-02-02	1/8	1/8	2.03	7/16	7/16	12.70	15.24	26.92	33.52
PR-02-03	1/8	3/16	2.28	7/16	7/16	12.70	15.24	27.69	34.29
PR-02-04	1/8	1/4	2.28	7/16	7/16	12.70	15.24	29.46	36.06
PR-02-06	1/8	3/8	2.28	7/16	7/16	12.70	15.24	30.99	37.59
PR-02-08	1/8	1/2	2.28	9/16	7/16	12.70	15.24	37.59	44.19
PR-03-02	3/16	1/8	2.03	7/16	1/2	13.71	16.00	28.18	34.79
PR-03-04	3/16	1/4	3.04	7/16	1/2	13.71	16.00	30.47	37.08
PR-04-02	1/4	1/8	2.03	1/2	9/16	15.24	17.78	29.47	36.83
PR-04-03	1/4	3/16	3.04	1/2	9/16	15.24	17.78	30.23	37.59
PR-04-04	1/4	1/4	4.82	1/2	9/16	15.24	17.78	31.75	39.11
PR-04-05	1/4	5/16	4.82	1/2	9/16	15.24	17.78	32.51	39.87
PR-04-06	1/4	3/8	4.82	1/2	9/16	15.24	17.78	33.28	40.64
PR-04-08	1/4	1/2	4.82	9/16	9/16	15.24	17.78	38.86	46.22
PR-04-10	1/4	5/8	4.82	11/16	9/16	15.24	17.78	40.64	48.00
PR-04-12	1/4	3/4	4.82	13/16	9/16	15.24	17.78	40.39	47.75
PR-05-06	5/16	3/8	6.35	9/16	5/8	16.25	18.54	34.55	41.91
PR-05-08	5/16	1/2	6.35	9/16	5/8	16.25	18.54	40.13	47.49
PR-06-04	3/8	1/4	4.82	5/8	11/16	16.76	19.30	34.04	41.40
PR-06-06	3/8	3/8	7.11	5/8	11/16	16.76	19.30	35.82	43.18
PR-06-08	3/8	1/2	7.11	5/8	11/16	16.76	19.30	41.15	48.51
PR-06-10	3/8	5/8	7.11	11/16	11/16	16.76	19.30	42.93	50.29
PR-06-12	3/8	3/4	7.11	13/16	11/16	16.76	19.30	42.93	50.29
PR-08-04	1/2	1/4	4.82	13/16	7/8	22.86	21.84	34.79	44.95
PR-08-06	1/2	3/8	7.11	13/16	7/8	22.86	21.84	36.57	46.73
PR-08-08	1/2	1/2	9.90	13/16	7/8	22.86	21.84	42.16	52.32
PR-08-10	1/2	5/8	10.41	13/16	7/8	22.86	21.84	43.68	53.84
PR-08-12	1/2	3/4	10.41	13/16	7/8	22.86	21.84	43.68	53.84
PR-08-16	1/2	1	10.41	1-1/16	7/8	22.86	21.84	50.03	60.19
PR-10-12	5/8	3/4	12.70	15/16	1	24.38	21.84	44.45	54.61
PR-10-14	5/8	7/8	12.70	15/16	1	24.38	21.84	45.97	56.13
PR-10-16	5/8	1	12.70	1-1/16	1	24.38	21.84	50.80	60.96
PR-12-08	3/4	1/2	9.90	1-1/16	1-1/8	24.38	21.84	44.45	54.61
PR-12-16	3/4	1	15.74	1-1/16	1-1/8	24.38	21.84	52.32	62.48

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Reducer

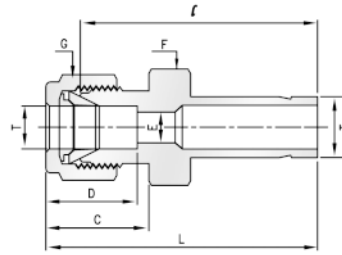
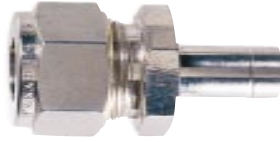


Metric Range:

Part No.	Tube O. D.		E Min	Width across flat		D	C	l	L
	T	T ₁		F	G				
	mm	mm		mm	mm				
PR-M03-M04	3	4	2.4	12	12	12.9	15.3	28.4	35.0
PR-M03-M06	3	6	2.4	12	12	12.9	15.3	29.5	36.1
PR-M03-M10	3	10	2.4	12	12	12.9	15.3	31.8	38.4
PR-M04-M06	4	6	2.4	12	12	13.7	16.1	30.5	37.1
PR-M06-M03	6	3	1.8	14	14	15.3	17.7	29.5	36.9
PR-M06-M08	6	8	4.8	14	14	15.3	17.7	32.5	39.9
PR-M06-M10	6	10	4.8	14	14	15.3	17.7	33.3	40.7
PR-M06-M12	6	12	4.8	14	14	15.3	17.7	38.9	46.3
PR-M08-M06	8	6	4.6	15	16	16.2	18.6	32.8	40.3
PR-M08-M10	8	10	6.4	15	16	16.2	18.6	34.5	42.0
PR-M08-M12	8	12	6.4	15	16	16.2	18.6	40.1	47.6
PR-M10-M06	10	6	4.6	18	19	17.2	19.5	34.8	42.4
PR-M10-M12	10	12	7.9	18	19	17.2	19.5	42.2	49.8
PR-M10-M15	10	15	7.9	18	19	17.2	19.5	43.7	51.3
PR-M10-M18	10	18	7.9	19	19	17.2	19.5	43.7	51.3
PR-M12-M06	12	6	4.6	22	22	22.8	22.0	34.8	44.9
PR-M12-M10	12	10	7.7	22	22	22.8	22.0	36.6	46.7
PR-M12-M16	12	16	9.5	22	22	22.8	22.0	43.7	53.8
PR-M12-M18	12	18	9.5	22	22	22.8	22.0	43.7	53.8
PR-M12-M20	12	20	9.5	22	22	22.8	22.0	46.0	56.1
PR-M12-M22	12	22	9.5	24	22	22.8	22.0	46.0	56.1
PR-M12-M25	12	25	9.5	27	22	22.8	22.0	52.3	62.4
PR-M16-M12	16	12	9.1	24	25	24.4	22.0	42.9	53.0
PR-M18-M12	18	12	9.1	27	30	24.4	22.0	44.5	54.6
PR-M18-M16	18	16	12.7	27	30	24.4	22.0	46.0	56.1
PR-M18-M20	18	20	15.1	27	30	24.4	22.0	47.5	57.6
PR-M18-M22	18	22	15.1	27	30	24.4	22.0	47.5	57.6
PR-M18-M25	18	25	15.1	27	30	24.4	22.0	52.3	62.4
PR-M20-M16	20	16	12.7	30	32	24.4	22.0	47.8	57.9
PR-M20-M18	20	18	13.9	30	32	26.0	22.0	47.8	57.9
PR-M20-M22	20	22	15.8	30	32	26.0	22.0	49.3	59.4
PR-M20-M25	20	25	15.8	30	32	26.0	22.0	54.1	64.2
PR-M22-M18	22	18	13.9	30	32	26.0	22.0	47.8	57.9
PR-M22-M20	22	20	15.1	30	32	26.0	22.0	49.3	59.4
PR-M22-M25	22	25	18.3	30	32	26.0	22.0	54.1	64.2
PR-M25-M18	25	18	13.9	35	38	31.3	26.5	50.8	63.1
PR-M25-M20	25	20	15.1	35	38	31.3	26.5	52.3	64.6

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

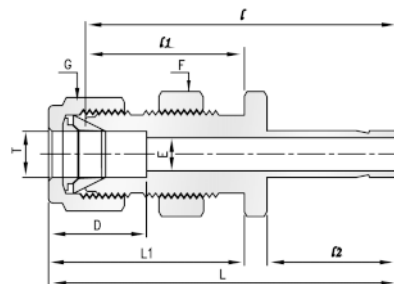
Reducer



Metric To Fractional Range:

Part No.	Tube O. D.		E Min	Width across flat		D	C	l	L
	T	T ₁		F	G				
	mm	in		mm	mm				
PR-M03-02	3	1/8	2.0	12	12	12.9	15.3	26.9	33.5
PR-M03-04	3	1/4	2.4	12	12	12.9	15.3	29.5	36.1
PR-M06-04	6	1/4	4.8	14	14	15.3	17.7	31.8	39.2
PR-M06-05	6	5/16	4.8	14	14	15.3	17.7	32.5	39.9
PR-M06-06	6	3/8	4.8	14	14	15.3	17.7	33.3	40.7
PR-M06-08	6	1/2	4.8	14	14	15.3	17.7	38.9	46.3
PR-M08-06	8	3/8	6.4	15	16	16.2	18.6	34.5	42.0
PR-M08-08	8	1/2	6.4	15	16	16.2	18.6	40.1	47.6
PR-M10-06	10	3/8	7.1	18	19	17.2	19.5	36.6	44.2
PR-M10-08	10	1/2	7.9	18	19	17.2	19.5	42.2	49.8
PR-M12-08	12	1/2	9.5	22	22	22.8	22.0	42.2	52.3
PR-M12-12	12	3/4	9.5	22	22	22.8	22.0	43.7	53.8
PR-M18-12	18	3/4	15.1	27	30	24.4	22.0	46.0	56.1
PR-M18-16	18	1	15.1	27	30	24.4	22.0	52.3	62.4

Bulkhead Reducer

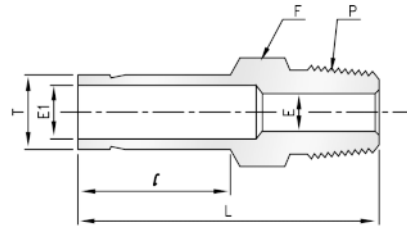


Imperial Range:

Part No.	Tube O. D. T in	E Min	Width across flat		D	l	l ₁	l ₂	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
			F	G								
			Min	in								
PBR-02-02	1/8	2.03	1/2	7/16	12.70	42.93	24.63	13.46	49.53	31.24	8.33	12.70
PBR-04-04	1/4	4.82	5/8	9/16	15.24	48.44	26.16	15.74	55.88	33.52	11.50	10.16
PBR-06-06	3/8	7.11	3/4	11/16	16.76	53.85	29.46	17.52	61.21	36.83	14.68	11.17
PBR-08-08	1/2	10.41	15/16	7/8	22.86	62.73	31.75	23.11	72.89	41.91	19.44	12.70

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Male Adapter

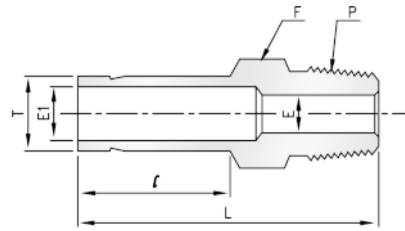


Imperial Range:

Part No.	Tube O. D. T in	P* (NPT)	E min.	E ₁	Width across flat	ℓ	L
					F in		
PMA-02-02	1/8	1/8	4.57	1.77	7/16	13.45	29.50
PMA-02-04	1/8	1/4	7.11	1.77	9/16	13.45	34.80
PMA-03-02	3/16	1/8	4.57	3.04	7/16	14.20	30.22
PMA-03-04	3/16	1/4	7.11	3.04	9/16	14.20	35.56
PMA-04-02	1/4	1/8	4.57	4.57	7/16	15.75	31.80
PMA-04-04	1/4	1/4	7.11	4.57	9/16	15.75	37.08
PMA-04-06	1/4	3/8	10.41	4.57	11/16	15.75	37.84
PMA-04-08	1/4	1/2	12.70	4.57	7/8	16.80	43.43
PMA-05-02	5/16	1/8	4.57	6.35	7/16	16.80	32.76
PMA-05-04	5/16	1/4	7.11	6.35	9/16	17.50	38.10
PMA-06-02	3/8	1/8	4.57	7.11	7/16	17.50	33.50
PMA-06-04	3/8	1/4	7.11	7.11	9/16	17.50	38.90
PMA-06-06	3/8	3/8	10.41	7.11	11/16	17.50	39.60
PMA-06-08	3/8	1/2	12.70	7.11	7/8	23.20	45.20
PMA-08-04	1/2	1/4	7.11	9.90	9/16	23.20	44.50
PMA-08-06	1/2	3/8	10.41	9.90	11/16	23.20	45.20
PMA-08-08	1/2	1/2	12.70	9.90	7/8	24.70	50.50
PMA-10-06	5/8	3/8	10.41	12.70	11/16	24.70	47.40
PMA-10-08	5/8	1/2	12.70	12.70	7/8	24.70	52.30
PMA-10-12	5/8	3/4	18.28	12.70	1-1/16	24.70	52.30
PMA-12-08	3/4	1/2	12.70	14.98	7/8	24.70	52.30
PMA-12-12	3/4	3/4	18.28	14.98	1-1/16	24.70	52.30
PMA-12-16	3/4	1	22.35	14.98	1-3/8	24.70	57.91
PMA-14-12	7/8	3/4	18.28	17.27	1-1/16	26.70	54.30
PMA-16-12	1	3/4	18.28	20.06	1-1/16	31.70	58.70
PMA-16-16	1	1	22.35	20.06	1-3/8	31.70	66.0

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Male Adapter

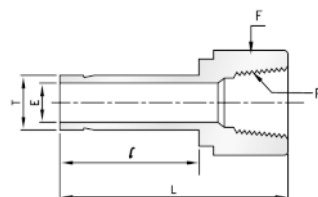
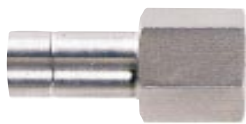


Metric Range:

Part No.	Tube O. D. T mm	P* (NPT)	E min.	E ₁	Width across flat	ℓ	L
					F mm		
PMA-M03-02	3	1/8	4.0	1.8	12	13.15	29.4
PMA-M06-02	6	1/8	4.6	4.6	12	15.75	32.8
PMA-M06-04	6	1/4	4.6	4.6	14	15.75	38.1
PMA-M08-04	8	1/4	6.3	6.3	14	16.50	39.1
PMA-M10-04	10	1/4	7.7	7.7	14	17.50	39.9
PMA-M10-06	10	3/8	7.7	7.7	17	17.50	40.6
PMA-M10-08	10	1/2	11.9	7.7	22	17.50	45.2
PMA-M12-04	12	1/4	7.1	9.1	14	23.50	46.5
PMA-M12-06	12	3/8	9.1	9.1	17	23.50	46.2
PMA-M12-08	12	1/2	11.9	9.1	22	23.50	51.8
PMA-M18-08	18	1/2	11.9	13.9	22	24.90	53.2
PMA-M18-12	18	3/4	15.9	13.9	27	24.90	53.2

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Female Adapter

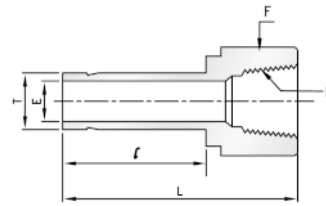
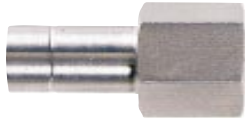


Imperial Range:

Part No.	Tube O. D. T in	P* (NPT)	E min.	Width across flat	ℓ	L
				F in		
PFA-02-02	1/8	1/8	1.77	9/16	13.45	31.50
PFA-02-04	1/8	1/4	1.77	3/4	13.45	35.30
PFA-03-02	3/16	1/8	3.04	9/16	14.20	32.00
PFA-03-04	3/16	1/4	3.04	3/4	14.20	35.81
PFA-04-02	1/4	1/8	4.57	9/16	15.75	33.02
PFA-04-04	1/4	1/4	4.57	3/4	15.75	37.10
PFA-04-06	1/4	3/8	4.57	7/8	15.75	39.37
PFA-04-08	1/4	1/2	4.57	1-1/16	15.75	42.50
PFA-05-02	5/16	1/8	6.35	9/16	16.80	34.29
PFA-05-04	5/16	1/4	6.35	3/4	16.80	37.59
PFA-06-02	3/8	1/8	7.11	9/16	17.50	34.29
PFA-06-04	3/8	1/4	7.11	3/4	17.50	38.10
PFA-06-06	3/8	3/8	7.11	7/8	17.50	40.38
PFA-06-08	3/8	1/2	7.11	1-1/16	17.50	46.73
PFA-08-04	1/2	1/4	9.90	3/4	23.20	43.43
PFA-08-06	1/2	3/8	9.90	7/8	23.20	45.46
PFA-08-08	1/2	1/2	9.90	1-1/16	23.20	51.80
PFA-10-06	5/8	3/8	12.70	7/8	24.70	48.26
PFA-10-08	5/8	1/2	12.70	1-1/16	24.70	53.84
PFA-10-12	5/8	3/4	12.70	1-1/4	24.70	55.37
PFA-12-08	3/4	1/2	14.98	1-1/16	24.70	52.83
PFA-12-12	3/4	3/4	14.98	1-1/4	24.70	54.86
PFA-12-16	3/4	1	14.98	1-5/8	24.70	58.42
PFA-14-12	7/8	3/4	17.27	1-1/4	26.70	57.15
PFA-16-12	1	3/4	20.06	1-1/4	31.70	60.70
PFA-16-16	1	1	20.06	1-5/8	31.70	64.26

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Female Adapter

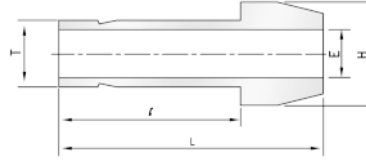


Metric Range:

Part No.	Tube O. D. T mm	P* (NPT)	E min.	Width across flat F mm	l	L
PFA-M03-02	3	1/8	1.8	14	13.15	31.15
PFA-M06-02	6	1/8	4.6	14	15.75	32.50
PFA-M06-04	6	1/4	4.6	19	15.75	37.10
PFA-M08-04	8	1/4	6.3	19	16.50	37.60
PFA-M10-04	10	1/4	7.7	19	17.50	38.10
PFA-M10-06	10	3/8	7.7	22	17.50	40.10
PFA-M10-08	10	1/2	7.7	27	17.50	46.50
PFA-M12-04	12	1/4	9.1	19	23.50	43.70
PFA-M12-06	12	3/8	9.1	22	23.50	46.00
PFA-M12-08	12	1/2	9.1	27	23.50	52.30
PFA-M18-12	18	3/4	13.9	32	24.90	54.80

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Port Connector



Imperial Range:

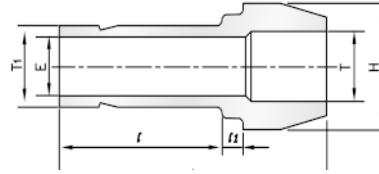
Part No.	Tube O. D. T in	E min	H	l	L
PPC-02	1/8	1.77	6.09	15.75	22.35
PPC-04	1/4	4.57	9.39	18.79	24.63
PPC-05	5/16	6.35	10.92	20.06	25.90
PPC-06	3/8	7.11	12.70	20.32	26.16
PPC-08	1/2	9.90	15.74	25.90	35.81
PPC-12	3/4	14.98	22.09	27.68	37.33
PPC-16	1	20.06	28.44	34.54	48.26

Metric Range:

Part No.	Tube O. D. T mm	E min	H	l	L
PPC-M03	3	2.1	6.0	15.7	22.2
PPC-M06	6	4.4	9.0	18.7	24.6
PPC-M08	8	6.2	11.0	20.0	25.9
PPC-M10	10	8.2	13.1	20.2	26.1
PPC-M12	12	9.1	15.0	26.0	35.8
PPC-M16	16	12.7	19.0	27.6	37.4

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Reducing Port Connector



Imperial Range:

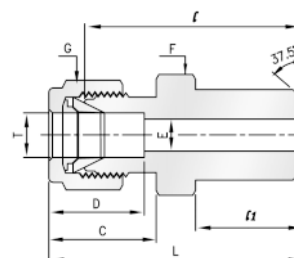
Part No.	Tube O. D. T in	Reduced O.D. T ₁ in	E min	H	l	l ₁	L
PRPC-04-02	1/4	1/8	2.28	9.39	13.45	3.30	22.60
PRPC-06-02	3/8	1/8	2.28	12.70	13.45	3.81	23.11
PRPC-06-04	3/8	1/4	4.82	12.70	15.75	3.30	24.89
PRPC-08-04	1/2	1/4	4.82	15.74	15.75	3.81	29.21
PRPC-08-06	1/2	3/8	7.11	15.74	17.50	3.30	30.48
PRPC-12-08	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. T ₁ mm	E min	H	l	l ₁	L
PRPC-M06-03	6	3	2.2	9.0	13.5	3.2	22.6
PRPC-M08-06	8	6	4.6	11.0	15.7	3.1	24.7
PRPC-M10-06	10	6	4.6	13.1	15.7	3.4	25.0
PRPC-M12-06	12	6	4.6	15.0	15.7	3.6	29.1
PRPC-M12-08	12	8	6.4	15.0	16.8	3.4	29.8
PRPC-M12-10	12	10	7.7	15.0	17.5	3.1	30.4
PRPC-M16-12	16	12	9.1	19.0	23.1	3.4	36.2

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Male Pipe Weld Connector



Imperial Range:

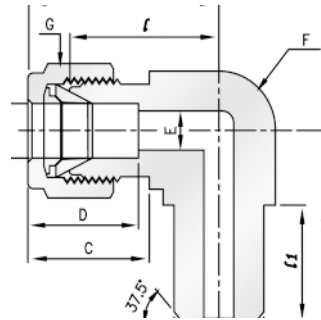
Part No.	Tube O. D. T in	Male Pipe Size P	E Min	Width across flat		D	C	f	f ₁	L
				F in	G in					
PMWC-02-02	1/8	1/8	2.28	7/16	7/16	12.70	15.24	24.64	9.65	31.24
PMWC-03-02	3/16	1/8	3.04	7/16	1/2	13.71	16.00	24.63	9.65	31.24
PMWC-04-02	1/4	1/8	4.82	1/2	9/16	15.24	17.78	25.40	9.65	32.76
PMWC-04-04	1/4	1/4	4.82	9/16	9/16	15.24	17.78	30.48	14.22	37.84
PMWC-05-02	5/16	1/8	5.08	9/16	5/8	16.25	18.54	28.66	9.65	37.03
PMWC-05-04	5/16	1/4	6.35	9/16	5/8	16.25	18.54	31.24	14.22	38.60
PMWC-06-04	3/8	1/4	7.11	5/8	11/16	16.76	19.30	32.51	14.22	39.87
PMWC-06-06	3/8	3/8	7.11	11/16	11/16	16.76	19.30	32.51	11.05	39.87
PMWC-06-08	3/8	1/2	7.11	7/8	11/16	16.76	19.30	35.87	14.22	43.23
PMWC-08-06	1/2	3/8	10.41	13/16	7/8	22.86	21.84	33.27	19.05	43.43
PMWC-08-08	1/2	1/2	10.41	7/8	7/8	22.86	21.84	38.86	14.22	49.02
PMWC-08-12	1/2	3/4	10.41	1-1/16	7/8	22.86	21.84	40.38	19.05	50.54
PMWC-10-08	5/8	1/2	12.70	15/16	1	24.38	21.84	38.86	19.05	49.02
PMWC-12-12	3/4	3/4	15.74	1-7/16	1-1/8	24.38	21.84	40.38	19.05	50.54
PMWC-16-16	1	1	22.35	1-3/8	1-1/2	31.24	26.41	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	f	f ₁	L
				F mm	G mm					
PMWC-M03-02	3	1/8	2.4	12	12	12.9	15.3	23.10	9.7	29.70
PMWC-M04-02	4	1/8	2.4	12	12	13.7	16.1	24.10	9.7	30.70
PMWC-M06-02	6	1/8	4.8	14	14	15.3	17.7	25.40	9.7	32.80
PMWC-M06-04	6	1/4	4.8	14	14	15.3	17.7	30.20	14.2	37.60
PMWC-M08-02	8	1/8	5.1	15	16	16.2	18.6	26.70	9.7	34.20
PMWC-M08-04	8	1/4	6.4	15	16	16.2	18.6	31.20	14.2	38.70
PMWC-M08-08	8	1/2	6.4	22	16	16.2	18.6	37.30	19.0	44.80
PMWC-M10-04	10	1/4	7.1	18	19	17.2	19.5	33.30	14.2	40.90
PMWC-M10-06	10	3/8	7.9	18	19	17.2	19.5	32.50	14.2	40.10
PMWC-M10-08	10	1/2	7.9	22	19	17.2	19.5	38.10	19.0	45.70
PMWC-M12-04	12	1/4	7.1	22	22	22.8	22.0	33.30	14.2	43.40
PMWC-M12-06	12	3/8	9.5	22	22	22.8	22.0	33.30	14.2	43.40
PMWC-M12-08	12	1/2	9.5	24	22	22.8	22.0	38.10	19.0	48.20
PMWC-M15-08	15	1/2	11.9	24	25	24.4	22.0	38.90	19.0	49.00
PMWC-M16-08	16	1/2	12.7	24	25	24.4	22.0	38.90	19.0	49.00
PMWC-M18-08	18	1/2	13.5	27	30	24.4	22.0	39.95	19.0	50.05

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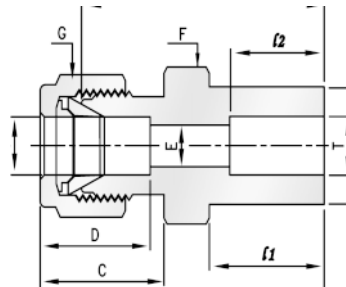
Male Pipe Weld Elbow



Imperial Range:

Part No.	Tube O. D. T in	Pipe Weid Size P	E Min	Width across flat		D	C	l	l ₁	L	L ₁
				F in	G in						
PMWE-02-02	1/8	1/8	4.82	1/2	9/16	12.70	15.24	20.32	9.65	26.92	18.79
PMWE-04-04	1/4	1/4	4.82	1/2	9/16	15.24	17.76	19.56	14.22	26.92	23.36
PMWE-06-04	3/8	1/4	7.11	5/8	11/16	16.75	19.30	23.13	14.22	30.48	25.40
PMWE-08-08	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.90	19.05	36.06	33.02
PMWE-12-12	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 Connector

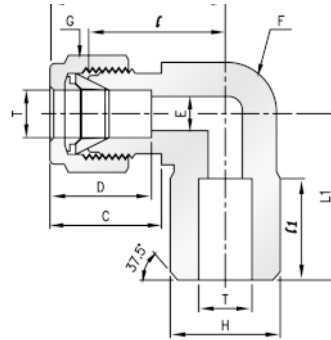


Imperial Range:

Part No.	Tube O. D. T in	E Min	H	Width across flat		D	C	l	l ₁	l ₂	L
				F in	G in						
PSWC-02-02	1/8	2.28	7.87	7/16	7/16	12.70	15.24	22.55	8.63	6.35	28.95
PSWC-04-04	1/4	4.82	11.17	1/2	9/16	15.24	17.78	28.16	10.41	7.87	35.52
PSWC-06-06	3/8	7.11	15.74	5/8	11/16	16.76	19.30	30.23	11.93	9.65	37.59
PSWC-08-08	1/2	10.41	19.06	13/16	7/8	22.86	21.84	30.98	11.93	12.70	41.14
PSWC-12-12	3/4	15.74	26.67	1-1/16	1-1/8	24.38	21.84	33.27	11.93	14.22	43.43
PSWC-16-16	1	22.85	33.27	1-3/8	1-1/2	31.24	26.41	40.38	14.22	19.05	52.57

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Tube Socket Weld Elbow

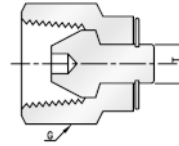


Imperial Range:

Part No.	Tube O. D. T in	E Min	H	Width across flat		D	C	f	f ₁	L	L ₁
				F in	G in						
PSWE-04-04	1/4	4.82	12.70	1/2	9/16	15.24	17.78	19.56	7.87	26.92	19.55
PSWE-06-06	3/8	7.11	15.74	5/8	11/16	16.76	19.30	23.12	9.65	30.48	23.11
PSWE-08-08	1/2	10.41	20.57	13/16	7/8	22.86	21.84	25.90	12.70	36.06	25.90

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Tube Plug



Imperial Range:

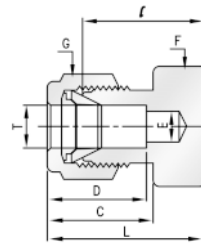
Part No.	Tube O. D. T in	Width across flat	
		G	
		in	
PTP-02	1/8	7/16	
PTP-03	3/16	1/2	
PTP-04	1/4	9/16	
PTP-05	5/16	5/8	
PTP-06	3/8	11/16	
PTP-08	1/2	7/8	
PTP-10	5/8	1	
PTP-12	3/4	1-1/8	
PTP-14	7/8	1-1/4	
PTP-16	1	1-1/2	

Metric Range:

Part No.	Tube O. D. T mm	Width across flat	
		G	
		mm	
PTP-M02	2	12	
PTP-M03	3	12	
PTP-M04	4	12	
PTP-M06	6	14	
PTP-M08	8	16	
PTP-M10	10	19	
PTP-M12	12	22	
PTP-M15	15	25	
PTP-M16	16	25	
PTP-M18	18	30	
PTP-M20	20	32	
PTP-M22	22	32	
PTP-M25	25	38	

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Tube Cap



Imperial Range:

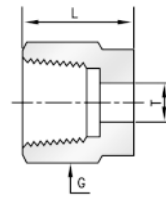
Part No.	Tube O. D. T in	Width across flat		D	C	l	L
		F in	G in				
PTC-02	1/16	5/16	5/16	8.63	10.92	11.20	14.18
PTC-03	1/8	7/16	7/16	15.24	15.24	13.46	20.06
PTC-03	3/16	7/16	1/2	13.71	16.00	14.73	21.33
PTC-04	1/4	1/2	9/16	15.24	17.78	16.00	23.26
PTC-05	5/16	9/16	5/8	16.25	18.54	17.01	24.38
PTC-06	3/8	5/8	11/16	16.76	19.30	18.28	25.65
PTC-08	1/2	13/16	7/8	22.86	21.84	19.05	29.21
PTC-10	5/8	15/16	1	24.38	21.84	19.81	29.97
PTC-12	3/4	1-1/16	1-1/8	24.38	21.84	21.33	31.49
PTC-14	7/8	1-3/16	1-1/4	25.90	21.84	23.87	34.03
PTC-16	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				
PTC-M02	2	12	12	12.9	15.3	13.5	20.1
PTC-M03	3	12	12	12.9	15.3	13.5	20.1
PTC-M04	4	12	12	13.7	16.1	14.7	21.3
PTC-M06	6	14	14	15.3	17.7	15.7	23.1
PTC-M08	8	15	16	16.2	18.6	17.0	24.5
PTC-M10	10	18	19	17.2	19.5	19.0	26.6
PTC-M12	12	22	22	22.8	22.0	19.0	29.1
PTC-M15	15	24	25	24.4	22.0	19.8	29.9
PTC-M16	16	24	25	24.4	22.0	19.8	29.9
PTC-M18	18	27	30	24.4	22.0	21.3	31.4
PTC-M20	20	30	32	26.0	22.0	23.9	34.0
PTC-M22	22	30	32	26.0	22.0	23.9	34.0
PTC-M25	25	35	38	31.3	26.5	26.2	38.5

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Nut



Imperial Range:

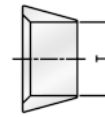
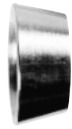
Part No.	Tube O. D. T in	Width across flat	L
		G in	
PN-01	1/16	5/16	7.93
PN-02	1/8	7/16	11.93
PN-03	3/16	1/2	11.93
PN-04	1/4	9/16	12.70
PN-05	5/16	5/8	13.46
PN-06	3/8	11/16	14.22
PN-08	1/2	7/8	17.52
PN-10	5/8	1	17.52
PN-12	3/4	1-1/8	17.52
PN-14	7/8	1-1/4	17.52
PN-16	1	1-1/2	20.57

Metric Range:

Part No.	Tube O. D. T mm	Width across flat	L
		G mm	
PN-M03	3	12	11.9
PN-M04	4	12	11.9
PN-M06	6	14	12.7
PN-M08	8	16	13.5
PN-M10	10	19	15.1
PN-M12	12	22	17.4
PN-M15	15	25	17.4
PN-M16	16	25	17.4
PN-M18	18	30	17.4
PN-M20	20	32	17.4
PN-M22	22	32	17.4
PN-M25	25	38	20.6

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

Front Ferrule



Imperial Range:

Part No.	Tube O. D. T in
PFF-01	1/16
PFF-02	1/8
PFF-03	3/16
PFF-04	1/4
PFF-05	5/16
PFF-06	3/8
PFF-08	1/2
PFF-10	5/8
PFF-12	3/4
PFF-14	7/8
PFF-16	1

Metric Range:

Part No.	Tube O. D. T mm
PFF-M02	2
PFF-M03	3
PFF-M04	4
PFF-M06	6
PFF-M08	8
PFF-M10	10
PFF-M12	12
PFF-M15	15
PFF-M16	16
PFF-M18	18
PFF-M20	20
PFF-M22	22
PFF-M25	25

Back Ferrule



Imperial Range:

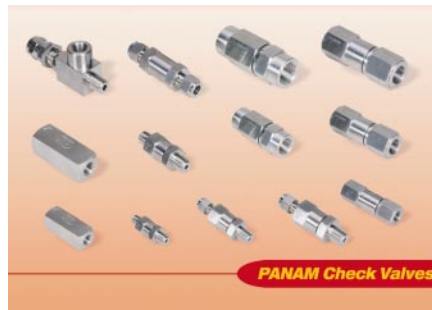
Part No.	Tube O. D. T in
PBF-01	1/16
PBF-02	1/8
PBF-03	3/16
PBF-04	1/4
PBF-05	5/16
PBF-06	3/8
PBF-08	1/2
PBF-10	5/8
PBF-12	3/4
PBF-14	7/8
PBF-16	1

Metric Range:

Part No.	Tube O. D. T mm
PBF-M02	2
PBF-M03	3
PBF-M04	4
PBF-M06	6
PBF-M08	8
PBF-M10	10
PBF-M12	12
PBF-M15	15
PBF-M16	16
PBF-M18	18
PBF-M20	20
PBF-M22	22
PBF-M25	25

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Other Products



All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.



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