

Tube Fittings



Introduction:

Petro artan part is a high-tech manufacturing group. We have a strong focus on enhancing customer productivity and sustainability through our unique expertise and solutions for oil & gas refineries, petrochemicals, power plants and chemical industries.

Our offering covers value chains and is based on extensive investment in research and development (R&D). our products category consists of mechanical instruments such as strainer, condensate pot, flange, pipe fitting, sample connections, sample cooler, sample point, seal pot , separation and filtration systems.

The manufacturing facilities – factories and workshops – a 24,000 square-meter is located in 5 different areas. Along with sales offices in the heart of Tehran city.

we apply our expert minds and collaborative ways of working with customers to build more resilient and stronger businesses trying to deliver different products category in a short possible time.

Due to ability of producing products in variety of materials, sizes, pressures and etc. all items can be manufactured according to customers' demand.

To support our customer's needs, PAP Co. owns supplying departments which import the best products related to its work field, from global companies and agents.

PAP Co is approved and listed among the Ministry of petroleum AVL (MOP AVL) and National petrochemical company (NPC AVL). this clearly means the wide range of our products have been tested and used in refineries and petrochemical sites for several years and makes customers to do business with us with great confidence.

Features of **PAP** Tube Fittings



PAP Tube Fitting is produced by a strict material management, a high precision design and the best processing technology.

PAP Tube Fitting is tightened softly in linking and is leakage free entirely under shock, impact and high tension. Therefore, it can contribute for productivity improvement and cost reduction to PAP Tube Fitting users because It's the best product whose flow of fluid is very smooth caused by Fitting's excellent inner surface condition.

PAP can be assembled easily without any other special tool but the use of low quality tubing may deteriorate Fitting's function.

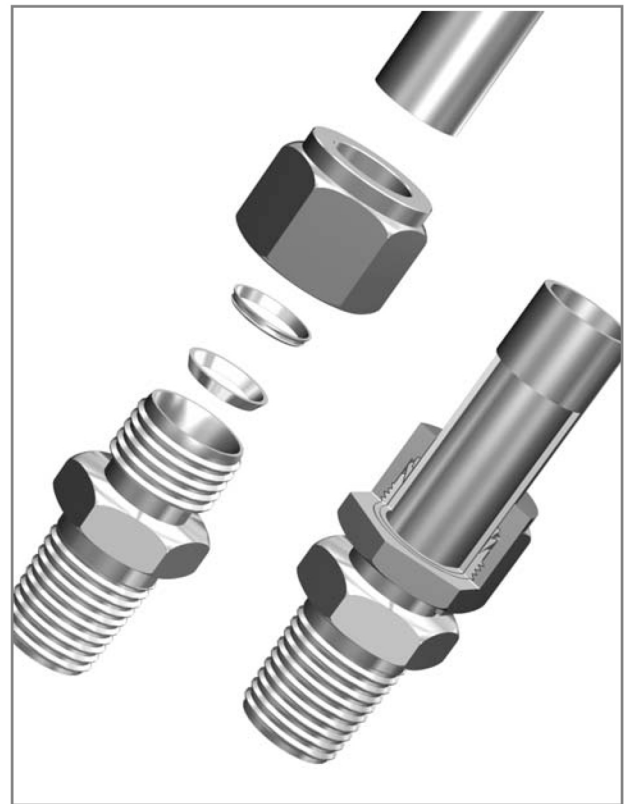
Structure of **PAP**

The whole system design should be considered so that there is no problem to secure reliable safety.

PAP is consists of 4 precision parts and all parts are being manufactured through a very strict tolerance superintendence under systematic and constant quality control.

All parts that are being made by this process can cope with the inferior enviromental conditions and various customer's needs.

PAP Tube Fitting secures the leakage prevention and sufficient tightness with less forces in all the tubing connections and reduces the cost and potential leakage risk in a course of tubing assembly and process.



■ Quality and Process Control

PAP Tube Fitting & Valve are produced as the product of best quality through a statistical process control and a strict quality control (various test and the self-examination included) and the written systematic quality control assurance.

■ Warranty of Quality and Exchange

PAP warrants that PAP Tube Fitting is being manufactured without defect in raw materials and manufacturing process, with the guarantee of its construction and workmanship of enough quality control and process control according to the specifications.

However, the defect owing to user's recklessness, an unreasonable assembling method and operation and the operation disregarding manufacturer's indications can not be compensated.

In case that leakage happens by the defect on PAP Tube Fitting in spite of normal operation, all the defected fittings shall be exchanged immediately.

PAP acknowledges this leaflet is regarded as warranty and does not publish separate warranty as long as special requirement issues are not required.

PAP Installation Instruction

1. Installation under 1 inch or 25MM

PAP Tube Fitting shall be delivered to customer with completely assembled state, so be ready to immediate use only with finger-tightening. Disassembling the product prior to use can be a cause of leakage or a cause of inflow something into the fitting's inside. Do not use for the poor quality tubes, which can be a cause of leakage or functional deterioration.

PAP Tube Fittings are installed in three easy steps:

Step 1

Insert the tubing into PAP Tube Fitting's inside. At this moment, make sure that the tubing is completely contact with the shoulder of fittings and then finger-tighten the nut.

Step 2

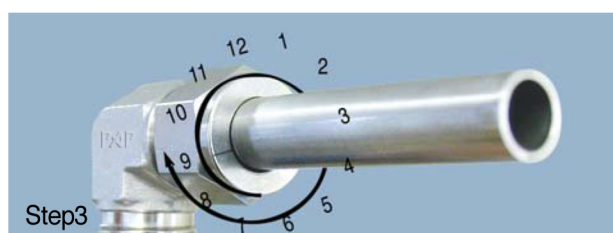
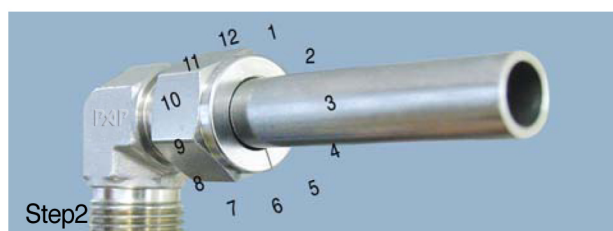
Before tightening the PAP nut, mark the starting point of turning at the 6 o'clock position.

Step 3

Hold the fitting body safely with a backup wrench and tighten the nut 1-1/4 turns. (pay attention to the mark of starting point of turning, make one revolution and place at 9 o'clock position. Marking the starting point of turning at the 6 o'clock position will let you notice where the starting point is).

After 1-1/4 revolution, when the starting point is placed at 9 o'clock position, you can easily confirm and see that PAP Tube Fitting is installed accurately.

After 1-1/4 revolution of the PAP nut by finger-tightening, make sure whether it is sufficiently tightened using by the Gap Inspection Gage.



2. Installation at the high pressure or the high safety systems

Since there are various variations of tubing, unifying the starting point of the fitting is desirable. The starting point is determined by that when tighten the nut by using a wrench until the tubing shall not be turn freely in the fitting. At this point, make the 1-1/4 revolution and tighten the nut.

(If tube rotation is not possible, tighten the nut approximately 1/8 turn from the finger-tight position)

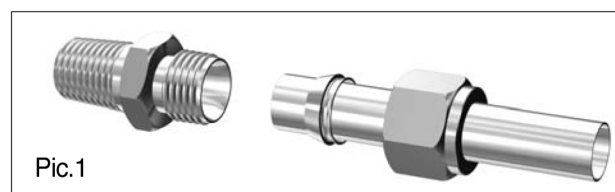
Safety Considerations on Installations for High Pressure System

(Apply to the installation of general system)

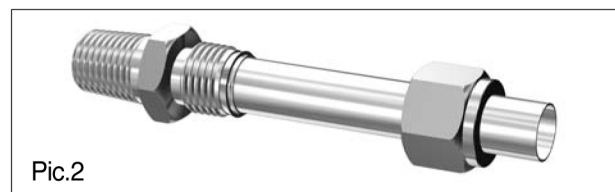
1. Make sure whether the thickness and material of tubing is proper to applicable usage. The material of tubing is compatible with the material of fitting and the hardness of tubing shall be less than that of fitting.
2. Do not assemble or disassemble the fitting when the pressure is hold at the system.
3. Since straightly assembled tubing to a pair of fixed fitting cannot be completely contacted with the both sides of fittings' shoulder, there shall be a leakage risk caused by deformation from high temperature and high pressure.
4. Do not turn the fitting body.

3. Re-tightening Instruction

1. Shown the disconnected position of fittings.
2. When inserting the tubing with preswaged ferrule into the fitting body, the front ferrule shall be seated in the fitting body.
3. Finger-tighten the nut and revolve the nut to the original position with a wrench. At the original position, the resistance increases. At the point, the job will be done by tightening slightly more.



Pic.1



Pic.2



Pic.3

Technological Information

■ Hardness Limitation

Generally, heat treated tubing shall be used in Metal tubing so that can be used properly with PAP tube fitting.

Hardness of stainless steel tubing is being limited below HRb90 but large majority of users are using the hardness of tube limited below HRb80. On the other hand, it is actually economical to use tubing by lowering the hardness of tubing because the assembly is easy and tubing can be bent easily. Therefore, encourage customers to use tubing with the hardness

below HRb 80. This is for customer's convenience and perfect leakage prevention in operation.

■ Compatibility

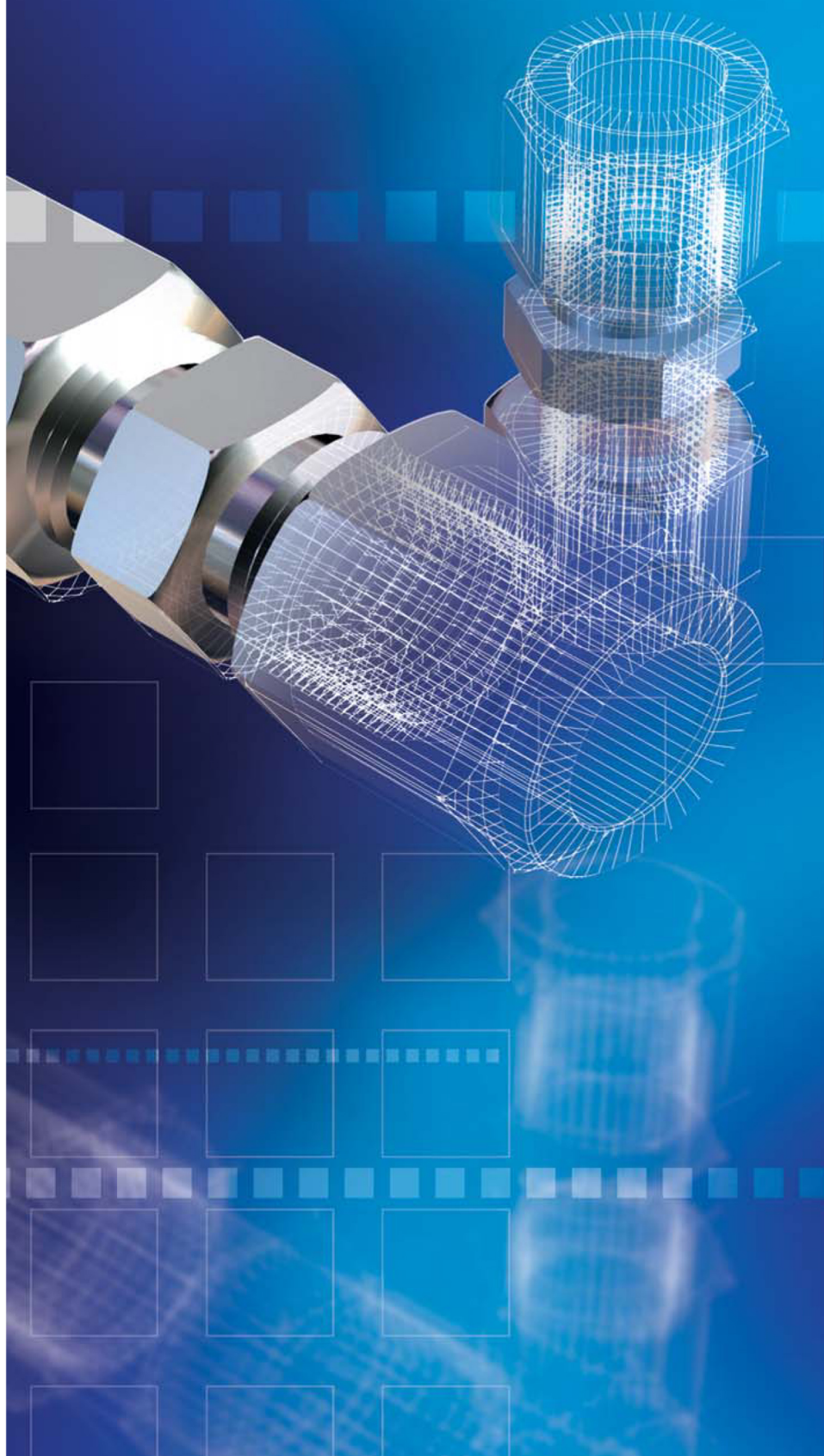
PAP is manufactured in order to be compatible with other firm's tube fitting from the beginning of design so that can warrant 100% confidence in case of being made under the mutual control of tolerance and hardness with other firm. But it is safe to operate with only products if possible.

Hydraulic tubing – metric sizes															
PART NO.	Outside Wall diameter thick-ness		Weight kg/m	SS304/304L		SS316/316L		INCONEL 625		MONEL 400					
	mm	mm		EN	DIN 1.4306	ASME	EN	DIN 1.4435	ASME	EN	ASME				
Max. working pressure in bar															
T0305	3	0.5	0.03			510		470							
T0307		0.7	0.04			718									
T0607	6	0.7	0.13	470		470		510		470		522		470	
T0610		1.0	0.17			774		738		774		738		835	738
T0810	8	1.0	0.18	338		340		366		340		375		395	340
T0815		1.5	0.24	541		537		587		537		600		633	537
T0820		2.0	0.3	714		738		774		738		792			
T1010	10	1.0	0.23	253		267		286		267		292		308	267
T1015		1.5	0.32	416		417		451		417		461		486	417
T1020		2.0	0.4	585		577		635		577		649		684	577
T1210	12	1.0	0.28	216		220		234		220		240		253	220
T1215		1.5	0.39	338		362		366		340		375		395	340
T1220		2.0	0.5	470		470		510		470		522		550	470
T1410		1.0	0.33	183		186		198		186					
T1415		1.5	0.47											332	288
T1420		2	0.6	393		395		426		395		436		460	395
T1510	15	1.0	0.35	170		173		184		173		192		308	267
T1515		1.5	0.51	263		267		286		267		282		425	366
T1520		2	0.65	353		366		394		366					
T1610	16	1.0	0.38	158		162		172		162				287	249
T1615		1.5	0.54	245		249		266		249		375		395	340
T1620		2	0.7	338		340		366		340		484		510	437
T1625		2.5	0.85			473				437				633	537
T1630		3	0.98												
T1810	18	1.0	0.43	140		143		152		143				252	220
T1815		1.5	0.62	216		220		234		220		328		346	299
T1820		2.0	0.8	296		299		321		299				445	383
T1825		2.5	0.97												
T2015	20	1.5	0.69	193		196		209		196				308	267
T2020		2.0	0.9	263		267		286		267		375		395	340
T2025		2.5	1.09			366		366		340		461		486	417
T2030		3.0	1.28					635		577					
T2040		4.0	1.6												
T2215	22	1.5	0.77	174		177		189		177		193		203	177
T2220		2.0	1	237		241		257		241		263		278	241
T2515	25	1.5	0.88	152		155		166		155				242	210
T2520		2.0	1.15	206		210		224		210				308	267
T2525		2.5	1.41	263		267		286		267		375		395	340
T2530		3.0	1.65	322		326		350		326		461		486	417
T2815	28	1.5	1	135		138		146		138		149		166	138
T2820		2.0	1.3	183		186		198		186		203		214	186
T2825		2.5	1.6	233		236		252		236					
T3025	30	2.5	1.72	234		234		246		234					
T3030		3.0	2.03	263		267		286		267				308	267
T3040		4.0	2.6			394		394		366					
T3520	35	2.0	1.65	144		147		156		147				214	186
T3525		2.5	2.03	183		186		198		186					
T3530		3.0	2.4	222		226		241		226					
T3820	38	2.0	1.8	132		135		143		135					
T3830		3.0	2.63	203		207		221		207				362	282
T3840		4.0	3.41			388		388		360					
T3860		5.0	4.13			129		129		122					
T4220	42	2.0	2			186		186							
T4230		3.0	2.93	183		186		198		186				214	186
T5050	50	5.0	5.63			286		267							
1) SWG = Standard Wire Gauge, BWG = Birmingham Wire Gauge 28 BWG = 0.014 inch 25 BWG = 0.020 inch 16 BWG = 0.065 inch 16 BWG = 0.064 inch 2) 1bar = 0.1MPa, 1ksi = 6.895MPa															

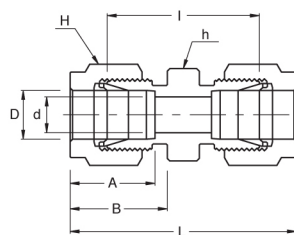
1) SWG = Standard Wire Gauge, BWG = Birmingham Wire Gauge
 28 BWG = 0.014 inch 25 BWG = 0.020 inch
 16 BWG = 0.065 inch 16 BWG = 0.064 inch
 2) 1bar = 0.1MPa, 1ksi = 6.895MPa

Instrumentation tubing – Imperial sizes																
PART NO.	Outside Wall diameter thick-ness		Imperial size		W.T	Weight	SS304/304L		SS316/316L		UNS N08904		INCONEL 625		MONEL 400	
	mm	mm					DIN 1.4306	ASME	EN	ASME	DIN 1.4539	ASME	EN	ASME	EN	ASME
Max. working pressure in bar																
T0128BW	1.59	0.36	1/16"	X	28 BWG	0.011			740	662						
T0128BW		0.51			25 BWG	0.014			1008	961						
T0222BW	3.18	0.71	1/8"	X	22 BWG	0.044			727	652						
T0220BW		0.89			20 BWG	0.051			874	834						
T0320BW	4.76	0.89	3/16"	X	20 BWG	0.066			585	536						
T0422BW	6.35	0.71	1/4"	X	22 BWG	0.1			323	301						
T0420BW		0.89			20 BWG	0.122			417	386						
T0420BW		0.91			20 BWG	0.124			428	396						
T0418BW	6.35	1.22	1/4"	X	18 BWG	0.157			604	552						
T0418BW		1.24			18 BWG	0.159			616	562						
T0416BW		1.63			16 BWG	0.193			797	759						
T0416BW		1.65			16 BWG	0.194			807	770						
T0620BW	9.53	0.89	3/8"	X	20 BWG	0.193			265	248						
T0620BW		0.91			20 BWG	0.196			272	254						
T0618BW		1.22			18 BWG	0.254			376	350						
T0618BW	9.53	1.24	3/8"	X	18 BWG	0.257			383	356						
T0616BW		1.63			16 BWG	0.322			526	484						
T0616BW		1.65			16 BWG	0.326			534	490						
T0614BW		2.03			14 BWG	0.381			686	619						
T0614BW		2.11			14 BWG	0.391			720	646						
T0820BW	12.7	0.89	1/2"	X	20 BWG	0.263			194	183						
T0820BW		0.91			20 BWG	0.268			199	187						
T0818BW		1.22			18 BWG	0.35			273	256						
T0818BW		1.24			18 BWG	0.356			278	260						
T0816BW		1.63			16 BWG	0.452			377	351						
T0816BW	12.7	1.65	1/2"	X	16 BWG	0.456			383	355						
T0814BW		2.03			14 BWG	0.542			486	448						
T0814BW		2.11			14 BWG	0.559			508	468						
T1018BW	15.88	1.22	5/8"	X	18 BWG	0.448			214	201						
T1018BW		1.24			18 BWG	0.454			218	205						
T1016BW		1.63			16 BWG	0.582			294	275						
T1016BW		1.65			16 BWG	0.588			298	278						
T1218BW	19.05	1.22	3/4"	X	18 BWG	0.544			176	166						
T1218BW		1.24			18 BWG	0.553			180	169						
T1216BW		1.63			16 BWG	0.711			241	226						
T1216BW		1.65			16 BWG	0.718			244	229						
T1214BW		2.11			14 BWG	0.895			320	298						
T1213BW		2.41			13 BWG	1			371	345						
T1212BW		2.77			12 BWG	1.13			435	403						
T1618BW	25.4	1.22	1"	X	18 BWG	0.739			130	123						
T1618BW		1.24			18 BWG	0.75			132	125						
T1616BW		1.65			16 BWG	0.981			179	169						
T1614BW		2.11			14 BWG	1.23			233	219						
T1613BW		2.41			13 BWG	1.39			270	252						
T163.2		3.2			-	1.78			370	343						
1) SWG = Standard Wire Gauge, BWG = Birmingham Wire Gauge 28 BWG = 0.014 inch 25 BWG = 0.020 inch 16 BWG = 0.065 inch 16 SWG =0.064 inch 2) Tbar = 0.1IMPa, 1ksi = 6.895MPa																

1) SWG = Standard Wire Gauge, BWG = Birmingham Wire Gauge
 28 BWG = 0.014 inch 25 BWG = 0.020 inch
 16 BWG = 0.065 inch 16 BWG = 0.054 inch
 2) 1bar = 0.1MPa, 1ksi = 6.895MPa



PAP-U Union



Connects Fractional Tubes

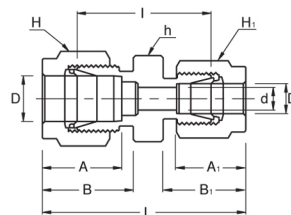
Part No.	Tube O.D. D (inch)	d Min	Width Across Flat		A	B	I	L
			h (inch)	H (inch)				
PAP-U -1	1/16	1.27	5/16	5/16	8.63	10.92	17.52	25.15
PAP-U -2	1/8	2.28	7/16	7/16	12.70	15.24	22.35	35.56
PAP-U -3	3/16	3.04	7/16	1/2	13.71	16.00	24.13	37.33
PAP-U -4	1/4	4.82	1/2	9/16	15.24	17.78	26.16	40.89
PAP-U -5	5/16	6.35	9/16	5/8	16.25	18.54	28.19	42.92
PAP-U -6	3/8	7.11	5/8	11/16	16.76	19.30	30.22	44.95
PAP-U -8	1/2	10.41	13/16	7/8	22.86	21.84	30.98	51.30
PAP-U -10	5/8	12.70	15/16	1	24.38	21.84	31.75	52.07
PAP-U -12	3/4	15.74	1-1/16	1-1/8	24.38	21.84	33.27	53.59
PAP-U -14	7/8	18.28	1-3/16	1-1/4	25.90	21.84	34.79	55.11
PAP-U -16	1	22.35	1-3/8	1-1/2	31.24	26.41	40.38	64.77
PAP-U -20	1-1/4	27.69	1-3/4	1-7/8	41.15	38.86	48.00	92.20
PAP-U -24	1-1/2	34.04	2-1/8	2-1/4	50.04	45.21	53.59	107.95
PAP-U -32	2	45.97	2-3/4	3	67.56	62.74	74.68	149.35

Connects Metric Tubes

Part No.	Tube O.D. D	d Min	Width Across Flat		A	B	I	L
			h	H				
PAP-U - 2M	2	1.7	12	12	12.9	15.3	22.4	35.6
PAP-U - 3M	3	2.4	12	12	12.9	15.3	22.1	35.3
PAP-U - 4M	4	2.4	12	12	13.7	16.1	24.1	37.3
PAP-U - 6M	6	4.8	14	14	15.3	17.7	26.2	41.0
PAP-U - 8M	8	6.4	15	16	16.2	18.6	28.2	43.2
PAP-U -10M	10	7.9	18	19	17.2	19.5	31.0	46.2
PAP-U -12M	12	9.5	22	22	22.8	22.0	31.0	51.2
PAP-U -15M	15	11.9	24	25	24.4	22.0	31.8	52.0
PAP-U -16M	16	12.7	24	25	24.4	22.0	31.8	52.0
PAP-U -18M	18	15.1	27	30	24.4	22.0	33.3	53.5
PAP-U -20M	20	15.9	30	32	26.0	22.0	34.8	55.0
PAP-U -22M	22	18.3	30	32	26.0	22.0	34.8	55.0
PAP-U -25M	25	21.8	35	38	31.3	26.5	40.4	65.0

• All dimensions in millimeters unless specified as "inch"

PAP-RU Reducing Union



Connects Fractional Tubes

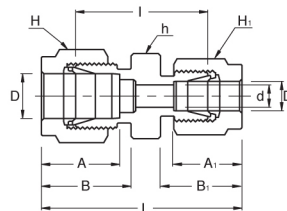
Part No.	Tube O.D.		d Min	Width Across Flat			A	A ₁	B	B ₁	I	L
	D (inch)	D ₁ (inch)		h (inch)	H (inch)	H ₁ (inch)						
PAP-RU 2- 1	1/8	1/16	1.27	7/16	7/16	5/16	12.7	8.63	15.24	10.92	20.60	31.00
PAP-RU 3- 2	3/16	1/8	2.28	7/16	1/2	7/16	13.71	12.70	16.00	15.24	23.36	36.57
PAP-RU 4- 2	1/4	1/8	2.28	1/2	9/16	7/16	15.24	12.70	17.78	15.24	24.63	38.60
PAP-RU 4- 3	1/4	3/16	3.04	1/2	9/16	1/2	15.24	13.71	17.78	16.00	25.40	39.37
PAP-RU 5- 2	5/16	1/8	2.28	9/16	5/8	7/16	16.25	12.70	18.54	15.24	25.90	39.87
PAP-RU 5- 4	5/16	1/4	4.82	9/16	5/8	9/16	16.25	15.24	18.54	17.78	27.43	42.16
PAP-RU 6- 2	3/8	1/8	2.28	5/8	11/16	7/16	16.76	12.70	19.30	15.24	26.92	40.89
PAP-RU 6- 4	3/8	1/4	4.82	5/8	11/16	9/16	16.76	15.24	19.30	17.78	28.44	43.18
PAP-RU 6- 5	3/8	5/16	6.35	5/8	11/16	5/8	16.76	16.25	19.30	18.54	29.46	44.19
PAP-RU 8- 2	1/2	1/8	2.28	13/16	7/8	7/16	22.86	12.70	21.84	15.24	28.44	45.21
PAP-RU 8- 4	1/2	1/4	4.82	13/16	7/8	9/16	22.86	15.24	21.84	17.78	29.46	46.99
PAP-RU 8- 6	1/2	3/8	7.11	13/16	7/8	11/16	22.86	16.76	21.84	19.30	30.98	48.51
PAP-RU 10- 6	5/8	3/8	7.11	15/16	1	11/16	24.38	16.76	21.84	19.30	31.75	49.27
PAP-RU 10- 8	5/8	1/2	10.41	15/16	1	7/8	24.38	22.86	21.84	21.84	31.75	52.07
PAP-RU 12- 4	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
PAP-RU 12- 6	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
PAP-RU 12- 8	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
PAP-RU 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
PAP-RU 18- 8	1	1/2	10.41	1-3/8	1-1/2	7/8	31.24	22.86	26.41	21.84	39.50	63.24
PAP-RU 16- 12	1	3/4	15.74	1-3/8	1-1/2	1-1/8	31.24	24.38	26.41	21.84	39.00	62.73

Connects Metric Tubes

Part No.	Tube O.D.		d Min	Width Across Flat			A	A ₁	B	B ₁	I	L
	D	D ₁		h	H	H ₁						
PAP-RU 6M- 3M	6	3	2.4	14	14	12	15.3	12.9	17.7	15.3	24.6	38.6
PAP-RU 6M- 4M	6	4	2.4	14	14	12	15.3	13.7	17.7	16.1	25.4	39.4
PAP-RU 8M- 6M	8	6	4.8	15	16	14	16.2	15.3	18.6	17.7	27.4	42.3
PAP-RU 10M- 6M	10	6	4.8	18	19	14	17.2	15.3	19.5	17.7	29.5	44.5
PAP-RU 10M- 8M	10	8	6.4	18	19	16	17.2	16.2	19.5	18.6	30.0	45.1
PAP-RU 12M- 6M	12	6	4.8	22	22	14	22.8	15.3	22.0	17.7	29.5	47.0
PAP-RU 12M- 8M	12	8	6.4	22	22	16	22.8	16.2	22.0	18.6	30.2	47.8
PAP-RU 12M- 10M	12	10	7.9	22	22	19	22.8	17.2	22.0	19.5	31.0	48.7
PAP-RU 16M- 12M	16	12	9.5	24	25	22	24.4	22.8	22.0	22.0	31.8	52.0
PAP-RU 25M- 18M	25	18	15.1	35	38	30	31.3	24.4	26.5	22.0	38.6	61.0
PAP-RU 25M- 20M	25	20	15.9	35	38	32	31.3	26.0	26.5	22.0	39.9	62.3

• All dimensions in millimeters unless specified as "inch"

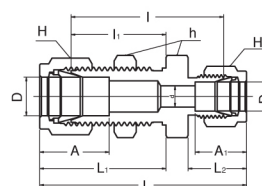
PAP-RU Reducing Union



Connects Metric Tubes To Fractional Tubes

Part No.	Tube O.D.		d Min	Width Across Flat			A	A ₁	B	B ₁	I	L
	D	D ₁ (inch)		h	H	H ₁						
PAP-RU 3M - 2	3	1/8	2.4	12	12	11.1	12.9	12.8	15.3	15.2	22.1	35.2
PAP-RU 4M - 2	4	1/8	2.4	12	12	11.1	13.7	12.8	16.1	15.2	23.4	36.5
PAP-RU 4M - 4	4	1/4	2.4	14	12	14.3	13.7	15.3	16.1	17.7	25.4	39.4
PAP-RU 6M - 2	6	1/8	2.4	14	14	11.1	15.3	12.8	17.7	15.2	24.6	38.5
PAP-RU 6M - 4	6	1/4	4.8	14	14	14.3	15.3	15.3	17.7	17.7	26.2	41.0
PAP-RU 6M - 5	6	5/16	4.8	14	14	15.9	15.3	16.2	17.7	18.6	27.4	42.3
PAP-RU 8M - 4	8	1/4	4.8	15	16	14.3	16.2	15.3	18.6	17.7	27.4	42.3
PAP-RU 10M - 2	10	1/8	2.4	18	19	11.1	17.2	12.8	19.5	15.2	27.7	41.8
PAP-RU 10M - 4	10	1/4	4.8	18	19	14.3	17.2	15.3	19.5	17.7	29.5	44.5
PAP-RU 10M - 5	10	5/16	6.4	18	19	15.9	17.2	16.2	19.5	18.6	30.0	45.1
PAP-RU 10M - 6	10	3/8	7.1	18	19	17.5	17.2	16.9	19.5	19.2	31.0	45.9
PAP-RU 12M - 5	12	5/16	6.4	22	22	15.9	22.8	16.2	22.0	18.6	30.2	47.8
PAP-RU 12M - 6	12	3/8	7.1	22	22	17.5	22.8	16.9	22.0	19.2	31.0	48.4
PAP-RU 12M - 8	12	1/2	9.5	22	22	22.2	22.8	22.8	22.0	22.0	31.0	51.2
PAP-RU 15M - 8	15	1/2	10.3	24	25	22.2	24.4	22.8	22.0	22.0	31.8	52.0
PAP-RU 16M -10	16	5/8	12.7	24	25	25.4	24.4	24.4	22.0	22.0	31.8	52.0
PAP-RU 18M -12	18	3/4	15.1	27	30	28.6	24.4	24.4	22.0	22.0	33.3	53.5
PAP-RU 20M -12	20	3/4	15.9	30	32	28.6	26.0	24.4	22.0	22.0	34.8	54.9
PAP-RU 20M -16	20	1	15.9	35	32	38.1	26.0	31.2	22.0	26.4	40.4	62.8
PAP-RU 25M -16	25	1	21.8	35	38	38.1	31.3	31.3	26.5	26.5	40.4	65.0

PAP-BHRU Bulkhead Reducing Union

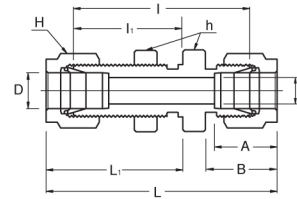


Connects Fractional Tubes

Part No.	Tube O.D.		d Min	Width Across Flat			A	A ₁	I	I ₁	L	L ₁	L ₂	Panel Hole Drill Size	Panel Max. Thickness
	D (inch)	D ₁ (inch)		h (inch)	H (inch)	H ₁ (inch)									
PAP-BHRU 4 - 2	1/4	1/8	2.28	5/8	9/16	7/16	15.24	12.70	41.14	26.16	55.11	33.52	15.24	11.50	10.16
PAP-BHRU 6 - 4	3/8	1/4	4.82	3/4	11/16	9/16	16.76	15.24	45.97	29.46	60.70	36.57	17.78	14.68	11.17
PAP-BHRU 8 - 4	1/2	1/4	4.82	15/16	7/8	9/16	22.86	15.24	49.27	31.75	66.80	41.91	17.78	19.44	12.70

• All dimensions in millimeters unless specified as "inch"

PAP-BHU Bulkhead Union



Connects Fractional Tubes

Part No.	Tube O.D. D (inch)	d Min	Width Across Flat		A	B	I	I ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
			h (inch)	H (inch)								
PAP-BHU - 1	1/16	1.27	5/16	5/16	8.63	10.92	23.87	13.46	31.50	17.27	5.16	3.05
PAP-BHU - 2	1/8	2.28	1/2	7/16	12.70	15.24	38.10	24.63	51.30	31.24	8.33	12.70
PAP-BHU - 3	3/16	3.04	9/16	1/2	13.71	16.00	40.38	25.40	53.59	32.00	9.92	12.70
PAP-BHU - 4	1/4	4.82	5/8	9/16	15.24	17.78	42.92	26.16	57.65	33.52	11.50	10.16
PAP-BHU - 5	5/16	6.35	11/16	5/8	16.25	18.54	45.97	28.44	60.70	35.81	13.09	11.17
PAP-BHU - 6	3/8	7.11	3/4	11/16	16.76	19.30	47.49	29.46	62.23	36.83	14.68	11.17
PAP-BHU - 8	1/2	10.41	15/16	7/8	22.86	21.84	50.80	31.75	71.12	41.91	19.44	12.70
PAP-BHU - 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
PAP-BHU - 12	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
PAP-BHU - 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
PAP-BHU - 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

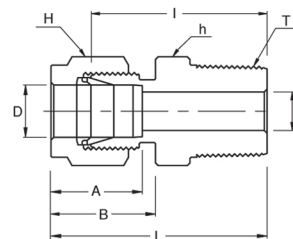
Connects Metric Tubes

Part No.	Tube O.D. D	d Min	Width Across Flat			A	B	I	I ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
			h	h ₁ *	H								
PAP-BHU - 3M	3	2.4	14	12.7	12	12.9	15.3	38.1	24.6	51.3	31.2	8.3	12.7
PAP-BHU - 4M	4	2.4	14	14.3	12	13.7	16.1	40.4	25.4	53.6	32.0	9.9	12.7
PAP-BHU - 6M	6	4.8	16	15.9	14	15.3	17.7	42.9	26.2	57.7	33.6	11.5	10.2
PAP-BHU - 8M	8	6.4	18	17.5	16	16.2	18.6	46.0	28.6	61.0	36.1	13.1	11.2
PAP-BHU - 10M	10	7.9	22	22.0	19	17.2	19.5	48.5	29.4	63.7	37.0	16.2	11.2
PAP-BHU - 12M	12	9.5	24	23.8	22	22.8	22.0	50.8	31.8	71.0	41.9	19.5	12.7
PAP-BHU - 15M	15	11.9	27	27.0	25	24.4	22.0	52.3	32.5	72.5	42.6	22.8	12.7
PAP-BHU - 16M	16	12.7	27	27.0	25	24.4	22.0	52.3	32.5	72.5	42.6	22.8	12.7
PAP-BHU - 18M	18	15.1	30	30.0	30	24.4	22.0	58.7	37.3	78.9	47.4	26.0	16.8
PAP-BHU - 20M	20	15.9	35	35.0	32	26.0	22.0	64.3	42.9	84.5	53.0	29.0	17.0
PAP-BHU - 22M	22	18.3	35	35.0	32	26.0	22.0	64.3	42.9	84.5	53.0	29.0	19.1
PAP-BHU - 25M	25	21.8	41.3	41.3	38	31.3	26.5	71.4	45.2	95.9	57.5	33.7	19.1

h₁* : Metric Tubes Bulkhead Hexagon application only

* All dimensions in millimeters unless specified as "inch"

PAP-MC Male Connector



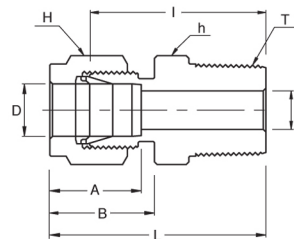
Connects Fractional Tubes To Female NPT Thread

Part No.	Tube O.D. D (inch)	T (NPT)	d Min	Width Across Flat		A	B	I	L
				h (inch)	H (inch)				
PAP-MC 1- 1N	1/16	1/16	1.27	5/16	5/16	8.63	10.92	20.00	23.83
PAP-MC 1- 2N	1/16	1/8	1.27	7/16	7/16	8.63	10.92	22.35	26.23
PAP-MC 2- 2N	1/8	1/8	2.28	7/16	7/16	12.70	15.24	23.87	30.48
PAP-MC 2- 4N	1/8	1/4	2.28	9/16	7/16	12.70	15.24	28.95	35.56
PAP-MC 2- 6N	1/8	3/8	2.28	11/16	7/16	12.70	15.24	29.21	35.81
PAP-MC 2- 8N	1/8	1/2	2.28	7/8	7/16	12.70	15.24	35.56	42.16
PAP-MC 3- 2N	3/16	1/8	3.04	7/16	1/2	13.71	16.00	24.63	31.24
PAP-MC 3- 4N	3/16	1/4	3.04	9/16	1/2	13.71	16.00	29.71	36.32
PAP-MC 4- 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	25.40	32.76
PAP-MC 4- 4N	1/4	1/4	4.82	9/16	9/16	15.24	17.78	30.48	37.84
PAP-MC 4- 6N	1/4	3/8	4.82	11/16	9/16	15.24	17.78	30.98	38.35
PAP-MC 4- 8N	1/4	1/2	4.82	7/8	9/16	15.24	17.78	37.33	44.70
PAP-MC 4- 12N	1/4	3/4	4.82	1-1/16	9/16	15.24	17.78	38.86	46.22
PAP-MC 5- 2N	5/16	1/8	4.82	9/16	5/8	16.25	18.54	26.67	34.03
PAP-MC 5- 4N	5/16	1/4	6.35	9/16	5/8	16.25	18.54	31.24	38.60
PAP-MC 5- 6N	5/16	3/8	6.35	11/16	5/8	16.25	18.54	31.75	39.11
PAP-MC 6- 2N	3/8	1/8	4.82	5/8	11/16	16.76	19.30	27.94	35.30
PAP-MC 6- 4N	3/8	1/4	7.11	5/8	11/16	16.76	19.30	32.51	39.87
PAP-MC 6- 6N	3/8	3/8	7.11	11/16	11/16	16.76	19.30	32.51	39.87
PAP-MC 6- 8N	3/8	1/2	7.11	7/8	11/16	16.76	19.30	38.86	46.22
PAP-MC 6- 12N	3/8	3/4	7.11	1-1/16	11/16	16.76	19.30	40.38	47.75
PAP-MC 8- 2N	1/2	1/8	4.82	13/16	7/8	22.86	21.84	28.70	38.86
PAP-MC 8- 4N	1/2	1/4	7.11	13/16	7/8	22.86	21.84	33.27	43.43
PAP-MC 8- 6N	1/2	3/8	9.65	13/16	7/8	22.86	21.84	33.27	43.43
PAP-MC 8- 8N	1/2	1/2	10.41	7/8	7/8	22.86	21.84	38.86	49.02
PAP-MC 8- 12N	1/2	3/4	10.41	1-1/16	7/8	22.86	21.84	40.38	50.54
PAP-MC 8- 16N	1/2	1	10.41	1-3/8	7/8	22.86	21.84	46.99	57.15
PAP-MC 10- 6N	5/8	3/8	9.65	15/16	1	24.38	21.84	34.03	44.19
PAP-MC 10- 8N	5/8	1/2	11.93	15/16	1	24.38	21.84	38.86	49.02
PAP-MC 10- 12N	5/8	3/4	12.70	1-1/16	1	24.38	21.84	40.38	50.54
PAP-MC 12- 8N	3/4	1/2	11.93	1-1/16	1-1/8	24.38	21.84	40.38	50.54
PAP-MC 10- 12N	3/4	3/4	15.74	1-1/16	1-1/8	24.38	21.84	40.38	50.54
PAP-MC 10- 16N	3/4	1	15.74	1-3/8	1-1/8	24.38	21.84	46.99	57.15
PAP-MC 14- 12N	7/8	3/4	15.74	1-3/16	1-1/4	25.90	21.84	40.38	50.54
PAP-MC 14- 16N	7/8	1	18.28	1-3/8	1-1/4	25.90	21.84	46.99	57.15
PAP-MC 16- 8N	1	1/2	11.93	1-3/8	1-1/2	31.24	26.41	45.21	57.40
PAP-MC 16- 12N	1	3/4	15.74	1-3/8	1-1/2	31.24	26.41	45.21	57.40
PAP-MC 16- 16N	1	1	22.35	1-3/8	1-1/2	31.24	26.41	50.03	62.23
PAP-MC 20- 16N	1-1/4	1	22.35	1-3/4	1-7/8	41.15	38.86	55.12	77.22
PAP-MC 20- 20N	1-1/4	1-1/4	27.69	1-3/4	1-7/8	41.15	38.86	55.12	77.22
PAP-MC 24- 24N	1-1/2	1-1/2	34.04	2-1/8	2-1/4	50.04	45.21	61.72	88.90
PAP-MC 32- 32N	2	2	45.97	2-3/4	3	67.56	62.74	76.20	113.54

• All dimensions in millimeters unless specified as "inch"

PAP-MC

Male Connector



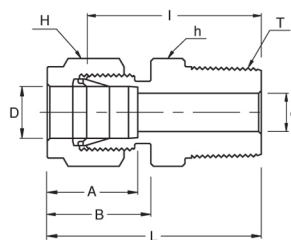
Connects Fractional Tube To Female ISO Tapered Thread

Part No.	Tube O.D. D (inch)	T R (PT)	d Min	Width Across Flat		A	B	I	L
				h (inch)	H (inch)				
PAP-MC 2 - 2R	1/8	1/8	2.28	7/16	7/16	12.70	15.24	23.87	30.48
PAP-MC 2 - 4R	1/8	1/4	2.28	9/16	7/16	12.70	15.24	28.95	35.56
PAP-MC 4 - 2R	1/4	1/8	4.82	1/2	9/16	15.24	17.78	25.40	32.76
PAP-MC 4 - 4R	1/4	1/4	4.82	9/16	9/16	15.24	17.78	30.48	37.84
PAP-MC 4 - 6R	1/4	3/8	4.82	11/16	9/16	15.24	17.78	30.98	38.35
PAP-MC 4 - 8R	1/4	1/2	4.82	7/8	9/16	15.24	17.78	37.33	44.70
PAP-MC 5 - 2R	5/16	1/8	4.82	9/16	5/8	16.25	18.54	26.67	34.03
PAP-MC 5 - 4R	5/16	1/4	6.35	9/16	5/8	16.25	18.54	31.24	38.60
PAP-MC 6 - 2R	3/8	1/8	4.82	5/8	11/16	16.76	19.30	27.94	35.30
PAP-MC 6 - 4R	3/8	1/4	7.11	5/8	11/16	16.76	19.30	32.51	39.87
PAP-MC 6 - 6R	3/8	3/8	7.11	11/16	11/16	16.76	19.30	32.51	39.87
PAP-MC 6 - 8R	3/8	1/2	7.11	7/8	11/16	16.76	19.30	38.86	46.22
PAP-MC 8 - 4R	1/2	1/4	7.11	13/16	7/8	22.86	21.84	33.27	43.43
PAP-MC 8 - 6R	1/2	3/8	9.65	13/16	7/8	22.86	21.84	33.27	43.43
PAP-MC 8 - 8R	1/2	1/2	10.41	7/8	7/8	22.86	21.84	38.86	49.02
PAP-MC 8 - 12R	1/2	3/4	10.41	1-1/16	7/8	22.86	21.84	40.38	50.54
PAP-MC 12-12R	3/4	3/4	15.74	1-1/16	1-1/8	24.38	21.84	40.38	50.54
PAP-MC 16- 16R	1	1	22.35	1-3/8	1-1/2	31.24	26.41	50.03	62.23

• All dimensions in millimeters unless specified as "inch"

PAP-MC

Male Connector

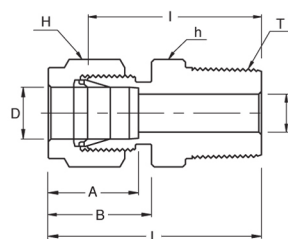


Connects Metric Tube To Female NPT Thread

Part No.	Tube O.D. D	T (NPT)	d Min	Width Across Flat		A	B	I	L
				h	H				
PAP-MC 2M- 2N	2	1/8	1.7	12	12	12.9	15.3	23.9	30.5
PAP-MC 3M- 2N	3	1/8	2.4	12	12	12.9	15.3	23.9	30.5
PAP-MC 3M- 4N	3	1/4	2.4	14	12	12.9	15.3	29.0	35.6
PAP-MC 4M- 2N	4	1/8	2.4	12	12	13.7	16.1	24.6	31.2
PAP-MC 4M- 4N	4	1/4	2.4	14	12	13.7	16.1	29.7	36.3
PAP-MC 6M- 2N	6	1/8	4.8	14	14	15.3	17.7	25.4	32.8
PAP-MC 6M- 4N	6	1/4	4.8	14	14	15.3	17.7	30.5	37.9
PAP-MC 6M- 6N	6	3/8	4.8	18	14	15.3	17.7	31.0	38.4
PAP-MC 6M- 8N	6	1/2	4.8	22	14	15.3	17.7	37.3	44.7
PAP-MC 8M- 2N	8	1/8	4.8	15	16	16.2	18.6	26.7	34.2
PAP-MC 8M- 4N	8	1/4	6.4	15	16	16.2	18.6	31.2	38.7
PAP-MC 8M- 6N	8	3/8	6.4	18	16	16.2	18.6	31.8	39.3
PAP-MC 8M- 8N	8	1/2	6.4	22	16	16.2	18.6	38.1	45.6
PAP-MC 10M- 2N	10	1/8	4.8	18	19	17.2	19.5	28.7	36.3
PAP-MC 10M- 4N	10	1/4	7.9	18	19	17.2	19.5	33.3	40.9
PAP-MC 10M- 6N	10	3/8	7.9	18	19	17.2	19.5	33.3	40.9
PAP-MC 10M- 8N	10	1/2	7.9	22	19	17.2	19.5	38.9	46.5
PAP-MC 12M- 2N	12	1/8	4.8	22	22	22.8	22.0	28.7	38.8
PAP-MC 12M- 4N	12	1/4	7.1	22	22	22.8	22.0	33.3	43.4
PAP-MC 12M- 6N	12	3/8	9.5	22	22	22.8	22.0	33.3	43.4
PAP-MC 12M- 8N	12	1/2	9.5	22	22	22.8	22.0	38.9	49.0
PAP-MC 12M- 12N	12	3/4	9.5	27	22	22.8	22.0	40.4	50.5
PAP-MC 14M- 4N	14	1/4	7.1	24	25	24.4	22.0	34.0	44.1
PAP-MC 14M- 6N	14	3/8	9.5	24	25	24.4	22.0	34.0	44.1
PAP-MC 14M- 8N	14	1/2	11.1	24	25	24.4	22.0	38.9	49.0
PAP-MC 16M- 6N	16	3/8	9.5	24	25	24.4	22.0	34.0	44.1
PAP-MC 16M- 8N	16	1/2	11.9	24	25	24.4	22.0	38.9	49.0
PAP-MC 16M- 12N	16	3/4	12.7	27	25	24.4	22.0	40.4	50.5
PAP-MC 18M- 8N	18	1/2	11.9	27	30	24.4	22.0	40.4	50.5
PAP-MC 18M- 12N	18	3/4	15.1	27	30	24.4	22.0	40.4	50.5
PAP-MC 20M- 8N	20	1/2	11.9	30	32	26.0	22.0	42.2	52.3
PAP-MC 20M- 12N	20	3/4	15.9	30	32	26.0	22.0	42.2	52.3
PAP-MC 22M- 12N	22	3/4	15.9	30	32	26.0	22.0	42.2	52.3
PAP-MC 22M- 16N	22	1	18.3	35	32	26.0	22.0	47.0	57.1
PAP-MC 25M- 12N	25	3/4	15.9	35	38	31.3	26.5	45.2	57.5
PAP-MC 25M- 16N	25	1	21.8	35	38	31.3	26.5	50.0	62.3
PAP-MC 28M- 16N	28	1	21.8	41	46	36.6	36.6	51.6	72.4
PAP-MC 28M- 20N	28	1-1/4	21.8	46	46	36.6	36.6	52.3	73.1
PAP-MC 30M- 20N	30	1-1/4	26.2	46	50	39.6	39.2	55.6	77.2
PAP-MC 32M- 20N	32	1-1/4	28.6	46	50	42.0	41.6	56.6	79.6
PAP-MC 38M- 24N	38	1-1/2	33.7	55	60	49.4	47.9	64.0	91.6

• All dimensions in millimeters unless specified as "inch"

PAP-MC Male Connector

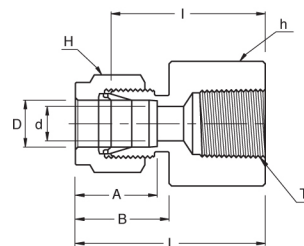


Connects Metric Tube To Female ISO Tapered Thread

Part No.	Tube O.D. D	T R (PT)	d Min	Width Across Flat		A	B	I	L
				h	H				
PAP-MC 2M - 2R	2	1/8	1.7	12	12	12.9	15.3	23.9	30.5
PAP-MC 3M - 2R	3	1/8	2.4	12	12	12.9	15.3	23.9	30.5
PAP-MC 3M - 4R	3	1/4	2.4	14	12	12.9	15.3	29.0	35.6
PAP-MC 4M - 2R	4	1/8	2.4	12	12	13.7	16.1	24.6	31.2
PAP-MC 4M - 4R	4	1/4	2.4	14	12	13.7	16.1	29.7	36.3
PAP-MC 6M - 2R	6	1/8	4.8	14	14	15.3	17.7	25.4	32.8
PAP-MC 6M - 4R	6	1/4	4.8	14	14	15.3	17.7	30.5	37.9
PAP-MC 6M - 6R	6	3/8	4.8	18	14	15.3	17.7	31.0	38.4
PAP-MC 6M - 8R	6	1/2	4.8	22	14	15.3	17.7	37.3	44.7
PAP-MC 8M - 2R	8	1/8	4.8	15	16	16.2	18.6	26.7	34.2
PAP-MC 8M - 4R	8	1/4	6.4	15	16	16.2	18.6	31.2	38.7
PAP-MC 8M - 6R	8	3/8	6.4	18	16	16.2	18.6	31.8	39.3
PAP-MC 8M - 8R	8	1/2	6.4	22	16	16.2	18.6	38.1	45.6
PAP-MC 10M - 2R	10	1/8	4.8	18	19	17.2	19.5	28.7	36.3
PAP-MC 10M - 4R	10	1/4	7.9	18	19	17.2	19.5	33.3	40.9
PAP-MC 10M - 6R	10	3/8	7.9	18	19	17.2	19.5	33.3	40.9
PAP-MC 10M - 8R	10	1/2	7.9	22	19	17.2	19.5	38.9	46.5
PAP-MC 12M - 4R	12	1/4	7.1	22	22	22.8	22.0	33.3	43.4
PAP-MC 12M - 6R	12	3/8	9.5	22	22	22.8	22.0	33.3	43.4
PAP-MC 12M - 8R	12	1/2	9.5	22	22	22.8	22.0	38.9	49.0
PAP-MC 12M - 12R	12	3/4	9.5	27	22	22.8	22.0	40.4	50.5
PAP-MC 15M - 8R	15	1/2	11.9	24	25	24.4	22.0	38.9	49.0
PAP-MC 16M - 4R	16	1/4	7.1	24	25	24.4	22.0	34.0	44.1
PAP-MC 16M - 6R	16	3/8	9.5	24	25	24.4	22.0	34.0	44.1
PAP-MC 16M - 8R	16	1/2	11.9	24	25	24.4	22.0	38.9	49.0
PAP-MC 16M - 12R	16	3/4	12.7	27	25	24.4	22.0	40.4	50.5
PAP-MC 18M - 8R	18	1/2	11.9	27	30	24.4	22.0	40.4	50.5
PAP-MC 16M - 12R	18	3/4	15.1	27	30	24.4	22.0	40.4	50.5
PAP-MC 20M - 8R	20	1/2	11.9	30	32	26.0	22.0	42.2	52.3
PAP-MC 20M - 12R	20	3/4	15.9	30	32	26.0	22.0	42.2	52.3
PAP-MC 22M - 12R	22	3/4	15.9	30	32	26.0	22.0	42.2	52.3
PAP-MC 22M - 16R	22	1	18.3	35	32	26.0	22.0	47.0	57.1
PAP-MC 25M - 12R	25	3/4	15.9	35	38	31.3	26.5	45.2	57.5
PAP-MC 25M - 16R	25	1	21.8	35	38	31.3	26.5	50.0	62.3
PAP-MC 28M - 16R	28	1	21.8	41	46	36.6	36.6	51.6	72.4
PAP-MC 28M - 20R	28	1-1/4	21.8	46	46	36.6	36.6	52.3	73.1
PAP-MC 30M - 20R	30	1-1/4	26.2	46	50	39.6	39.2	55.6	77.2
PAP-MC 32M - 20R	32	1-1/4	28.6	46	50	42.0	41.6	56.6	79.6
PAP-MC 38M - 24R	38	1-1/2	33.7	55	60	49.4	47.9	64.0	91.6

• All dimensions in millimeters unless specified as "inch"

PAP-FC Female Connector



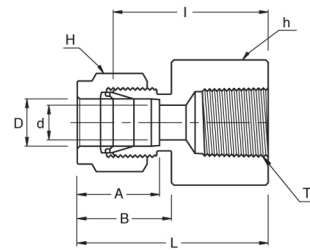
Connects Fractional Tubes To Male NPT Thread

Part No.	Tube O.D. D (inch)	T * (NPT)	d Min	Width Across Flat		A	B	I	L
				h (inch)	H (inch)				
PAP-FC 2 - 2N	1/8	1/8	2.28	9/16	7/16	12.70	15.24	22.09	28.70
PAP-FC 2 - 4N	1/8	1/4	2.28	3/4	7/16	12.70	15.24	26.92	33.52
PAP-FC 3 - 2N	3/16	1/8	3.04	9/16	1/2	13.71	16.00	23.11	29.71
PAP-FC 4 - 2N	1/4	1/8	4.82	9/16	9/16	15.24	17.78	23.87	31.24
PAP-FC 4 - 4N	1/4	1/4	4.82	3/4	9/16	15.24	17.78	28.44	35.81
PAP-FC 4 - 6N	1/4	3/8	4.82	7/8	9/16	15.24	17.78	30.22	37.59
PAP-FC 4 - 8N	1/4	1/2	4.82	1-1/16	9/16	15.24	17.78	35.05	42.41
PAP-FC 5 - 2N	5/16	1/8	6.35	9/16	5/8	16.25	18.54	24.63	32.00
PAP-FC 4 - 4N	5/16	1/4	6.35	3/4	5/8	16.25	18.54	29.46	36.83
PAP-FC 6 - 2N	3/8	1/8	7.11	5/8	11/16	16.76	19.30	25.40	32.76
PAP-FC 6 - 4N	3/8	1/4	7.11	3/4	11/16	16.76	19.30	30.22	37.59
PAP-FC 6 - 6N	3/8	3/8	7.11	7/8	11/16	16.76	19.30	31.75	39.11
PAP-FC 6 - 8N	3/8	1/2	7.11	1-1/16	11/16	16.76	19.30	36.57	43.94
PAP-FC 4 - 12N	3/8	3/4	7.11	1-5/16	11/16	16.76	19.30	40.38	47.75
PAP-FC 8 - 4N	1/2	1/4	10.41	13/16	7/8	22.86	21.84	30.22	40.38
PAP-FC 8 - 6N	1/2	3/8	10.41	7/8	7/8	22.86	21.84	31.75	41.91
PAP-FC 8 - 8N	1/2	1/2	10.41	1-1/16	7/8	22.86	21.84	36.57	46.73
PAP-FC 8 - 12N	1/2	3/4	10.41	1-5/16	7/8	22.86	21.84	38.10	48.26
PAP-FC 10 - 6N	5/8	3/8	12.70	15/16	1	24.38	21.84	31.75	41.91
PAP-FC 10 - 8N	5/8	1/2	12.70	1-1/16	1	24.38	21.84	36.57	46.73
PAP-FC 12 - 8N	3/4	1/2	15.74	1-1/16	1-1/8	24.38	21.84	36.57	46.73
PAP-FC 12 - 12N	3/4	3/4	15.74	1-5/16	1-1/8	24.38	21.84	38.10	48.26
PAP-FC 14 - 12N	7/8	3/4	18.28	1-5/16	1-1/4	25.90	21.84	39.62	49.78
PAP-FC 16 - 12N	1	3/4	22.35	1-3/8	1-1/2	31.24	26.41	41.14	53.34
PAP-FC 16 - 16N	1	1	22.35	1-5/8	1-1/2	31.24	26.41	50.03	62.23

* ISO Tapered Threads are available upon request

• All dimensions in millimeters unless specified as "inch"

PAP-FC Female Connector



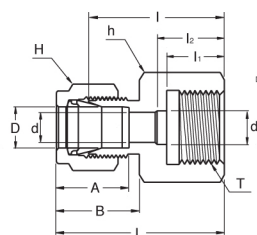
Connects Metric Tubes To Male ISO Tapered Thread

Part No.	Tube O.D. D	T * R (PT)	d Min	Width Across Flat		A	B	I	L
				h	H				
PAP-FC 3M - 2R	3	1/8	2.4	14	12	12.9	15.3	22.1	28.7
PAP-FC 3M - 4R	3	1/4	2.4	19	12	12.9	15.3	26.9	33.5
PAP-FC 4M - 2R	4	1/8	2.4	14	12	13.7	16.1	23.1	29.7
PAP-FC 6M - 2R	6	1/8	4.8	14	14	15.3	17.7	23.9	31.3
PAP-FC 6M - 4R	6	1/4	4.8	19	14	15.3	17.7	28.4	35.8
PAP-FC 6M - 6R	6	3/8	4.8	22	14	15.3	17.7	30.2	37.6
PAP-FC 6M - 8R	6	1/2	4.8	27	14	15.3	17.7	35.1	42.5
PAP-FC 8M - 2R	8	1/8	6.4	15	16	16.2	18.6	24.6	32.1
PAP-FC 8M - 4R	8	1/4	6.4	19	16	16.2	18.6	29.5	37.0
PAP-FC 8M - 6R	8	3/8	6.4	22	16	16.2	18.6	31.0	38.5
PAP-FC 8M - 8R	8	1/2	6.4	27	16	16.2	18.6	35.8	43.3
PAP-FC 10M - 2R	10	1/8	7.9	18	19	17.2	19.5	25.4	33.0
PAP-FC 10M - 4R	10	1/4	7.9	19	19	17.2	19.5	30.2	37.8
PAP-FC 10M - 6R	10	3/8	7.9	22	19	17.2	19.5	31.8	39.4
PAP-FC 10M - 8R	10	1/2	7.9	27	19	17.2	19.5	36.6	44.2
PAP-FC 12M - 2R	12	1/8	8.3	22	22	22.8	22.0	25.4	35.5
PAP-FC 12M - 4R	12	1/4	9.5	22	22	22.8	22.0	30.2	40.3
PAP-FC 12M - 6R	12	3/8	9.5	22	22	22.8	22.0	31.8	41.9
PAP-FC 12M - 8R	12	1/2	9.5	27	22	22.8	22.0	36.6	46.7
PAP-FC 12M - 12R	12	3/4	9.5	35	22	22.8	22.0	38.9	49.0
PAP-FC 15M - 8R	15	1/2	11.9	27	25	24.4	22.0	36.6	46.7
PAP-FC 16M - 8R	16	1/2	12.7	27	25	24.4	22.0	36.8	46.9
PAP-FC 20M - 8R	20	1/2	15.9	30	32	26.0	22.0	37.8	47.9
PAP-FC 20M - 12R	20	3/4	15.9	35	32	26.0	22.0	39.6	49.7
PAP-FC 22M - 12R	22	3/4	18.3	35	32	26.0	22.0	39.6	49.7
PAP-FC 22M - 16R	22	1	18.3	41	32	26.0	22.0	47.8	57.9
PAP-FC 25M - 12R	25	3/4	21.8	35	38	31.3	26.5	41.1	53.4
PAP-FC 25M - 16R	25	1	21.8	41	38	31.3	26.5	50.0	62.3

* NPT Threads are available upon request

• All dimensions in millimeters unless specified as "inch"

PAP-GC Gauge Connector



Connects Fractional Tubes To ISO Parallel Thread

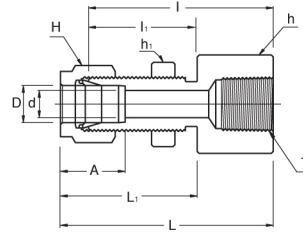
Part No.	Tube O.D. D (inch)	T G (PF)	d Min	d ₁	Width Across Flat		A	B	I	I ₁	I ₂	L
					h (inch)	H (inch)						
PAP-GC 2- 4G	1/4	1/4	4.82	5.58	3/4	9/16	15.24	17.78	30.22	13.00	17.00	37.59
PAP-GC 4- 6G	1/4	3/8	4.82	6.60	15/16	9/16	15.24	17.78	30.22	14.20	20.30	37.59
PAP-GC 4- 8G	1/4	1/2	4.82	6.60	1-1/16	9/16	15.24	17.78	36.07	18.80	24.90	43.43
PAP-GC 5- 4G	5/16	1/4	5.58	-	3/4	5/8	16.25	18.54	30.98	13.00	-	38.35
PAP-GC 5- 8G	5/16	1/2	7.11	-	1-1/16	5/8	16.25	18.54	33.53	18.80	-	40.89
PAP-GC 6- 4G	3/8	1/4	5.58	-	3/4	11/16	16.76	19.30	31.75	13.00	-	39.12
PAP-GC 6- 6G	3/8	3/8	6.60	-	15/16	11/16	16.76	19.30	31.24	14.20	-	38.61
PAP-GC 6- 8G	3/8	1/2	7.11	-	1-1/16	11/16	16.76	19.30	34.54	18.80	-	41.91
PAP-GC 8- 4G	1/2	1/4	5.58	-	7/8	7/8	22.86	21.84	31.80	13.00	-	41.95
PAP-GC 8- 6G	1/2	3/8	6.60	-	15/16	7/8	22.86	21.84	34.29	14.20	-	44.45
PAP-GC 8- 8G	1/2	1/2	7.11	7.11	1-1/16	7/8	22.86	21.84	38.10	18.80	-	48.26

Connects Metric Tubes To ISO Parallel Thread

Part No.	Tube O.D. D	T G (PF)	d Min	d ₁	Width Across Flat		A	B	I	I ₁	I ₂	L
					h	H						
PAP-GC 3M - 4G	3	1/4	2.4	5.5	19	12	12.9	15.3	28.7	13	17	35.3
PAP-GC 6M - 4G	6	1/4	4.8	5.5	19	14	15.3	17.7	30.2	13	17	37.6
PAP-GC 6M - 6G	6	3/8	4.8	6.5	24	14	15.3	17.7	30.2	14	20	37.6
PAP-GC 6M - 8G	6	1/2	4.8	7.0	27	14	15.3	17.7	36.1	19	25	43.5
PAP-GC 8M - 4G	8	1/4	5.5	5.5	19	16	16.2	18.6	31.0	13	-	38.5
PAP-GC 8M - 6G	8	3/8	6.5	6.5	24	16	16.2	18.6	28.7	14	-	36.2
PAP-GC 8M - 8G	8	1/2	7.0	7.0	27	16	16.2	18.6	33.5	19	-	41.0
PAP-GC 10M - 4G	10	1/4	5.5	5.5	19	19	17.2	19.5	31.8	13	-	39.4
PAP-GC 10M - 6G	10	3/8	6.5	6.5	24	19	17.2	19.5	31.2	14	-	38.8
PAP-GC 10M - 8G	10	1/2	7.0	7.0	27	19	17.2	19.5	34.5	19	-	42.1
PAP-GC 12M - 4G	12	1/4	5.5	5.5	22	22	22.8	22.0	31.8	13	-	41.9
PAP-GC 12M - 6G	12	3/8	6.5	6.5	24	22	22.8	22.0	34.3	14	-	44.4
PAP-GC 12M - 8G	12	1/2	7.0	7.0	27	22	22.8	22.0	38.1	19	-	48.2
PAP-GC 20M - 8G	20	1/2	7.0	7.0	30	32	26.0	22.0	44.2	19	-	54.3
PAP-GC 22M - 8G	22	1/2	7.0	7.0	30	32	26.0	22.0	44.2	19	-	54.3

• All dimensions in millimeters unless specified as "inch"

PAP-BFC
Bulkhead Female
Connector



Connects Fractional Tubes To Male NPT Thread

Part No.	Tube O.D. D (inch)	T * (NPT)	d Min	Width Across Flat			A	I	I ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
				h (inch)	h ₁ (inch)	H (inch)							
PAP-BFC 2- 2N	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
PAP-BFC 4- 2N	1/4	1/8	4.82	5/8	5/8	9/16	15.24	39.62	26.16	46.99	33.52	11.50	10.16
PAP-BFC 4- 4N	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
PAP-BFC 6- 4N	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
PAP-BFC 8- 6N	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
PAP-BFC 8- 8N	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
PAP-BFC 12-12N	3/4	3/4	15.74	1-1/4	1-3/16	1-1/8	24.38	63.60	37.33	73.51	47.49	25.79	16.76

* ISO Tapered Threads are available upon request

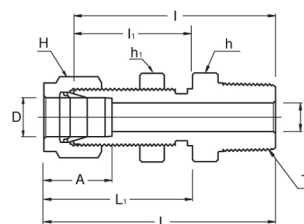
Connects Metric Tubes To Male NPT Thread

Part No.	Tube O.D. D	T * (NPT)	d Min	Width Across Flat			A	I	I ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
				h	h ₁	H							
PAP-BFC 6M- 2N	6	1/8	4.8	15.8	15.8	14	15.3	39.6	27.7	46.90	35.00	11.5	10.2
PAP-BFC 6M- 4N	6	1/4	4.8	19.0	16.0	14	15.3	44.4	26.2	51.80	33.60	11.5	10.2
PAP-BFC 8M- 4N	8	1/4	6.3	19.0	17.4	16	16.2	46.7	28.4	53.85	35.55	13.1	11.2
PAP-BFC 12M- 8N	12	1/2	9.5	27.0	24.0	22	22.8	56.4	31.8	66.50	41.90	19.5	12.7

* ISO Tapered Threads are available upon request

• All dimensions in millimeters unless specified as "inch"

PAP-BMC Bulkhead Male Connector



Connects Fractional Tubes To Female NPT Thread

Part No.	Tube O.D. D (inch)	T* (NPT)	d Min	Width Across Flat			A	I	I ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
				h (inch)	h ₁ (inch)	H (inch)							
PAP-BMC 2 - 2N	1/8	1/8	2.28	1/2	1/2	7/16	12.70	39.87	24.63	46.48	31.24	8.33	12.70
PAP-BMC 4 - 2N	1/4	1/8	4.82	5/8	5/8	9/16	15.24	42.16	26.16	49.53	33.52	11.50	10.16
PAP-BMC 4 - 4N	1/4	1/4	4.82	5/8	5/8	9/16	15.24	46.73	26.16	54.10	33.52	11.50	10.16
PAP-BMC 6 - 4N	3/8	1/4	7.11	3/4	3/4	11/16	16.76	50.03	29.46	57.40	36.83	14.68	11.17
PAP-BMC 6 - 6N	3/8	3/8	7.11	3/4	3/4	11/16	16.76	50.03	29.46	57.40	36.83	14.68	11.17
PAP-BMC 6 - 8N	3/8	1/2	7.11	7/8	3/4	11/16	16.76	56.38	29.46	63.75	36.83	14.68	11.17
PAP-BMC 8 - 6N	1/2	3/8	9.65	15/16	15/16	7/8	22.86	53.08	31.75	63.24	41.91	19.44	12.70
PAP-BMC 8 - 8N	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
PAP-BMC 12 - 12N	3/4	3/4	15.74	1-3/16	1-3/16	1-1/8	24.38	66.04	37.33	76.20	47.49	25.79	16.76
PAP-BMC 16 - 16N	1	1	22.35	1-5/8	1-5/8	1-1/2	31.24	81.02	45.21	93.21	57.40	33.73	19.05

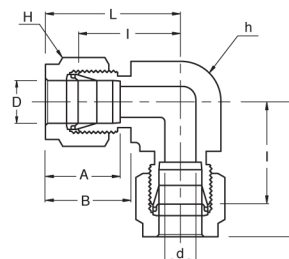
* ISO Tapered Threads are available upon request

• All dimensions in millimeters unless specified as "inch"

Elbow & Tee



PAP-UE Union Elbow



Connects Fractional Tubes

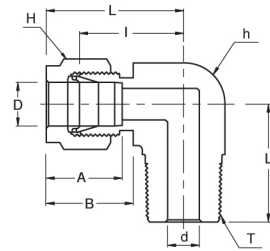
Part No.	Tube O.D. D (inch)	d Min	Width Across Flat		A	B	I	L
			h (inch)	H (inch)				
PAP-UE - 1	1/16	1.27	3/8	5/16	8.63	10.92	14.00	18.03
PAP-UE - 2	1/8	2.28	3/8	7/16	12.70	15.24	15.74	22.35
PAP-UE - 3	3/16	3.04	1/2	1/2	13.71	16.00	18.54	25.14
PAP-UE - 4	1/4	4.82	1/2	9/16	15.24	17.78	20.10	27.40
PAP-UE - 5	5/16	6.35	5/8	5/8	16.25	18.54	22.35	29.71
PAP-UE - 6	3/8	7.11	5/8	11/16	16.76	19.30	23.11	30.48
PAP-UE - 8	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06
PAP-UE - 10	5/8	12.70	15/16	1	24.38	21.84	27.94	38.10
PAP-UE - 12	3/4	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87
PAP-UE - 14	7/8	18.28	1-3/8	1-1/4	25.90	21.84	34.54	44.70
PAP-UE - 16	1	22.35	1-3/8	1-1/2	31.24	26.41	36.83	49.02
PAP-UE - 20	1-1/4	27.69	1-11/16	1-7/8	41.15	38.86	44.45	66.55
PAP-UE - 24	1-1/2	34.04	2	2-1/4	50.04	45.21	50.80	77.98
PAP-UE - 32	2	45.97	2-3/4	3	67.56	62.74	69.85	107.19

Connects Metric Tubes

Part No.	Tube O.D. D	d Min	Width Across Flat		A	B	I	L
			h	H				
PAP-UE - 2M	2	1.7	9.5	12	12.9	15.3	15.7	22.3
PAP-UE - 3M	3	2.4	9.5	12	12.9	15.3	15.7	22.3
PAP-UE - 4M	4	2.4	12.7	12	13.7	16.1	18.8	25.4
PAP-UE - 6M	6	4.8	12.7	14	15.3	17.7	19.6	27.0
PAP-UE - 8M	8	6.4	15.9	16	16.2	18.6	22.4	29.9
PAP-UE - 10M	10	7.9	17.5	19	17.2	19.5	23.9	31.5
PAP-UE - 12M	12	9.5	20.6	22	22.8	22.0	25.9	36.0
PAP-UE - 15M	15	11.9	23.8	25	24.4	22.0	27.9	38.8
PAP-UE - 16M	16	12.7	23.8	25	24.4	22.0	27.9	38.0
PAP-UE - 18M	18	15.1	27.0	30	24.4	22.0	29.7	39.8
PAP-UE - 20M	20	15.9	34.9	32	26.0	22.0	34.5	44.6
PAP-UE - 22M	22	18.3	34.9	32	26.0	22.0	34.5	44.6
PAP-UE - 25M	25	21.8	34.9	38	31.3	26.5	36.8	49.1
PAP-UE - 28M	28	21.8	41	46	36.6	36.6	43.2	64.0
PAP-UE - 30M	30	26.2	46	50	39.6	39.2	48.3	69.9
PAP-UE - 32M	32	28.6	46	50	42.0	41.6	49.3	72.3
PAP-UE - 38M	38	33.7	55	60	49.4	47.9	56.4	84.0

• All dimensions in millimeters unless specified as "inch"

PAP-ME
Male Elbow

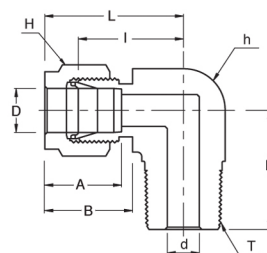


Connects Metric Tubes To Female NPT Thread

Part No.	Tube O.D. D	T (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
PAP-ME 2M - 2N	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
PAP-ME 3M - 4N	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
PAP-ME 4M - 2N	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
PAP-ME 4M - 4N	4	1/4	2.4	12.7	12	13.7	16.1	18.8	25.4	23.4
PAP-ME 6M - 2N	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
PAP-ME 6M - 4N	6	1/4	4.8	12.7	14	15.3	17.7	19.6	27.0	23.4
PAP-ME 6M - 6N	6	3/8	4.8	15.9	14	15.3	17.7	22.4	29.8	26.2
PAP-ME 6M - 8N	6	1/2	4.8	20.6	14	15.3	17.7	24.4	31.8	33.0
PAP-ME 8M - 2N	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
PAP-ME 8M - 4N	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
PAP-ME 8M - 6N	8	3/8	6.4	15.9	16	16.2	18.6	23.1	30.6	26.2
PAP-ME 8M - 8N	8	1/2	6.4	20.6	16	16.2	18.6	25.1	32.6	33.0
PAP-ME 10M - 2N	10	1/8	4.8	17.5	19	17.2	19.5	23.9	31.5	21.6
PAP-ME 10M - 4N	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	26.2
PAP-ME 10M - 6N	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	26.2
PAP-ME 10M - 8N	10	1/2	7.9	20.6	19	17.2	19.5	25.9	33.5	33.0
PAP-ME 12M - 4N	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
PAP-ME 12M - 6N	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
PAP-ME 12M - 8N	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
PAP-ME 12M - 12N	12	3/4	9.5	27.0	22	22.8	22.0	29.7	39.8	36.8
PAP-ME 16M - 6N	16	3/8	9.5	23.8	25	24.4	22.0	27.9	38.0	30.2
PAP-ME 16M - 8N	16	1/2	11.9	23.8	25	24.4	22.0	27.9	38.0	35.1
PAP-ME 16M - 12N	16	3/4	12.7	27.0	25	24.4	22.0	29.7	39.8	36.8
PAP-ME 18M - 8N	18	1/2	11.9	27.0	30	24.4	22.0	29.7	39.8	36.8
PAP-ME 18M - 12N	18	3/4	15.1	27.0	30	24.4	22.0	29.7	39.8	36.8
PAP-ME 20M - 8N	20	1/2	11.9	34.9	32	26.0	22.0	34.5	44.6	41.7
PAP-ME 20M - 12N	20	3/4	15.9	34.9	32	26.0	22.0	34.5	44.6	41.7
PAP-ME 22M - 12N	22	3/4	15.9	34.9	32	26.0	22.0	34.5	44.6	41.7
PAP-ME 20M - 16N	22	1	18.3	34.9	32	26.0	22.0	34.5	44.6	46.5
PAP-ME 25M - 12N	25	3/4	15.9	34.9	38	31.3	26.5	36.8	49.1	41.7
PAP-ME 25M - 16N	25	1	21.8	34.9	38	31.3	26.5	36.8	49.1	46.5
PAP-ME 30M - 20N	30	1-1/4	26.2	46	50	39.6	39.2	48.3	69.9	53.1
PAP-ME 32M - 20N	32	1-1/4	27.8	46	50	42.0	41.6	49.3	72.3	53.1
PAP-ME 38M - 24N	38	1-1/2	33.7	55	60	49.4	47.9	56.4	84.0	60.4

• All dimensions in millimeters unless specified as "inch"

PAP-ME Male Elbow



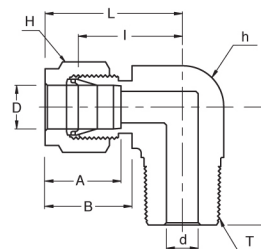
Connects Metric Tubes To Female ISO Tapered Thread

Part No.	Tube O.D. D	T R (PT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
PAP-ME 3M - 2R	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
PAP-ME 3M - 4R	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
PAP-ME 4M - 2R	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
PAP-ME 4M - 4R	4	1/4	2.4	12.7	12	13.7	16.1	18.8	25.4	23.4
PAP-ME 6M - 2R	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
PAP-ME 6M - 4R	6	1/4	4.8	12.7	14	15.3	17.7	19.6	27.0	23.4
PAP-ME 6M - 6R	6	3/8	4.8	15.9	14	15.3	17.7	22.4	29.8	26.2
PAP-ME 6M - 8R	6	1/2	4.8	20.6	14	15.3	17.7	24.4	31.8	33.0
PAP-ME 8M - 2R	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
PAP-ME 8M - 4R	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
PAP-ME 8M - 6R	8	3/8	6.4	15.9	16	16.2	18.6	23.1	30.6	26.2
PAP-ME 8M - 8R	8	1/2	6.4	20.6	16	16.2	18.6	25.1	32.6	33.0
PAP-ME 10M - 4R	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	26.2
PAP-ME 10M - 6R	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	26.2
PAP-ME 10M - 8R	10	1/2	7.9	20.6	19	17.2	19.5	25.9	33.5	33.0
PAP-ME 12M - 2R	12	1/8	4.8	20.6	22	22.8	22.0	25.9	36.0	23.6
PAP-ME 12M - 4R	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
PAP-ME 12M - 6R	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
PAP-ME 10M - 8R	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
PAP-ME 10M - 12R	12	3/4	9.5	27.0	22	22.8	22.0	29.7	39.8	36.8
PAP-ME 16M - 6R	16	3/8	9.5	23.8	25	24.4	22.0	27.9	38.0	30.2
PAP-ME 16M - 8R	16	1/2	11.9	23.8	25	24.4	22.0	27.9	38.0	35.1
PAP-ME 18M - 8R	18	1/2	11.9	27.0	30	24.4	22.0	29.7	39.8	36.8
PAP-ME 18M - 12R	18	3/4	15.1	27.0	30	24.4	22.0	29.7	39.8	36.8
PAP-ME 20M - 8R	20	1/2	11.9	34.9	32	26.0	22.0	34.5	44.6	41.7
PAP-ME 20M - 12R	20	3/4	15.9	34.9	32	26.0	22.0	34.5	44.6	41.7
PAP-ME 22M - 12R	22	3/4	15.9	34.9	32	26.0	22.0	34.5	44.6	41.7
PAP-ME 22M - 16R	22	1	18.3	34.9	32	26.0	22.0	34.5	44.6	46.5
PAP-ME 25M - 12R	25	3/4	15.9	34.9	38	31.3	26.5	36.8	49.1	41.7
PAP-ME 25M - 16R	25	1	21.8	34.9	38	31.3	26.5	36.8	49.1	46.5

• All dimensions in millimeters unless specified as "inch"

PAP-ME

Male Elbow

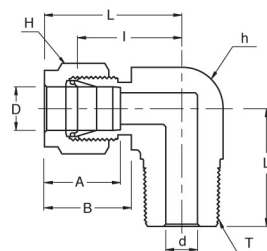


Connects Fractional Tube To Female NPT Thread

Part No.	Tube O.D. D (inch)	T (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h (inch)	H (inch)					
PAP-ME 2 - 2N	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.00	24.30	18.80
PAP-ME 2 - 4N	1/8	1/4	2.28	1/2	7/16	12.70	15.24	18.00	24.30	23.36
PAP-ME 3 - 2N	3/16	1/8	3.04	1/2	1/2	13.71	16.00	18.79	25.40	18.79
PAP-ME 3 - 4N	3/16	1/4	3.04	1/2	1/2	13.71	16.00	18.79	25.40	23.36
PAP-ME 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.55	26.92	18.79
PAP-ME 4 - 4N	1/4	1/4	4.82	1/2	9/16	15.24	17.78	19.55	26.92	23.36
PAP-ME 4 - 6N	1/4	3/8	4.82	5/8	9/16	15.24	17.78	22.35	29.71	26.16
PAP-ME 4 - 8N	1/4	1/2	4.82	13/16	9/16	15.24	17.78	24.38	31.75	33.02
PAP-ME 5 - 2N	5/16	1/8	4.82	9/16	5/8	16.25	18.54	21.33	28.70	19.81
PAP-ME 5 - 4N	5/16	1/4	6.35	9/16	5/8	16.25	18.54	21.33	28.70	24.38
PAP-ME 5 - 6N	5/16	3/8	6.35	11/16	5/8	16.25	18.54	23.11	30.48	26.16
PAP-ME 6 - 2N	3/8	1/8	4.82	5/8	11/16	16.76	19.30	23.11	30.48	20.82
PAP-ME 6 - 4N	3/8	1/4	7.11	5/8	11/16	16.76	19.30	23.11	30.48	25.40
PAP-ME 6 - 6N	3/8	3/8	7.11	5/8	11/16	16.76	19.30	23.87	31.24	26.16
PAP-ME 6 - 8N	3/8	1/2	7.11	13/16	11/16	16.76	19.30	25.90	33.27	33.02
PAP-ME 6 - 12N	3/8	3/4	7.11	1-1/16	11/16	16.76	19.30	29.71	37.08	36.83
PAP-ME 8 - 4N	1/2	1/4	7.11	13/16	7/8	22.86	21.84	25.90	36.06	28.19
PAP-ME 8 - 6N	1/2	3/8	9.65	13/16	7/8	22.86	21.84	25.90	36.06	28.19
PAP-ME 8 - 8N	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06	33.02
PAP-ME 8 - 12N	1/2	3/4	10.41	1-1/16	7/8	22.86	21.84	29.71	39.87	36.83
PAP-ME 10 - 6N	5/8	3/8	9.65	15/16	1	24.38	21.84	27.94	38.10	30.22
PAP-ME 10 - 8N	5/8	1/2	11.93	15/16	1	24.38	21.84	27.94	38.10	35.10
PAP-ME 10 - 12N	5/8	3/4	12.70	1-1/16	1	24.38	21.84	29.71	39.87	36.83
PAP-ME 12 - 8N	3/4	1/2	11.93	1-1/16	1-1/8	24.38	21.84	29.71	39.87	36.83
PAP-ME 12 - 12N	3/4	3/4	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87	36.83
PAP-ME 14 - 12N	7/8	3/4	15.74	1-3/8	1-1/4	25.90	21.84	34.54	44.70	41.65
PAP-ME 16 - 12N	1	3/4	15.74	1-3/8	1-1/2	31.24	26.41	36.83	49.02	41.65
PAP-ME 16 - 16N	1	1	22.35	1-3/8	1-1/2	31.24	26.41	36.83	49.02	46.48
PAP-ME 20 - 20N	1-1/4	1-1/4	27.69	1-11/16	1-7/8	41.15	38.86	44.45	66.55	47.75
PAP-ME 24 - 24N	1-1/2	1-1/2	34.04	2	2-1/4	50.04	45.21	50.80	77.98	60.45
PAP-ME 32 - 32N	2	2	45.97	2-3/4	3	67.56	62.74	69.85	107.19	70.61

• All dimensions in millimeters unless specified as "inch"

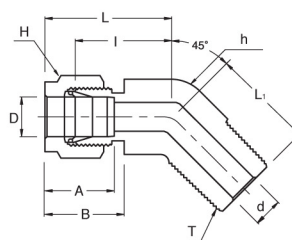
PAP-ME Male Elbow



Connects Fractional Tubes To Female ISO Tapered Thread

Part No.	Tube O.D. D (inch)	T R (PT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h (inch)	H (inch)					
PAP-ME 4 - 2R	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.55	26.92	18.79
PAP-ME 4 - 4R	1/4	1/4	4.82	1/2	9/16	15.24	17.78	19.55	26.92	23.36
PAP-ME 4 - 6R	1/4	3/8	4.82	5/8	9/16	15.24	17.78	22.35	29.71	26.16
PAP-ME 4 - 8R	1/4	1/2	4.82	13/16	9/16	15.24	17.78	24.38	31.75	33.02
PAP-ME 5 - 4R	5/16	1/4	6.35	9/16	5/8	16.25	18.54	21.33	28.70	24.38
PAP-ME 6 - 4R	3/8	1/4	7.11	5/8	11/16	16.76	19.30	23.11	30.48	25.40
PAP-ME 6 - 6R	3/8	3/8	7.11	5/8	11/16	16.76	19.30	23.87	31.24	26.16
PAP-ME 8 - 6R	1/2	3/8	9.65	13/16	7/8	22.86	21.84	25.91	36.07	28.20
PAP-ME 8 - 8R	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.91	36.07	33.02

PAP-HME 45° Male Elbow



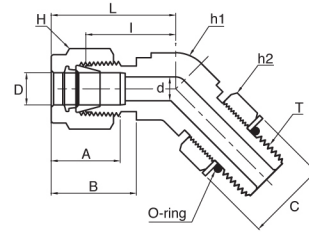
Connects Fractional Tubes To Female NPT Thread

Part No.	Tube O.D. D (inch)	T * (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h (inch)	H (inch)					
PAP-HME 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	17.27	24.63	16.51
PAP-HME 4 - 4N	1/4	1/4	4.82	1/2	9/16	15.24	17.78	17.27	24.63	21.08
PAP-HME 6 - 2N	3/8	1/8	4.82	5/8	11/16	16.76	19.30	20.57	27.94	18.28
PAP-HME 6 - 4N	3/8	1/4	7.11	5/8	11/16	16.76	19.30	20.57	27.94	22.86
PAP-HME 6 - 6N	3/8	3/8	7.11	13/16	11/16	16.76	19.30	21.84	29.21	24.13
PAP-HME 8 - 6N	1/2	3/8	9.65	13/16	7/8	22.86	21.84	21.84	32.00	24.13
PAP-HME 8 - 8N	1/2	1/2	10.41	13/16	7/8	22.86	21.84	21.84	32.00	28.95

* ISO Tapered Threads are available upon request

• All dimensions in millimeters unless specified as "inch"

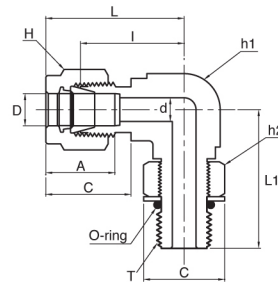
PAP-PHME
45° Positionable
Male Elbow



Connects Fractional Tubes To SAE/MS Straight Thread

Part No.	Tube O.D. D (inch)	T (U)	d Min	Width Across Flat			A	B	I	L	L1	C
				h1	h2	H						
PAP-PHME 4 - 4U	1/4	7/16-20	4.83	1/2	9/16	9/16	15.24	17.78	18.29	25.64	25.65	16.51
PAP-PHME 6 - 6U	3/8	9/16-18	7.11	5/8	11/16	11/16	16.76	19.30	20.57	27.94	28.19	20.07
PAP-PHME 8 - 8U	1/2	3/4-16	10.41	13/16	7/8	7/8	22.86	21.84	21.84	32.00	32.26	25.65
PAP-PHME 12 - 12U	3/4	1-1/16-12	15.75	1-1/8	1-1/4	1-1/8	24.38	24.84	29.72	39.88	47.24	36.58
PAP-PHME 16 - 16U	1	1-5/16-12	22.35	1-3/8	1-1/2	1-1/2	31.24	26.42	35.31	47.50	50.55	43.94

PAP-PME
Positionable
Male Elbow

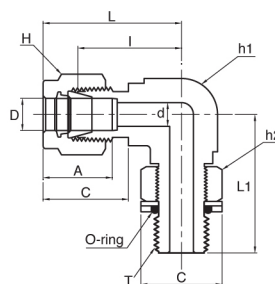


Connects Fractional Tubes To SAE/MS Straight Thread

Part No.	Tube O.D. D (inch)	T (U)	d Min	Width Across Flat			A	B	I	L	L1	C
				h1	h2	H						
PAP-PME 4 - 4U	1/4	7/16-20	4.83	1/2	9/16	9/16	15.24	17.78	21.08	28.45	28.45	16.51
PAP-PME 4 - 6U	1/4	9/16-18	4.83	5/8	11/16	9/16	15.24	17.78	23.11	30.48	32.26	20.07
PAP-PME 5 - 5U	5/16	1/2-20	5.84	9/16	5/8	5/8	16.26	18.54	22.86	30.23	29.46	18.29
PAP-PME 6 - 6U	3/8	9/16-18	7.11	5/8	11/16	11/16	16.76	19.30	24.64	32.00	32.26	20.07
PAP-PME 6 - 8U	3/8	3/4-16	7.11	13/16	7/8	11/16	16.76	19.30	27.43	34.80	37.85	25.65
PAP-PME 8 - 8U	1/2	3/4-16	10.41	13/16	7/8	7/8	22.86	21.84	27.43	37.59	37.85	25.65
PAP-PME 10 - 10U	5/8	7/8-14	12.70	15/16	1	1	24.38	21.84	29.46	39.62	43.43	29.46
PAP-PME 12 - 12U	3/4	1-1/16-12	15.75	1-1/16	1-1/4	1-1/8	24.38	21.84	31.24	41.40	48.77	36.58
PAP-PME 14 - 14U	7/8	3/16-12	18.29	1-3/16	1-3/8	1-1/4	25.91	21.84	33.02	43.18	50.55	40.39
PAP-PME 16 - 16U	1	1-5/16-12	22.35	1-3/8	1-1/2	1-1/2	31.24	26.42	38.35	50.55	53.59	43.94
PAP-PME 20 - 20U	1-1/4	1-5/8-12	27.69	1-11/16	1-7/8	1-7/8	41.15	38.86	45.72	67.82	58.17	54.86
PAP-PME 24 - 24U	1-1/2	1-7/8-12	34.04	2	2-1/8	2-1/4	50.04	45.21	50.80	77.98	60.45	62.23
PAP-PME 32 - 32U	2-1/2	2-1/2-12	45.97	2-3/4	2-3/4	3	67.56	62.74	69.85	107.19	71.63	80.26

• All dimensions in millimeters unless specified as "inch"

PAP-PME Positionable Male Elbow



Connects Fractional Tubes To Female ISO Parallel Thread

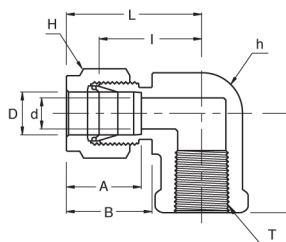
Part No.	Tube O.D. D (inch)	T (PF)	d Min	Width Across Flat			A	B	I	L	L1	C
				h1	h2	H						
PAP-PME 4 - 2G	1/4	1/8	4.06	1/2	9/16	9/16	15.24	17.78	19.56	26.92	26.42	17.27
PAP-PME 4 - 4G	1/4	1/4	4.83	5/8	3/4	9/16	15.24	17.78	21.59	28.96	32.26	22.86
PAP-PME 6 - 4G	3/8	1/4	5.84	5/8	3/4	11/16	16.76	19.30	23.11	30.48	32.26	22.86
PAP-PME 6 - 6G	3/8	3/8	7.11	13/16	7/8	11/16	16.76	19.30	25.91	33.27	37.08	26.42
PAP-PME 8 - 4G	1/2	1/4	5.84	13/16	3/4	7/8	22.86	21.84	25.91	36.07	35.05	26.42
PAP-PME 8 - 6G	1/2	3/8	7.87	13/16	7/8	7/8	22.86	21.84	25.91	36.07	37.08	22.86
PAP-PME 8 - 8G	1/2	1/2	10.41	15/16	1-1/16	7/8	22.86	21.84	27.94	38.10	43.43	26.42
PAP-PME 10 - 8G	5/8	1/2	11.94	15/16	1-1/16	1	24.38	21.84	27.94	38.10	43.43	32.00
PAP-PME 12 - 8G	3/4	1/2	11.94	1-1/16	1-1/16	1-1/8	24.38	21.84	29.72	39.88	45.21	32.00
PAP-PME 12 - 12G	3/4	3/4	15.75	1-1/16	1-3/8	1-1/8	24.38	21.84	29.72	39.88	48.77	41.15
PAP-PME 16 - 12G	1	3/4	15.75	1-3/8	1-3/8	1-1/2	31.24	26.42	36.83	49.02	53.34	41.15
PAP-PME 16 - 16G	1	1	19.81	1-3/8	1-3/8	1-1/2	31.24	26.42	36.83	49.02	53.59	48.51

Connects Metric Tubes To Female ISO Parallel Thread

Part No.	Tube O.D. D (inch)	T (PF)	d Min	Width Across Flat			A	B	I	L	L1	C
				h1	h2	H						
PAP-PME 6M - 2G	6	1/8	4.0	1/2	9/16	14	15.3	17.7	19.6	27.0	26.4	17.3
PAP-PME 6M - 4G	6	1/4	4.8	5/8	3/4	14	15.3	17.7	21.6	29.0	32.3	22.9
PAP-PME 8M - 2G	8	1/8	4.0	9/16	9/16	16	16.2	18.6	21.3	28.8	27.4	17.3
PAP-PME 8M - 4G	8	1/4	5.9	5/8	3/4	16	16.2	18.6	22.4	29.9	32.2	22.9
PAP-PME 10M - 4G	10	1/4	5.9	13/16	3/4	19	17.2	19.5	25.9	33.5	35.0	22.9
PAP-PME 10M - 6G	10	3/8	7.9	13/16	7/8	19	17.2	19.5	25.9	33.5	37.1	26.4
PAP-PME 12M - 4G	12	1/4	5.9	13/16	3/4	22	22.8	22.0	25.9	36.0	35.0	22.9
PAP-PME 12M - 6G	12	3/8	7.9	13/16	7/8	22	22.8	22.0	25.9	36.0	37.1	26.4
PAP-PME 12M - 8G	12	1/2	9.5	15/16	1-1/16	22	22.8	22.0	27.9	38.0	43.4	32.0
PAP-PME 12M - 12G	12	3/4	9.5	1-1/16	1-3/8	22	22.8	22.0	29.7	39.8	48.8	41.1

• All dimensions in millimeters unless specified as "inch"

PAP-FE Female Elbow



Connects Fractional Tubes To Male NPT Thread

Part No.	Tube O.D. D (inch)	T * (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h (inch)	H (inch)					
PAP-FE 2 - 2N	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.03	24.63	19.05
PAP-FE 2 - 4N	1/8	1/4	2.28	11/16	7/16	12.70	15.24	20.82	27.43	22.35
PAP-FE 3 - 2N	3/16	1/8	3.04	1/2	1/2	13.71	16.00	18.79	25.40	19.05
PAP-FE 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.55	26.92	19.05
PAP-FE 4 - 4N	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
PAP-FE 4 - 6N	1/4	3/8	4.82	13/16	9/16	15.24	17.78	24.38	31.75	22.35
PAP-FE 4 - 8N	1/4	1/2	4.82	1	9/16	15.24	17.78	27.17	34.54	28.44
PAP-FE 5 - 2N	5/16	1/8	6.35	9/16	5/8	16.25	18.54	21.33	28.70	19.05
PAP-FE 5 - 4N	5/16	1/4	6.35	11/16	5/8	16.25	18.54	23.11	30.48	22.35
PAP-FE 6 - 2N	3/8	1/8	7.11	5/8	11/16	16.76	19.30	23.11	30.48	19.05
PAP-FE 6 - 4N	3/8	1/4	7.11	11/16	11/16	16.76	19.30	23.87	31.24	22.35
PAP-FE 6 - 6N	3/8	3/8	7.11	13/16	11/16	16.76	19.30	25.90	33.27	22.35
PAP-FE 6 - 8N	3/8	1/2	7.11	1	11/16	16.76	19.30	28.70	36.06	28.44
PAP-FE 8 - 4N	1/2	1/4	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
PAP-FE 8 - 6N	1/2	3/8	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
PAP-FE 8 - 8N	1/2	1/2	10.41	1	7/8	22.86	21.84	28.70	38.86	37.00
PAP-FE 10 - 6N	5/8	3/8	12.70	15/16	1	24.38	21.84	27.94	38.10	22.35
PAP-FE 10 - 8N	5/8	1/2	12.70	1-1/16	1	24.38	21.84	29.71	39.87	28.44
PAP-FE 12 - 8N	3/4	1/2	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87	28.44
PAP-FE 12 - 12N	3/4	3/4	15.74	1-3/8	1-1/8	24.38	21.84	34.54	44.70	31.75
PAP-FE 14 - 12N	7/8	3/4	18.28	1-3/8	1-1/4	25.90	21.84	34.54	44.70	31.75
PAP-FE 16 - 12N	1	3/4	22.35	1-3/8	1-1/2	31.24	26.41	36.83	49.02	31.75
PAP-FE 16 - 16N	1	1	22.35	1-11/16	1-1/2	31.24	26.41	41.40	53.59	38.10

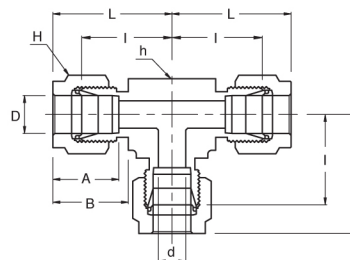
Connects Metric Tubes To Male NPT Thread

Part No.	Tube O.D. D	T * (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
PAP-FE 6M - 4N	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.40
PAP-FE 6M - 6N	6	3/8	4.8	20.63	14	15.3	17.7	24.4	31.7	22.40
PAP-FE 6M - 8N	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.6	28.40
PAP-FE 8M - 4N	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.40
PAP-FE 8M - 8N	8	1/2	6.4	20.63	16	16.2	18.6	28.0	35.2	28.40
PAP-FE 10M - 4N	10	1/4	7.9	17.46	19	17.2	19.5	25.9	33.5	22.40
PAP-FE 10M - 6N	10	3/8	7.9	20.63	19	17.2	19.5	25.9	33.5	22.40
PAP-FE 10M - 8N	10	1/2	7.9	25.40	19	17.2	19.5	28.7	36.1	28.40
PAP-FE 12M - 6N	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.2	22.35
PAP-FE 12M - 8N	12	1/2	9.5	25.40	22	22.8	22.0	28.7	38.8	28.40

* ISO Tapered Threads are available upon request

• All dimensions in millimeters unless specified as "inch"

PAP-UT Union Tee



Connects Fractional Tubes

Part No.	Tube O.D. D (inch)	d Min	Width Across Flat		A	B	I	L
			h (inch)	H (inch)				
PAP-UT - 1	1/16	1.27	3/8	5/16	8.63	10.92	14.00	18.03
PAP-UT - 2	1/8	2.28	3/8	7/16	12.70	15.24	15.80	22.35
PAP-UT - 3	3/16	3.04	1/2	1/2	13.71	16.00	18.54	25.14
PAP-UT - 4	1/4	4.82	1/2	9/16	15.24	17.78	20.10	27.40
PAP-UT - 5	5/16	6.35	5/8	5/8	16.25	18.54	22.35	29.71
PAP-UT - 6	3/8	7.11	5/8	11/16	16.76	19.30	23.11	30.48
PAP-UT - 8	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06
PAP-UT - 10	5/8	12.70	1	1	24.38	21.84	28.70	38.86
PAP-UT - 12	3/4	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87
PAP-UT - 14	7/8	18.28	1-3/8	1-1/4	25.90	21.84	34.54	44.70
PAP-UT - 16	1	22.35	1-3/8	1-1/2	31.24	26.41	36.83	49.02
PAP-UT - 20	1-1/4	27.69	1-11/16	1-7/8	41.15	38.86	44.45	66.55
PAP-UT - 24	1-1/2	34.04	2	2-1/4	50.04	45.21	50.80	77.98
PAP-UT - 32	2	45.97	2-3/4	3	67.56	62.74	69.85	107.19

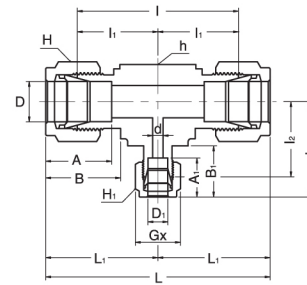
Connects Metric Tubes

Part No.	Tube O.D. D	d Min	Width Across Flat		A	B	I	L
			h	H				
PAP-UT - 2M	2	1.7	9.5	12	12.9	15.3	15.7	22.3
PAP-UT - 3M	3	2.4	9.5	12	12.9	15.3	15.7	22.3
PAP-UT - 4M	4	2.4	12.7	12	13.7	16.1	18.8	25.4
PAP-UT - 6M	6	4.8	12.7	14	15.3	17.7	19.6	27.0
PAP-UT - 8M	8	6.4	15.9	16	16.2	18.6	22.4	29.9
PAP-UT - 10M	10	7.9	17.5	19	17.2	19.5	23.9	31.5
PAP-UT - 12M	12	9.5	20.6	22	22.8	22.0	25.9	36.0
PAP-UT - 15M	15	11.9	25.4	25	24.4	22.0	28.7	38.8
PAP-UT - 16M	16	12.7	25.4	25	24.4	22.0	28.7	38.8
PAP-UT - 18M	18	15.1	27.0	30	24.4	22.0	29.7	38.8
PAP-UT - 20M	20	15.9	34.9	32	26.0	22.0	34.5	44.6
PAP-UT - 22M	22	18.3	34.9	32	26.0	22.0	34.5	44.6
PAP-UT - 25M	25	21.8	34.9	38	31.3	26.5	36.8	49.1
PAP-UT - 28M	28	21.8	41	46	36.6	36.6	43.2	64.0
PAP-UT - 30M	30	26.2	46	50	39.6	39.2	48.3	69.9
PAP-UT - 32M	32	28.6	46	50	42.0	41.6	49.3	72.3
PAP-UT - 38M	38	33.7	55	60	49.4	47.9	56.4	84.0

• All dimensions in millimeters unless specified as "inch"

PAP-RUT

Reducing Union Tee

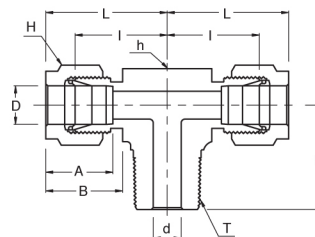


Connects Fractional Tubes

Part No.	Tube O.D.		d Min	Width Across Flat			A	A ₁	B	B ₁	I	I ₁	I ₂	L	L ₁	L ₂
	D (inch)	D ₁ (inch)		h (inch)	H (inch)	H ₁ (inch)										
PAP-RUT 6 - 6 - 4	3/8	1/4	4.82	5/8	11/16	9/16	16.76	15.24	19.30	17.78	46.22	23.11	21.59	60.96	30.48	28.95
PAP-RUT 6 - 8 - 4	1/2	1/4	4.82	13/16	7/8	9/16	22.86	15.24	21.84	17.78	51.81	25.90	24.38	72.13	36.06	31.75
PAP-RUT 8 - 8 - 6	1/2	3/8	7.11	13/16	7/8	11/16	22.86	16.76	21.84	19.30	51.81	25.90	25.90	72.13	36.06	33.27
PAP-RUT 10 - 10 - 6	5/8	3/8	7.11	1	1	11/16	24.38	16.76	21.84	19.30	57.40	28.70	28.70	77.72	38.86	36.06
PAP-RUT 12 - 12 - 6	3/4	3/8	7.11	1 1/16	1 1/8	11/16	24.38	16.76	21.84	19.30	59.43	29.71	29.71	79.75	39.87	37.08
PAP-RUT 12 - 12 - 8	3/4	1/2	10.41	1 1/16	1 1/8	7/8	24.38	22.86	21.84	21.84	59.43	29.71	29.71	79.75	39.87	39.87
PAP-RUT 16 - 16 - 6	1	3/8	7.11	1 3/8	1 1/2	1 1/16	31.24	16.76	26.41	19.30	73.66	36.83	34.54	98.04	49.02	41.91
PAP-RUT 16 - 16 - 8	1	1/2	10.41	1 3/8	1 1/2	7/8	31.24	21.84	26.41	22.86	73.66	36.83	34.54	98.04	49.02	44.70
PAP-RUT 16 - 16 - 12	1	3/4	15.74	1 3/8	1 1/2	1 1/8	31.24	24.38	26.41	21.84	73.66	36.83	34.54	98.04	49.02	44.70

• All dimensions in millimeters unless specified as "inch"

PAP-MBT Male Branch Tee



Connects Fractional Tubes To Female NPT Thread

Part No.	Tube O.D. D (inch)	T * (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h (inch)	H (inch)					
PAP-MBT 2 - 2N	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.30	24.91	18.90
PAP-MBT 2 - 4N	1/8	1/4	2.28	1/2	7/16	12.70	15.24	18.03	24.63	23.36
PAP-MBT 3 - 2N	3/16	1/8	3.04	1/2	1/2	13.71	16.00	17.78	25.40	18.79
PAP-MBT 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.55	26.92	18.79
PAP-MBT 4 - 4N	1/4	1/4	4.82	1/2	9/16	15.24	17.78	19.55	26.92	23.36
PAP-MBT 5 - 2N	5/16	1/8	4.82	5/8	5/8	16.25	18.54	22.35	29.71	20.82
PAP-MBT 6 - 4N	3/8	1/4	7.11	5/8	11/16	16.76	19.30	23.11	30.48	25.40
PAP-MBT 6 - 6N	3/8	3/8	7.11	5/8	11/16	16.76	19.30	23.10	30.48	28.19
PAP-MBT 8 - 6N	1/2	3/8	9.65	13/16	7/8	22.86	21.84	25.90	36.06	28.19
PAP-MBT 8 - 8N	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06	33.02
PAP-MBT 10 - 8N	5/8	1/2	11.93	1	1	24.38	21.84	28.70	38.86	35.81
PAP-MBT 12-12N	3/4	3/4	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87	36.83

* ISO Tapered Threads are available upon request

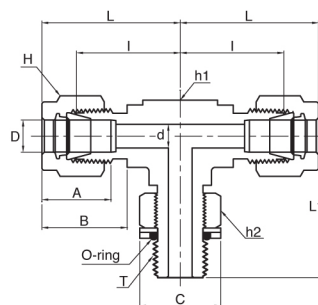
Connects Metric Tubes To Female ISO Tapered Thread

Part No.	Tube O.D. D	T * R (PT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
PAP-MBT 3M - 2R	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
PAP-MBT 3M - 4R	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
PAP-MBT 4M - 2R	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
PAP-MBT 6M - 2R	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
PAP-MBT 6M - 4R	6	1/4	4.8	14.2	14	15.3	17.7	19.6	27.0	23.4
PAP-MBT 8M - 2R	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
PAP-MBT 8M - 4R	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
PAP-MBT 10M - 4R	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
PAP-MBT 10M - 6R	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	28.2
PAP-MBT 12M - 4R	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
PAP-MBT 12M - 6R	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
PAP-MBT 12M - 8R	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
PAP-MBT 16M - 6R	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.0	30.2
PAP-MBT 16M - 8R	16	1/2	11.9	25.4	25	24.4	22.0	27.9	38.0	35.1
PAP-MBT 20M - 12R	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7

* NPT Threads are available upon request

• All dimensions in millimeters unless specified as "inch"

PAP-PMBT
Positionable
Male Branch Tee



Connects Fractional Tubes To Female ISO Parallel Thread

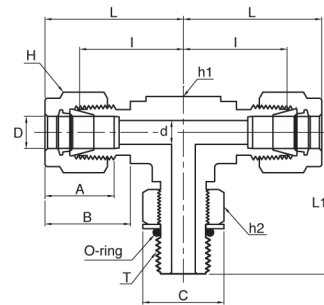
Part No.	Tube O.D. D (inch)	T (PF)	d Min	Width Across Flat			A	B	I	L	L1	C
				h1	h2	H						
PAP-PMBT 4- 2G	1/4	1/8	4.06	1/2	9/16	9/16	15.24	17.78	19.56	26.92	26.42	17.27
PAP-PMBT 4- 4G	1/4	1/4	4.83	5/8	3/4	9/16	15.24	17.78	21.59	28.96	32.26	22.86
PAP-PMBT 6- 4G	3/8	1/4	5.08	5/8	3/4	11/16	15.24	19.30	23.11	30.48	32.26	22.86
PAP-PMBT 8- 6G	3/8	3/8	7.87	13/16	7/8	7/8	22.86	21.84	25.91	36.07	37.08	26.42
PAP-PMBT 8- 8G	1/2	1/2	10.41	15/16	1-1/16	7/8	22.86	21.84	27.94	38.10	43.43	32.00
PAP-PMBT 10- 8G	5/8	1/2	11.94	15/16	1-1/16	1	24.38	21.84	27.94	38.10	43.43	32.00
PAP-PMBT 12- 8G	3/4	1/2	11.94	1-1/16	1-1/16	1-1/8	24.38	21.84	29.72	39.88	45.21	32.00
PAP-PMBT 12-12G	3/4	3/4	15.75	1-1/16	1-3/8	1-1/8	24.38	21.84	29.72	39.88	48.77	41.15
PAP-PMBT 16-16G	1	1	19.81	1-3/8	1-5/8	1-1/2	31.24	26.42	36.83	49.02	53.59	48.51

Connects Metric Tubes To Female ISO Parallel Thread

Part No.	Tube O.D. D (inch)	T (PF)	d Min	Width Across Flat			A	B	I	L	L1	C
				h1	h2	H						
PAP-PMBT 6M- 2G	6	1/8	4.0	1/2	9/16	14	15.3	17.7	19.6	27.0	26.4	17.3
PAP-PMBT 6M- 4G	6	1/4	4.8	5/8	3/4	14	15.3	17.7	21.6	29.0	32.3	22.9
PAP-PMBT 8M- 2G	8	1/8	4.0	9/16	9/16	16	16.2	18.6	21.3	28.8	27.4	17.3
PAP-PMBT 8M- 4G	8	1/4	5.9	5/8	3/4	16	16.2	18.6	22.4	29.9	32.2	22.9
PAP-PMBT 10M- 4G	10	1/4	5.9	13/16	3/4	19	17.2	19.5	25.9	33.5	35.0	22.9
PAP-PMBT 12M- 6G	10	3/8	7.9	13/16	7/8	22	22.8	22.0	25.9	36.0	37.1	26.4
PAP-PMBT 12M- 8G	12	1/4	9.5	15/16	1-1/16	22	22.8	22.0	27.9	38.0	35.0	32.0

• All dimensions in millimeters unless specified as "inch"

PAP-PMBT Positionable Male Branch Tee



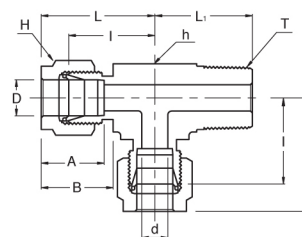
Connects Fractional Tubes To SAE/MS Straight Thread Boss

Part No.	Tube O.D. D (inch)	T (U)	d Min	Width Across Flat			A	B	I	L	L1	C
				h1	h2	H						
PAP-PMBT 4 - 4U	1/4	7/16-20	4.83	1/2	9/16	9/16	15.24	17.78	21.08	28.45	28.45	16.51
PAP-PMBT 6 - 6U	3/8	9/16-18	7.11	5/8	11/16	11/16	16.76	19.30	24.64	32.00	32.26	20.07
PAP-PMBT 8 - 8U	1/2	3/4-16	10.41	13/16	7/8	7/8	22.86	21.84	27.43	37.59	37.85	25.65
PAP-PMBT 12- 12U	3/4	1-1/16-12	15.75	1-1/16	1-1/4	1-1/8	24.38	21.84	31.24	41.40	48.77	36.58
PAP-PMBT 16- 16U	1	1-5/16-12	22.35	1-3/8	1-1/2	1-1/2	31.24	26.42	38.35	50.55	53.59	43.94
PAP-PMBT 20- 20U	1-1/4	1-5/8-12	27.69	1-11/16	1-7/8	1-7/8	41.15	38.86	45.72	67.82	58.17	54.86
PAP-PMBT 24- 24U	1-1/2	1-7/8-12	34.04	2	2-1/8	2-1/4	50.04	45.21	50.80	77.98	60.45	62.23
PAP-PMBT 32- 32U	2	2-1/2-12	45.97	2-3/4	2-3/4	3	67.56	62.74	69.85	107.19	71.63	80.26

• All dimensions in millimeters unless specified as "inch"

PAP-MRT

Male Run Tee



Connects Fractional Tubes To Female NPT Thread

Part No.	Tube O.D. D (inch)	T * (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h (inch)	H (inch)					
PAP-MRT 2 - 2N	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.30	24.91	18.90
PAP-MRT 2 - 4N	1/8	1/4	2.28	1/2	7/16	12.70	15.24	18.03	24.63	23.36
PAP-MRT 3 - 2N	3/16	1/8	3.04	1/2	1/2	13.71	16.00	17.78	25.40	18.79
PAP-MRT 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.55	26.92	18.79
PAP-MRT 4 - 4N	1/4	1/4	4.82	1/2	9/16	15.24	17.78	19.55	26.92	23.36
PAP-MRT 5 - 2N	5/16	1/8	4.82	5/8	5/8	16.25	18.54	22.35	29.71	20.82
PAP-MRT 6 - 4N	3/8	1/4	7.11	5/8	11/16	16.76	19.30	23.11	30.48	25.40
PAP-MRT 6 - 6N	3/8	3/8	7.11	5/8	11/16	16.76	19.30	23.10	30.48	28.19
PAP-MRT 8 - 6N	1/2	3/8	9.65	13/16	7/8	22.86	21.84	25.90	36.06	28.19
PAP-MRT 8 - 8N	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06	33.02
PAP-MRT 10 - 8N	5/8	1/2	11.93	1	1	24.38	21.84	28.70	38.86	35.81
PAP-MRT 12 - 12N	3/4	3/4	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87	36.83

* ISO Tapered Threads are available upon request

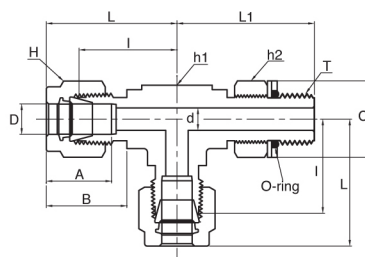
Connects Metric Tubes To Female ISO Tapered Thread

Part No.	Tube O.D. D	T * R (PT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
PAP-MRT 3M- 2R	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
PAP-MRT 3M- 4R	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
PAP-MRT 4M- 2R	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
PAP-MRT 6M- 2R	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
PAP-MRT 6M- 4R	6	1/4	4.8	14.2	14	15.3	17.7	19.6	27.0	23.4
PAP-MRT 8M- 2R	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
PAP-MRT 8M- 4R	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
PAP-MRT 10M- 4R	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
PAP-MRT 10M- 6R	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	28.2
PAP-MRT 12M- 4R	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
PAP-MRT 12M- 6R	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
PAP-MRT 12M- 8R	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
PAP-MRT 16M- 6R	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.0	30.2
PAP-MRT 16M- 8R	16	1/2	11.9	25.4	25	24.4	22.0	27.9	38.0	35.1
PAP-MRT 20M- 12R	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7

* NPT Threads are available upon request

PAP-PMRT

Positionable Male Run Tee



Connects Fractional Tubes To Female ISO Parallel Thread

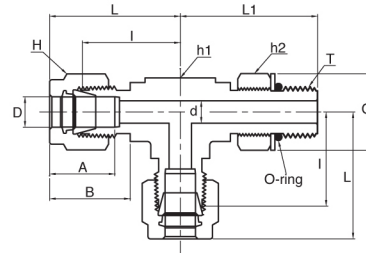
Part No.	Tube O.D. D (inch)	T (PF)	d Min	Width Across Flat			A	B	I	L	L1	C
				h1	h2	H						
PAP-PMRT 4 - 2G	1/4	1/8	4.06	1/2	9/16	9/16	15.24	17.78	19.56	26.92	26.42	17.27
PAP-PMRT 4 - 4G	1/4	1/4	4.83	5/8	3/4	9/16	15.24	17.78	21.59	28.96	32.26	22.86
PAP-PMRT 6 - 4G	3/8	1/4	5.84	5/8	3/4	11/16	16.76	19.30	21.11	30.48	32.26	22.86
PAP-PMRT 8 - 6G	1/4	3/8	7.87	13/16	7/8	7/8	22.86	21.84	25.91	36.07	37.08	26.42
PAP-PMRT 8 - 8G	3/8	1/2	10.41	15/16	1-1/16	7/8	22.86	21.84	27.94	38.10	43.43	32.00
PAP-PMRT 10 - 8G	1/2	1/2	11.94	15/16	1-1/16	1	24.38	21.84	27.94	38.10	43.43	32.00
PAP-PMRT 12 - 8G	3/4	1/2	11.94	1-1/16	1-1/16	1-1/8	24.38	21.84	29.72	39.88	45.21	32.00
PAP-PMRT 12 - 12G	3/4	3/4	15.75	1-1/16	1-3/8	1-1/8	24.38	21.84	29.72	39.88	48.77	41.15
PAP-PMRT 12 - 16G	1	1	19.81	1-3/8	1-5/8	1-1/2	31.24	26.42	36.83	49.02	53.59	48.51

Connects Metric Tubes To Female ISO Parallel Thread

Part No.	Tube O.D. D (inch)	T (PF)	d Min	Width Across Flat			A	B	I	L	L1	C
				h1	h2	H						
PAP-PMRT 6M- 2G	6	1/8	4.0	1/2	9/16	14	15.3	17.7	19.6	27.0	26.4	17.3
PAP-PMRT 6M- 4G	6	1/4	4.8	5/8	3/4	14	15.3	17.7	21.6	29.0	32.2	22.9
PAP-PMRT 8M- 2G	8	1/8	4.0	9/16	9/16	16	16.2	18.6	21.3	28.8	27.4	17.3
PAP-PMRT 8M- 4G	8	1/4	6.4	5/8	3/4	16	16.2	18.6	22.4	29.9	32.2	22.9
PAP-PMRT 10M-4G	10	1/4	5.9	13/16	3/4	19	17.2	19.5	25.9	33.5	35.0	22.9
PAP-PMRT 12M-2G	10	3/8	7.9	13/16	7/8	22	22.8	22.0	25.9	36.0	37.1	26.4
PAP-PMRT 12M-8G	12	1/2	9.5	15/16	1-1/16	22	22.8	22.0	27.9	38.0	43.4	22.9

• All dimensions in millimeters unless specified as "inch"

PAP-PMRT
Positionable
Male Run Tee

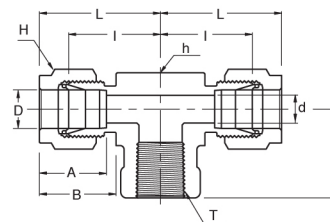


Connects Fractional Tubes To SAE/MS Straight Thread

Part No.	Tube O.D. D (inch)	T (U)	d Min	Width Across Flat			A	B	I	L	L1	C
				h1	h2	H						
PAP-PMRT 4 - 4U	1/4	7/16-20	4.83	1/2	9/16	9/16	15.24	17.78	21.08	28.45	28.45	16.51
PAP-PMRT 6 - 6U	3/8	9/16-18	7.11	5/8	11/16	11/16	16.76	19.30	24.64	32.00	32.26	20.07
PAP-PMRT 8 - 8U	1/2	3/4-16	10.41	13/16	7/8	7/8	22.86	21.84	27.43	37.59	37.85	25.65
PAP-PMRT 12 - 12U	3/4	1-1/16-12	15.75	1-1/16	1-1/4	1-1/8	24.38	21.84	31.24	41.40	48.77	36.58
PAP-PMRT 16 - 16U	1	1-5/16-12	22.35	1-3/8	1-1/2	1-1/2	31.24	26.42	38.35	50.55	53.59	43.94
PAP-PMRT 20 - 20U	1-1/4	1-5/8-12	27.69	1-11/16	1-7/8	1-7/8	41.15	38.86	45.72	67.82	58.17	54.86
PAP-PMRT 24 - 24U	1-1/2	1-7/8-12	34.04	2	2-1/8	2-1/4	50.04	45.21	50.80	77.98	60.45	62.23
PAP-PMRT 32 - 32U	2	2-1/2-12	45.97	2-3/4	2-3/4	3	67.56	62.74	69.85	107.19	71.63	80.26

• All dimensions in millimeters unless specified as "inch"

PAP-FBT Female Branch Tee



Connects Fractional Tubes To Male NPT Thread

Part No.	Tube O.D. D (inch)	T * (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h (inch)	H (inch)					
PAP-FBT 2 - 2N	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.03	24.63	19.05
PAP-FBT 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.55	26.92	19.05
PAP-FBT 4 - 4N	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
PAP-FBT 6 - 4N	3/8	1/4	7.11	11/16	11/16	16.76	19.30	23.87	31.24	22.35
PAP-FBT 6 - 6N	3/8	3/8	7.11	13/16	11/16	16.76	19.30	25.90	33.27	22.35
PAP-FBT 6 - 8N	3/8	1/2	7.11	1	11/16	16.76	19.30	28.70	36.07	28.45
PAP-FBT 8 - 4N	1/2	1/4	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
PAP-FBT 8 - 6N	1/2	3/8	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
PAP-FBT 8 - 8N	1/2	1/2	10.41	1	7/8	22.86	21.84	28.70	38.86	28.44
PAP-FBT 10 - 8N	5/8	1/2	12.70	1	1	24.38	21.84	28.70	38.86	28.44
PAP-FBT 12 - 12N	3/4	3/4	15.74	1-3/8	1-1/8	24.38	21.84	34.54	44.70	31.75
PAP-FBT 16 - 12N	1	3/4	22.35	1-3/8	1-1/2	31.24	26.41	36.83	49.02	31.75
PAP-FBT 16 - 16N	1	1	22.35	1-11/16	1-1/2	31.24	26.41	41.40	53.59	38.10

Connects Metric Tubes To Male NPT Thread

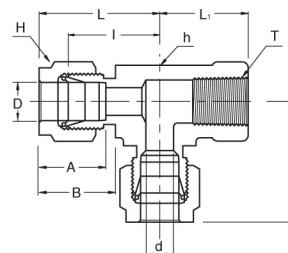
Part No.	Tube O.D. D	T * (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
PAP-FBT 6M- 2N	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.0
PAP-FBT 6M- 4N	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.4
PAP-FBT 6M- 6N	6	3/8	4.8	20.63	14	15.3	17.7	24.4	31.7	22.4
PAP-FBT 6M- 8N	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.5	28.4
PAP-FBT 8M- 2N	8	1/8	6.4	15.87	16	16.2	18.6	22.4	29.9	19.0
PAP-FBT 8M- 4N	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.4
PAP-FBT 8M- 6N	8	3/8	6.4	20.63	16	16.2	18.6	25.2	32.4	22.4
PAP-FBT 8M- 8N	8	1/2	6.4	25.40	16	16.2	18.6	28.0	35.2	28.4
PAP-FBT 10M- 4N	10	1/4	7.9	20.63	19	17.2	19.5	25.9	33.5	22.4
PAP-FBT 10M- 6N	10	3/8	7.9	20.63	19	17.2	19.5	25.9	33.3	22.4
PAP-FBT 10M- 8N	10	1/2	9.5	25.40	19	17.2	19.5	26.2	33.6	22.4
PAP-FBT 12M- 4N	12	1/4	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
PAP-FBT 12M- 6N	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
PAP-FBT 12M- 8N	12	1/2	9.5	25.40	22	22.8	22.0	29.7	40.0	28.4
PAP-FBT 16M- 8N	16	1/2	12.7	25.40	25	24.4	22.0	28.7	38.8	28.4

* ISO Tapered Threads are available upon request

• All dimensions in millimeters unless specified as "inch"

PAP-FRT

Female Run Tee



Connects Fractional Tubes To Male NPT Thread

Part No.	Tube O.D. D (inch)	T* (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h (inch)	H (inch)					
PAP-FRT 2 - 2N	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.03	24.63	19.05
PAP-FRT 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.55	26.92	19.05
PAP-FRT 4 - 4N	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
PAP-FRT 5 - 4N	3/8	1/4	7.11	11/16	11/16	16.76	19.30	23.87	31.24	22.35
PAP-FRT 8 - 6N	1/2	3/8	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
PAP-FRT 8 - 8N	1/2	1/2	10.41	1	7/8	22.86	21.84	28.70	39.87	28.44
PAP-FRT 12 - 12N	3/4	3/4	15.74	1-3/8	1-1/8	24.38	21.84	34.54	44.70	31.75
PAP-FRT 16 - 12N	1	3/4	22.35	1-3/8	1-1/2	31.24	26.41	36.83	49.02	31.75
PAP-FRT 16 - 16N	1	1	22.35	1-11/16	1-1/2	31.24	26.41	41.40	53.59	38.10

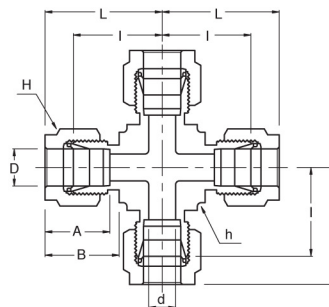
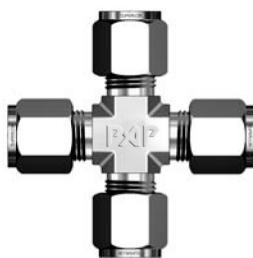
Connects Metric Tubes To Male NPT Thread

Part No.	Tube O.D. D	T* (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
PAP-FRT 6M - 2N	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.0
PAP-FRT 6M - 4N	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.4
PAP-FRT 6M - 8N	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.5	28.4
PAP-FRT 8M - 2N	8	1/8	6.4	15.87	16	16.2	18.6	22.4	29.9	19.0
PAP-FRT 8M - 4N	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.4
PAP-FRT 8M - 6N	8	3/8	6.4	20.63	16	16.2	18.6	25.2	32.4	22.4
PAP-FRT 8M - 8N	8	1/2	6.4	25.40	16	16.2	18.6	28.0	35.2	28.4
PAP-FRT 12M - 4N	12	1/4	9.5	20.63	22	22.8	22.0	25.9	33.5	22.4
PAP-FRT 12M - 6N	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
PAP-FRT 12M - 8N	12	1/2	9.5	26.98	22	22.8	22.0	29.7	40.0	28.4
PAP-FRT 16M - 8N	16	1/2	12.7	25.40	25	24.4	22.0	29.7	39.8	28.4

* ISO Tapered Threads are available upon request

PAP-UC

Union Cross



Connects Fractional Tubes

Part No.	Tube O.D. D (inch)	d Min	Width Across Flat		A	B	I	L
			h (inch)	H (inch)				
PAP-UC - 1	1/16	1.27	3/8	5/16	8.63	10.92	14.00	18.03
PAP-UC - 2	1/8	2.28	3/8	7/16	12.70	15.24	15.74	22.35
PAP-UC - 3	3/16	3.04	1/2	1/2	13.71	16.00	18.54	25.14
PAP-UC - 4	1/4	4.82	1/2	9/16	15.24	17.78	19.55	26.92
PAP-UC - 5	5/16	6.35	5/8	5/8	16.25	18.54	22.35	29.71
PAP-UC - 6	3/8	7.11	5/8	11/16	16.76	19.30	23.11	30.48
PAP-UC - 8	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06
PAP-UC - 10	5/8	12.70	15/16	1	24.38	21.84	28.70	38.80
PAP-UC - 12	3/4	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87
PAP-UC - 14	7/8	18.28	1-3/8	1-1/4	25.90	21.84	34.54	44.70
PAP-UC - 16	1	22.35	1-3/8	1-1/2	31.24	26.41	36.83	49.02

Connects Metric Tubes

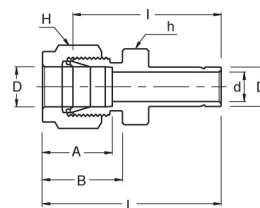
Part No.	Tube O.D. D	d Min	Width Across Flat		A	B	I	L
			h	H				
PAP-UC 3M	3	2.4	9.5	12	12.9	15.3	15.7	22.3
PAP-UC 6M	6	4.8	12.7	14	15.3	17.7	19.6	27.0
PAP-UC 8M	8	6.4	15.9	16	16.2	18.6	22.4	29.9
PAP-UC 10M	10	7.9	20.6	19	17.2	19.5	25.9	33.5
PAP-UC 12M	12	9.5	20.6	22	22.8	22.0	25.9	36.0
PAP-UC 16M	16	12.7	23.8	25	24.4	22.0	26.9	37.0
PAP-UC 18M	18	15.1	27.0	30	24.4	22.0	28.2	38.3
PAP-UC 20M	20	15.9	34.9	32	26.0	22.0	34.5	44.6
PAP-UC 25M	25	21.8	34.9	38	31.3	26.5	36.8	49.1

• All dimensions in millimeters unless specified as "inch"

Stub Tube Connector, An Tube & O-Ring Seal



PAP-R Reducer



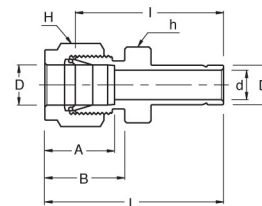
Connects Fractional Tubes To Fractional **PAP** Port

Part No.	Tube O.D.		d Min	Width Across Flat		A	B	I	L
	D (inch)	D ₁ (inch)		h (inch)	H (inch)				
PAP-R 2 - 1	1/8	1/16	0.76	7/16	7/16	12.70	15.24	22.35	28.95
PAP-R 2 - 2	1/8	1/8	2.03	7/16	7/16	12.70	15.24	26.92	33.52
PAP-R 2 - 3	1/8	3/16	2.28	7/16	7/16	12.70	15.24	27.68	34.29
PAP-R 2 - 4	1/8	1/4	2.28	7/16	7/16	12.70	15.24	29.46	36.06
PAP-R 2 - 6	1/8	3/8	2.28	7/16	7/16	12.70	15.24	30.98	37.59
PAP-R 2 - 8	1/8	1/2	2.28	9/16	7/16	12.70	15.24	37.59	44.19
PAP-R 3 - 2	3/16	1/8	2.03	7/16	1/2	13.71	16.00	28.19	34.79
PAP-R 3 - 4	3/16	1/4	3.04	7/16	1/2	13.71	16.00	30.48	37.08
PAP-R 4 - 2	1/4	1/8	2.03	1/2	9/16	15.24	17.78	29.46	36.83
PAP-R 4 - 3	1/4	3/16	3.04	1/2	9/16	15.24	17.78	30.22	37.59
PAP-R 4 - 4	1/4	1/4	4.82	1/2	9/16	15.24	17.78	31.75	39.11
PAP-R 4 - 5	1/4	5/16	4.82	1/2	9/16	15.24	17.78	32.51	39.87
PAP-R 4 - 6	1/4	3/8	4.82	1/2	9/16	15.24	17.78	33.27	40.64
PAP-R 4 - 8	1/4	1/2	4.82	9/16	9/16	15.24	17.78	38.86	46.22
PAP-R 4 - 10	1/4	5/8	4.82	11/16	9/16	15.24	17.78	40.64	48.00
PAP-R 4 - 12	1/4	3/4	4.82	13/16	9/16	15.24	17.78	41.40	47.75
PAP-R 5 - 6	5/16	3/8	6.35	9/16	5/8	16.25	18.54	34.54	41.91
PAP-R 5 - 8	5/16	1/2	6.35	9/16	5/8	16.25	18.54	40.13	47.49
PAP-R 6 - 4	3/8	1/4	4.82	5/8	11/16	16.76	19.30	34.03	41.40
PAP-R 6 - 6	3/8	3/8	7.11	5/8	11/16	16.76	19.30	35.81	43.18
PAP-R 6 - 8	3/8	1/2	7.11	5/8	11/16	16.76	19.30	41.14	48.51
PAP-R 6 - 10	3/8	5/8	7.11	11/16	11/16	16.76	19.30	42.92	50.29
PAP-R 6 - 12	3/8	3/4	7.11	13/16	11/16	16.76	19.30	42.92	50.29
PAP-R 8 - 4	1/2	1/4	4.82	13/16	7/8	22.86	21.84	34.79	44.95
PAP-R 8 - 9	1/2	3/8	7.11	13/16	7/8	22.86	21.84	36.57	46.73
PAP-R 8 - 8	1/2	1/2	9.90	13/16	7/8	22.86	21.84	42.16	52.32
PAP-R 8 - 10	1/2	5/8	10.41	13/16	7/8	22.86	21.84	43.68	53.84
PAP-R 8 - 12	1/2	3/4	10.41	13/16	7/8	22.86	21.84	43.68	53.84
PAP-R 8 - 16	1/2	1	10.41	1-1/16	7/8	22.86	21.84	50.03	60.19
PAP-R 10 - 12	5/8	3/4	12.70	15/16	1	24.38	21.84	44.45	54.61
PAP-R 10 - 14	5/8	7/8	12.70	15/16	1	24.38	21.84	45.97	56.13
PAP-R 10 - 16	5/8	1	12.70	1-1/16	1	24.38	21.84	50.80	60.96
PAP-R 12 - 8	3/4	1/2	9.90	1-1/16	1-1/8	24.38	21.84	44.45	54.61
PAP-R 12 - 16	3/4	1	15.74	1-1/16	1-1/8	24.38	21.84	52.32	62.48

* Fractional Tube to Metric **PAP** port are available upon request

• All dimensions in millimeters unless specified as "inch"

PAP-R
Reducer

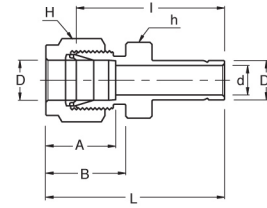
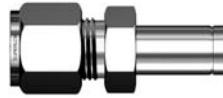


Connects Metric Tubes To Metric PAP Port

Part No.	Tube O.D.		d Min	Width Across Flat		A	B	I	L
	D	D ₁		h	H				
PAP-R 3M - 4M	3	4	2.4	12	12	12.9	15.3	28.4	35.0
PAP-R 3M - 6M	3	6	2.4	12	12	12.9	15.3	29.5	36.1
PAP-R 3M - 10M	3	10	2.4	14	12	12.9	15.3	31.8	38.4
PAP-R 4M - 6M	4	6	2.4	12	12	13.7	16.1	30.5	37.1
PAP-R 6M - 3M	6	3	1.8	14	14	15.3	17.7	29.5	36.9
PAP-R 6M - 8M	6	8	4.8	14	14	15.3	17.7	32.5	39.9
PAP-R 6M - 10M	6	10	4.8	14	14	15.3	17.7	33.3	40.7
PAP-R 6M - 12M	6	12	4.8	14	14	15.3	17.7	38.9	46.3
PAP-R 8M - 6M	8	6	4.6	15	16	16.2	18.6	32.8	40.3
PAP-R 8M - 10M	8	10	6.4	15	16	16.2	18.6	34.5	42.0
PAP-R 8M - 12M	8	12	6.4	15	16	16.2	18.6	40.1	47.6
PAP-R 10M - 6M	10	6	4.6	18	19	17.2	19.5	34.8	42.4
PAP-R 10M - 8M	10	8	6.4	18	19	17.2	19.5	35.8	43.4
PAP-R 10M - 12M	10	12	7.9	18	19	17.2	19.5	42.2	49.8
PAP-R 10M - 15M	10	15	7.9	18	19	17.2	19.5	43.7	51.3
PAP-R 10M - 18M	10	18	7.9	22	19	17.2	19.5	43.7	51.3
PAP-R 12M - 6M	12	6	4.6	22	22	22.8	22.0	34.8	44.9
PAP-R 12M - 8M	12	8	6.4	22	22	22.8	22.0	35.8	45.9
PAP-R 12M - 10M	12	10	7.7	22	22	22.8	22.0	36.6	46.7
PAP-R 12M - 16M	12	16	9.5	22	22	22.8	22.0	43.7	53.8
PAP-R 12M - 18M	12	18	9.5	22	22	22.8	22.0	43.7	53.8
PAP-R 12M - 20M	12	20	9.5	22	22	22.8	22.0	46.0	56.1
PAP-R 12M - 22M	12	22	9.5	24	22	22.8	22.0	46.0	56.1
PAP-R 12M - 25M	12	25	9.5	27	22	22.8	22.0	52.3	62.4
PAP-R 16M - 12M	16	12	9.1	24	25	24.4	22.0	42.9	53.0
PAP-R 18M - 12M	18	12	9.1	27	30	24.4	22.0	44.5	54.6
PAP-R 18M - 16M	18	16	12.7	27	30	24.4	22.0	46.0	56.1
PAP-R 18M - 20M	18	20	15.1	27	30	24.4	22.0	47.5	57.6
PAP-R 18M - 22M	18	22	15.1	27	30	24.4	22.0	47.5	57.6
PAP-R 18M - 25M	18	25	15.1	27	30	24.4	22.0	52.3	62.4
PAP-R 20M - 16M	20	16	12.7	30	32	26.0	22.0	47.8	57.9
PAP-R 20M - 18M	20	18	13.9	30	32	26.0	22.0	47.8	57.9
PAP-R 20M - 22M	20	22	15.8	30	32	26.0	22.0	49.3	59.4
PAP-R 20M - 25M	20	25	15.8	30	32	26.0	22.0	54.1	64.2
PAP-R 22M - 18M	22	18	13.9	30	32	26.0	22.0	47.8	57.9
PAP-R 22M - 20M	22	20	15.1	30	32	26.0	22.0	49.3	59.4
PAP-R 22M - 25M	22	25	18.3	30	32	26.0	22.0	54.1	64.2
PAP-R 25M - 18M	25	18	13.9	35	38	31.3	26.5	50.8	63.1
PAP-R 25M - 20M	25	20	15.1	35	38	31.3	26.5	52.3	64.6

• All dimensions in millimeters unless specified as "inch"

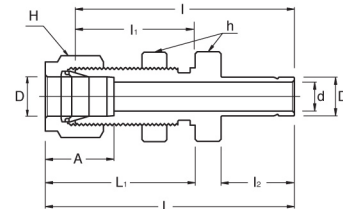
PAP-R
Reducer



Connects Metric Tubes To Fractional PAP Port

Part No.	Tube O.D.		d Min	Width Across Flat		A	B	I	L
	D	D ₁ (inch)		h	H				
PAP-R 3M - 2	3	1/8	2.0	12	12	12.9	15.3	26.9	33.5
PAP-R 3M - 4	3	1/4	2.4	12	12	12.9	15.3	29.5	36.1
PAP-R 6M - 4	6	1/4	4.8	14	14	15.3	17.7	31.8	39.2
PAP-R 6M - 5	6	5/16	4.8	14	14	15.3	17.7	32.5	39.9
PAP-R 6M - 6	6	3/8	4.8	14	14	15.3	17.7	33.3	40.7
PAP-R 6M - 8	6	1/2	4.8	14	14	15.3	17.7	38.9	46.3
PAP-R 8M - 6	8	3/8	6.4	15	16	16.2	18.6	34.5	42.0
PAP-R 8M - 8	8	1/2	6.4	15	16	16.2	18.6	40.1	47.6
PAP-R 10M - 6	10	3/8	7.1	18	19	17.2	19.5	36.6	44.2
PAP-R 10M - 8	10	1/2	7.9	18	19	17.2	19.5	42.2	49.8
PAP-R 12M - 8	12	1/2	9.5	22	22	22.8	22.0	42.2	52.3
PAP-R 12M - 12	12	3/4	9.5	22	22	22.8	22.0	43.7	53.8
PAP-R 18M - 12	18	3/4	15.1	27	30	24.4	22.0	46.0	56.1
PAP-R 18M - 10	18	1	15.1	27	30	24.4	22.0	52.3	62.4

PAP-BR
Bulkhead Reducer

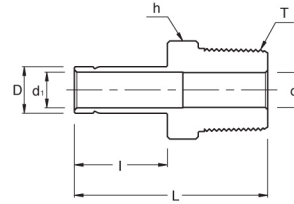


Connects Fractional Tubes To Fractional PAP Port

Part No.	Tube O.D. D (inch)	d Min	Width Across Flat		A	I	I ₁	I ₂	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
			h (inch)	H (inch)								
PAP-BR 2 - 2	1/8	2.03	1/2	7/16	12.70	42.92	24.63	13.46	49.53	31.24	8.33	12.70
PAP-BR 4 - 4	1/4	4.82	5/8	9/16	15.24	48.51	26.16	15.74	55.88	33.52	11.50	10.16
PAP-BR 6 - 6	3/8	7.11	3/4	11/16	16.76	53.84	29.46	17.52	61.21	36.83	14.68	11.17
PAP-BR 8 - 8	1/2	10.41	15/16	7/8	22.86	62.73	31.75	23.11	72.89	41.91	19.44	12.70
PAP-BR 10 - 10	5/8	12.70	1-1/16	1	24.38	65.02	32.51	24.70	75.18	42.67	22.62	12.70
PAP-BR 16 - 16	1	20.32	1-5/8	1-1/2	31.24	88.13	45.21	31.70	100.33	57.40	33.73	19.05

• All dimensions in millimeters unless specified as "inch"

PAP-MA Male Adapter



Connects Fractional **PAP** Port To Female NPT Thread

Part No.	Tube O.D. D (inch)	T* (NPT)	d (Min)	d ₁	Width Across Flat h (inch)	l	L
PAP-MA 2 - 2N	1/8	1/8	4.82	2.28	7/16	13.45	29.50
PAP-MA 2 - 4N	1/8	1/4	7.11	2.28	9/16	13.45	34.80
PAP-MA 3 - 2N	3/16	1/8	4.82	3.04	7/16	14.20	30.22
PAP-MA 3 - 4N	3/16	1/4	7.11	3.04	9/16	14.20	35.56
PAP-MA 4 - 2N	1/4	1/8	4.82	4.82	7/16	15.75	31.80
PAP-MA 4 - 4N	1/4	1/4	4.82	4.82	9/16	15.75	37.08
PAP-MA 4 - 6N	1/4	3/8	4.82	4.82	11/16	15.75	37.84
PAP-MA 4 - 8N	1/4	1/2	4.82	4.82	7/8	15.75	43.43
PAP-MA 5 - 2N	5/16	1/8	4.82	6.35	7/16	16.80	32.76
PAP-MA 5 - 4N	5/16	1/4	6.35	6.35	9/16	16.80	38.10
PAP-MA 6 - 2N	3/8	1/8	4.82	7.11	7/16	17.50	33.50
PAP-MA 6 - 4N	3/8	1/4	7.11	7.11	9/16	17.50	38.90
PAP-MA 6 - 6N	3/8	3/8	7.11	7.11	11/16	17.50	39.60
PAP-MA 6 - 8N	3/8	1/2	7.11	7.11	7/8	17.50	45.20
PAP-MA 8 - 4N	1/2	1/4	7.11	9.90	9/16	23.20	44.50
PAP-MA 8 - 6N	1/2	3/8	9.90	9.90	11/16	23.20	45.20
PAP-MA 8 - 8N	1/2	1/2	9.90	9.90	7/8	23.20	50.80
PAP-MA 10 - 6N	5/8	3/8	9.90	12.70	11/16	24.70	47.40
PAP-MA 10 - 8N	5/8	1/2	11.94	12.70	7/8	24.70	52.30
PAP-MA 10 - 12N	5/8	3/4	14.98	12.70	1-1/16	24.70	52.30
PAP-MA 12 - 8N	3/4	1/2	11.94	14.98	7/8	24.70	52.30
PAP-MA 12 - 12N	3/4	3/4	14.98	14.98	1-1/16	24.70	52.30
PAP-MA 12 - 16N	3/4	1	20.32	14.98	1-3/8	24.70	57.91
PAP-MA 14 - 12N	7/8	3/4	14.98	17.27	1-1/16	26.70	54.30
PAP-MA 16 - 12N	1	3/4	15.74	20.32	1-1/16	31.70	58.70
PAP-MA 16 - 16N	1	1	20.32	20.32	1-3/8	31.70	66.00

* ISO Tapered Threads are available upon request

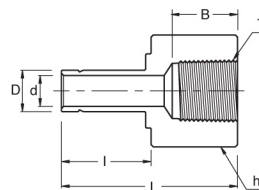
Connects Metric **PAP** Port To Female NPT Thread

Part No.	Tube O.D. (D)	T* (NPT)	d (Min)	d ₁	Width Across Flat (h)	l	L
PAP-MA 6M - 2N	6	1/8	4.6	4.6	12	15.75	32.8
PAP-MA 6M - 4N	6	1/4	4.6	4.6	14	15.75	38.1
PAP-MA 7M - 4N	8	1/4	6.3	6.3	14	16.50	39.1
PAP-MA 10M - 4N	10	1/4	7.7	7.7	14	17.50	39.9
PAP-MA 10M - 6N	10	3/8	7.7	7.7	18	17.50	40.6
PAP-MA 10M - 8N	10	1/2	11.9	7.7	22	17.50	46.2
PAP-MA 12M - 4N	12	1/4	7.1	9.1	16	23.50	46.5
PAP-MA 12M - 8N	12	1/2	11.9	9.1	22	23.50	52.0
PAP-MA 18M - 12N	18	3/4	15.9	13.9	27	24.90	54.8

* ISO Tapered Threads are available upon request

• All dimensions in millimeters unless specified as "inch"

PAP-FA Female Adapter



Connects Fractional **PAP** Port To Male NPT Thread

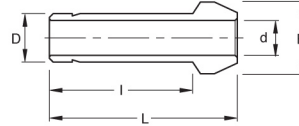
Part No.	Tube O.D. D (inch)	T* (NPT)	d (Min)	Width Across Flat h (inch)	I	L
PAP-FA 2 - 2N	1/8	1/8	2.28	9/16	13.45	31.50
PAP-FA 2 - 4N	1/8	1/4	2.28	3/4	13.45	35.30
PAP-FA 3 - 2N	3/16	1/8	3.04	9/16	14.20	32.00
PAP-FA 3 - 4N	3/16	1/4	3.04	3/4	14.20	35.81
PAP-FA 4 - 2N	1/4	1/8	4.82	9/16	15.75	33.02
PAP-FA 4 - 4N	1/4	1/4	4.82	3/4	15.75	37.10
PAP-FA 4 - 6N	1/4	3/8	4.82	7/8	15.75	39.37
PAP-FA 4 - 8N	1/4	1/2	4.82	1-1/16	15.75	45.50
PAP-FA 5 - 2N	5/16	1/8	6.35	9/16	16.80	34.29
PAP-FA 5 - 4N	5/16	1/4	6.35	3/4	16.80	37.59
PAP-FA 6 - 2N	3/8	1/8	7.11	9/16	17.50	34.29
PAP-FA 6 - 4N	3/8	1/4	7.11	3/4	17.50	38.10
PAP-FA 6 - 6N	3/8	3/8	7.11	7/8	17.50	40.38
PAP-FA 6 - 8N	3/8	1/2	7.11	1-1/16	17.50	46.73
PAP-FA 8 - 4N	1/2	1/4	9.90	3/4	23.20	43.43
PAP-FA 8 - 6N	1/2	3/8	9.90	7/8	23.20	45.46
PAP-FA 8 - 8N	1/2	1/2	9.90	1-1/16	23.20	51.80
PAP-FA 10 - 6N	5/8	3/8	12.70	7/8	24.70	48.26
PAP-FA 10 - 8N	5/8	1/2	12.70	1-1/16	24.70	53.08
PAP-FA 12 - 8N	3/4	1/2	14.98	1-1/16	24.70	52.83
PAP-FA 12 - 12N	3/4	3/4	14.98	1-5/16	24.70	54.86
PAP-FA 12 - 16N	3/4	1	14.98	1-5/8	24.70	58.42
PAP-FA 14 - 12N	7/8	3/4	17.27	1-5/16	26.70	57.15
PAP-FA 16 - 12N	1	3/4	20.32	1-5/16	31.70	60.70
PAP-FA 16 - 16N	1	1	20.32	1-5/8	31.70	64.26

Connects Metric **PAP** Port To Male NPT Thread

Part No.	Tube O.D. (D)	T* (NPT)	d (Min)	Width Across Flat (h)	I	L
PAP-FA 3M - 2N	3	1/8	1.8	14	13.15	31.2
PAP-FA 6M - 2N	6	1/8	4.6	14	15.75	32.5
PAP-FA 6M - 4N	6	1/4	4.6	19	15.75	37.1
PAP-FA 8M - 4N	8	1/4	6.3	19	16.50	37.6
PAP-FA 10M - 4N	10	1/4	7.7	19	17.50	38.1
PAP-FA 10M - 6N	10	3/8	7.7	22	17.50	40.1
PAP-FA 10M - 8N	10	1/2	7.7	27	17.50	46.5
PAP-FA 12M - 4N	12	1/4	9.1	19	23.50	43.7
PAP-FA 12M - 6N	12	3/8	9.1	22	23.50	46.0
PAP-FA 12M - 8N	12	1/2	9.1	27	23.50	52.3
PAP-FA 18M - 12N	18	3/4	13.9	32	24.90	54.8

• All dimensions in millimeters unless specified as "inch"

PAP-PC Port Connector



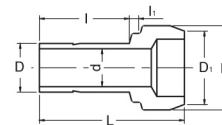
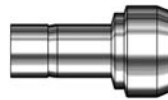
Connects Fractional **PAP** Ports

Part No.	Tube O.D.(D) (inch)	d (Min)	E	I	L
PAP-PC - 2	1/8	2.28	6.09	15.75	22.35
PAP-PC - 4	1/4	4.82	9.39	18.79	24.63
PAP-PC - 5	5/16	6.35	10.92	20.06	25.90
PAP-PC - 6	3/8	7.11	12.70	20.32	26.16
PAP-PC - 8	1/2	9.90	15.74	25.90	35.81
PAP-PC - 12	3/4	14.98	22.09	27.68	37.33
PAP-PC - 16	1	20.32	28.44	34.54	48.00

Connects Metric **PAP** Ports

Part No.	Tube O.D. (D)	d (Min)	E	I	L
PAP-PC - 3M	3	2.1	6.0	15.7	22.2
PAP-PC - 6M	6	4.4	9.0	18.7	24.6
PAP-PC - 8M	8	6.3	11.0	20.0	25.9
PAP-PC - 10M	10	8.2	13.1	20.2	26.1
PAP-PC - 12M	12	9.1	15.0	26.0	35.8
PAP-PC - 16M	16	12.7	19.0	27.6	37.4

PAP-RPC Reducing Port Connector

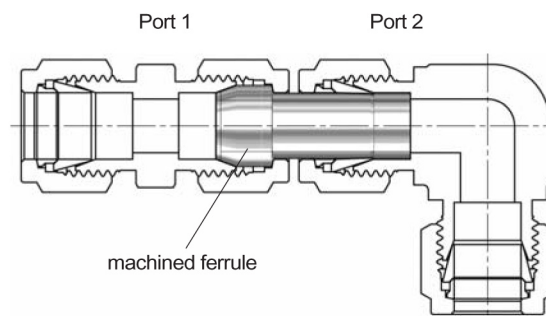


Connects Fractional **PAP** Port To Male AN

Part No.	Tube O.D. D ₁ (inch)	Reduced Tube O.D. D (inch)	d	E	I	h	L
PAP-RPC 2 - 1	1/8	1/16	0.76	6.09	8.63	2.03	17.27
PAP-RPC 4 - 1	1/4	1/16	0.76	9.39	8.63	3.55	18.03
PAP-RPC 4 - 2	1/4	1/8	2.28	9.39	13.46	3.30	22.60
PAP-RPC 6 - 2	3/8	1/8	2.28	12.70	13.46	3.81	23.11
PAP-RPC 6 - 4	3/8	1/4	4.82	12.70	15.74	3.30	24.89
PAP-RPC 8 - 4	1/2	1/4	4.82	15.74	15.74	3.81	29.21
PAP-RPC 8 - 6	1/2	3/8	7.11	15.74	17.52	3.30	30.48
PAP-RPC 12 - 8	3/4	1/2	9.90	22.09	24.38	3.81	37.84
PAP-RPC 16 - 8	1	1/2	9.90	28.44	24.38	4.82	42.67
PAP-RPC 16 - 12	1	3/4	14.98	28.44	25.90	4.06	43.43

* ISO Tapered Threads are available upon request

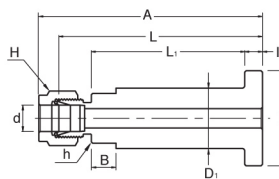
Installation Instructions Port Connector



• All dimensions in millimeters unless specified as "inch"

PAP-FTC

Flange Lapped Tubes Connector

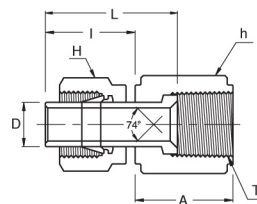


Connects Fractional Tubes

Part No.	Tube Size (inch)	Flange Seat	Dimensions									
			A	B	L ₁	L	I	h (inch)	H (inch)	D	D ₁	d (Min)
PAP-FTC 4 - SM	1/4	SM	80.8	8.9	56.5	74.9	6.5	11/16	9/16	34.5	21.1	4.8
PAP-FTC 4 - SR	1/4	SR	80.8	8.9	56.5	74.9	6.5	11/16	9/16	34.5	21.1	4.8
PAP-FTC 6 - SM	3/8	SM	82.3	8.9	56.5	74.9	6.5	11/16	11/16	34.5	21.1	7.1
PAP-FTC 6 - SR	3/8	SR	82.3	8.9	56.5	74.9	6.5	11/16	11/16	34.5	21.1	7.1
PAP-FTC 8 - SM	1/2	SM	85.1	8.9	56.5	74.9	6.5	3/4	7/8	34.5	21.1	10.4
PAP-FTC 8 - SR	1/2	SR	85.1	8.9	56.5	74.9	6.5	3/4	7/8	34.5	21.1	10.4

PAP-AF

An Flare

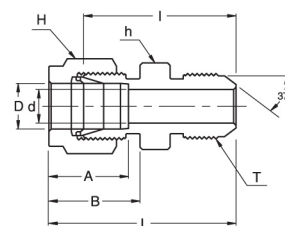


Connects Fractional **PAP** Port To Male AN

Part No.	Tube O.D. D (inch)	AN Tube Flare Size	Straight Thread T (U)	Width Across Flat		A	I	L
				h (inch)	H (inch)			
PAP-AF 2 - 2U	1/8	1/8	5/16-24	3/8	7/16	13.71	13.46	18.54
PAP-AF 2 - 4U	1/8	1/4	7/16-20	9/16	7/16	15.74	13.46	19.05
PAP-AF 4 - 4U	1/4	1/4	7/16-20	9/16	9/16	15.74	15.74	21.33
PAP-AF 6 - 6U	3/8	3/8	9/16-18	11/16	11/16	18.28	17.52	24.89
PAP-AF 8 - 8U	1/2	1/2	3/4-16	7/8	7/8	21.59	23.11	31.75

• All dimensions in millimeters unless specified as "inch"

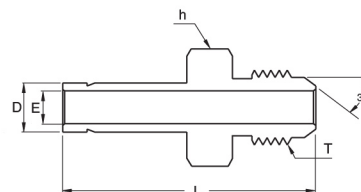
PAP-AU An Union



Connects Fractional Tubes To An Flared Tubes

Part No.	Tube O.D. D (inch)	AN Tube Flare Size (inch)	Straight Thread T (U)	d Min	Width Across Flat		A	B	I	L
					h (inch)	H (inch)				
PAP-AU 4 - 2U	1/8	1/8	5/16-24	1.52	7/16	7/16	12.70	15.24	25.65	32.25
PAP-AU 4 - 4U	1/8	1/4	7/16-20	2.28	1/2	7/16	12.70	15.24	28.44	35.05
PAP-AU 4 - 4U	1/4	1/4	7/16-20	4.31	1/2	9/16	15.24	17.78	30.22	37.59
PAP-AU 5 - 5U	5/16	5/16	1/2-20	5.84	9/16	5/8	16.25	18.54	30.98	38.35
PAP-AU 6 - 4U	3/8	1/4	7/16-20	4.31	5/8	11/16	16.76	19.30	32.25	39.62
PAP-AU 6 - 6U	3/8	3/8	9/16-18	7.11	5/8	11/16	16.76	19.30	32.25	39.62
PAP-AU 8 - 8U	1/2	1/2	3/4-16	9.90	13/16	7/8	22.86	21.84	35.81	45.97
PAP-AU 12 - 12U	3/4	3/4	1-1/16-12	15.49	1-1/8	1-1/8	24.38	21.84	43.18	53.34
PAP-AU 16 - 16U	1	1	1-5/16-12	21.33	1-3/8	1-1/2	31.24	26.41	49.27	61.46

PAP-AA An Adapter



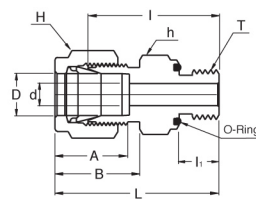
Connects Fractional PAP Port To AN Flared Tubes

Part No.	Tube O.D. D (inch)	AN Tube Flare Size (inch)	Straight Thread T (U)	Width Across Flat h (inch)	E	L
PAP-AA 4 - 4U	1/4	1/4	7/16-20	1/2	4.82	37.08
PAP-AA 5 - 4U	3/8	1/4	7/16-20	1/2	7.11	38.86
PAP-AA 6 - 6U	3/8	3/8	9/16-18	5/8	7.11	39.62
PAP-AA 8 - 8U	1/2	1/2	3/4-16	13/16	9.90	48.51
PAP-AA 12 - 12U	3/4	3/4	1-1/16-12	1-1/8	14.98	56.13
PAP-AA 16 - 16U	1	1	1-5/16-12	1-3/8	20.32	65.53

• All dimensions in millimeters unless specified as "inch"

PAP-OSC

O-Seal Straight Thread Connector

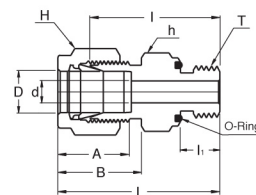


Connects Fractional Tube To Female Straight Thread

Part No.	Tube O.D. D (inch)	Straight Thread T (U)	d Min	Width Across Flat		A	B	I	I ₁	L	O-Ring Uniform Size Number
				h (inch)	H (inch)						
PAP-OSC 2 - 2U	1/8	5/16-24	2.28	9/16	7/16	12.70	15.24	26.16	8.63	32.76	-011
PAP-OSC 3 - 3U	3/16	3/8-24	3.05	5/8	1/2	13.71	16.00	27.68	9.65	34.29	-012
PAP-OSC 4 - 4U	1/4	7/16-20	4.82	3/4	9/16	15.24	17.78	30.98	10.41	38.35	-111
PAP-OSC 5 - 5U	5/16	1/2-20	6.35	7/8	5/8	16.25	18.54	33.27	11.17	40.64	-112
PAP-OSC 6 - 6U	3/8	9/16-18	7.11	15/16	11/16	16.76	19.30	35.05	11.93	42.41	-114
PAP-OSC 8 - 8U	1/2	3/4-16	10.41	1-1/8	7/8	22.86	21.84	35.81	11.93	45.97	-116
PAP-OSC 12 - 12U	3/4	1-1/16-12	15.75	1-1/2	1-1/8	24.38	21.84	42.16	14.22	52.32	-215
PAP-OSC 16 - 16U	1	1-5/16-12	22.35	1-3/4	1-1/2	31.24	26.41	45.97	14.22	58.16	-219

PAP-OPC

O-Seal Pipe Thread Connector

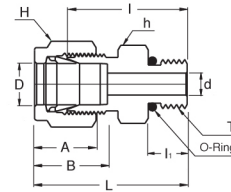
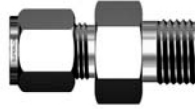


Connects Fractional Tube To Female NPT Thread

Part No.	Tube O.D. D (inch)	T* (NPT)	d Min	Width Across Flat		A	B	I	I ₁	L	O-Ring Uniform Size Number
				h (inch)	H (inch)						
PAP-OPC 2 - 2N	1/8	1/8	2.28	3/4	7/16	12.70	15.24	26.16	7.11	32.76	-111
PAP-OPC 4 - 2N	1/4	1/8	4.82	3/4	9/16	15.24	17.78	27.68	7.11	35.05	-111
PAP-OPC 4 - 4N	1/4	1/4	4.82	15/16	9/16	15.24	17.78	30.98	9.65	38.35	-113
PAP-OPC 6 - 4N	3/8	1/4	7.11	15/16	11/16	16.76	19.30	32.51	9.65	39.87	-113
PAP-OPC 6 - 6N	3/8	3/8	7.11	1-1/8	11/16	16.76	19.30	34.03	10.41	41.40	-116
PAP-OPC 6 - 8N	3/8	1/2	7.11	1-5/16	11/16	16.76	19.30	39.62	13.46	46.99	-212
PAP-OPC 8 - 8N	1/2	1/2	10.41	1-5/16	7/8	22.86	21.84	39.62	13.46	49.78	-212

*All dimensions in millimeters unless specified as "inch"

PAP-SMC SAE/MS Male Connector



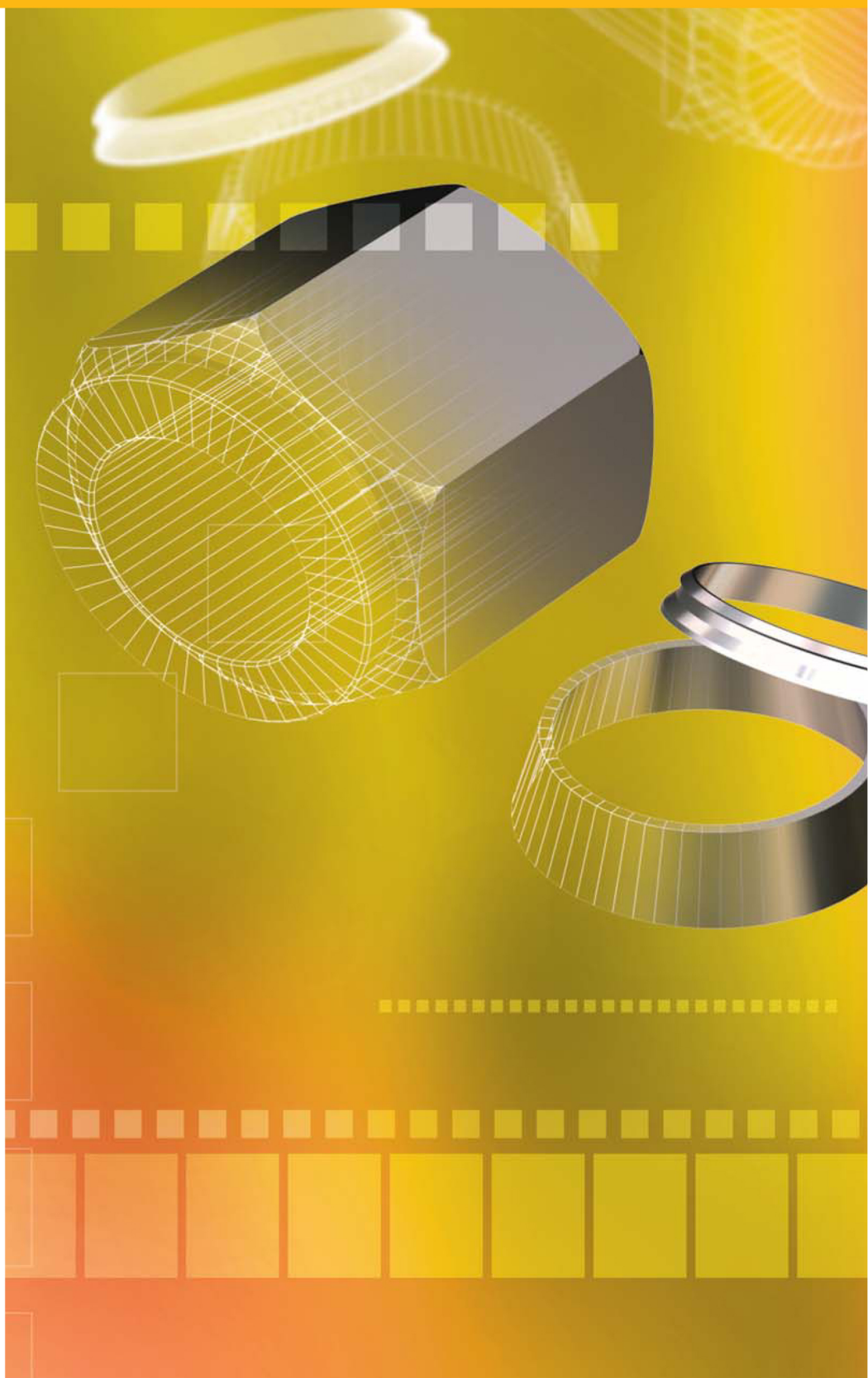
Connects Fractional Tubes To SAE/MS Straight Thread Boss

Part No.	Tube O.D. D (inch)	Straight Thread T (U)	d Min	Width Across Flat		A	B	I	I ₁	L	O-Ring Uniform Size Number
				h (inch)	H (inch)						
PAP-SMC 2 - 2U	1/8	5/16-24	2.28	7/16	7/16	12.70	15.24	23.36	7.62	29.97	3-902
PAP-SMC 4 - 4U	1/4	7/16-20	4.82	9/16	9/16	15.24	17.78	26.67	9.14	34.03	3-904
PAP-SMC 4 - 6U	1/4	9/16-18	4.82	11/16	9/16	15.24	17.78	28.19	9.90	35.56	3-906
PAP-SMC 4 - 8U	1/4	3/4-16	4.82	7/8	9/16	15.24	17.78	30.22	11.17	37.59	3-908
PAP-SMC 4 - 10U	1/4	7/8-14	4.82	1	9/16	15.24	17.78	33.27	12.70	40.64	3-910
PAP-SMC 5 - 5U	5/16	1/2-20	6.35	5/8	5/8	16.25	18.54	27.43	9.14	34.79	3-905
PAP-SMC 6 - 4U	3/8	7/16-20	5.08	5/8	11/16	16.76	19.30	28.19	9.14	35.56	3-904
PAP-SMC 6 - 6U	3/8	9/16-18	7.11	11/16	11/16	16.76	19.30	29.71	9.90	37.08	3-906
PAP-SMC 6 - 8U	3/8	3/4-16	7.11	7/8	11/16	16.76	19.30	31.75	11.17	39.11	3-908
PAP-SMC 6 - 10U	3/8	7/8-14	7.11	1	11/16	16.76	19.30	34.79	12.70	42.16	3-910
PAP-SMC 8 - 6U	1/2	9/16-18	7.11	13/16	7/8	22.86	21.84	28.95	9.90	39.11	3-906
PAP-SMC 8 - 8U	1/2	3/4-16	10.41	7/8	7/8	22.86	21.84	31.75	11.17	41.91	3-908
PAP-SMC 8 - 10U	1/2	7/8-14	10.41	1	7/8	22.86	21.84	34.79	12.70	44.95	3-910
PAP-SMC 8 - 13U	1/2	1-1/16-12	10.41	1-1/4	7/8	22.86	21.84	38.86	14.98	49.02	3-912
PAP-SMC 10 - 8U	5/8	3/4-16	10.66	15/16	1	24.38	21.84	31.75	11.17	41.91	3-908
PAP-SMC 10 - 10U	5/8	7/8-14	12.70	1	1	24.38	21.84	35.05	12.70	45.21	3-910
PAP-SMC 12 - 8U	3/4	3/4-16	10.66	1-1/16	1-1/8	24.38	21.84	35.81	11.17	45.97	3-908
PAP-SMC 12 - 12U	3/4	1-1/16-12	15.74	1-1/4	1-1/8	24.38	21.84	38.86	14.98	49.02	3-912
PAP-SMC 14 - 14U	7/8	1-3/16-12	18.28	1-3/8	1-1/4	25.90	21.84	38.86	14.98	49.02	3-914
PAP-SMC 16 - 12U	1	1-1/16-12	16.76	1-3/8	1-1/2	31.24	26.41	41.14	14.98	53.34	3-912
PAP-SMC 16 - 16U	1	1-5/16-12	22.35	1-1/2	1-1/2	31.24	26.41	42.16	14.98	54.35	3-916

• All dimensions in millimeters unless specified as "inch"

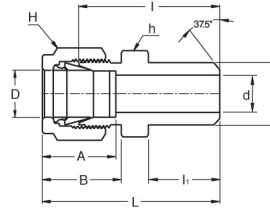
Tube Fittings

Weld End, Plug & Cap,



PAP-PWC

Male Pipe Weld Connector



Connects Fractional Tubes To Pipe

Part No.	Tube O.D. D (inch)	Male Pipe Size P		d Min	Width Across Flat		A	B	I	I ₁	L
		Nom.	O.D.		h (inch)	H (inch)					
PAP-PWC 2 - 2P	1/8	1/8	10.30	2.28	7/16	7/16	12.70	15.24	23.87	9.65	30.48
PAP-PWC 3 - 2P	3/16	1/8	10.30	3.04	7/16	1/2	13.71	16.00	24.63	9.65	31.24
PAP-PWC 4 - 2P	1/4	1/8	10.30	4.82	1/2	9/16	15.24	17.78	25.40	9.65	32.76
PAP-PWC 4 - 4P	1/4	1/4	13.70	4.82	9/16	9/16	15.24	17.78	30.48	14.22	37.84
PAP-PWC 5 - 2P	5/16	1/8	10.30	5.08	9/16	5/8	16.25	18.54	26.67	9.65	34.03
PAP-PWC 5 - 4P	5/16	1/4	13.70	6.35	9/16	5/8	16.25	18.54	31.24	14.22	38.60
PAP-PWC 6 - 4P	3/8	1/4	13.70	7.11	5/8	11/16	16.76	19.30	32.51	14.22	39.87
PAP-PWC 6 - 6P	3/8	3/8	17.10	7.11	11/16	11/16	16.76	19.30	32.51	14.22	39.87
PAP-PWC 6 - 8P	3/8	1/2	21.30	7.11	7/8	11/16	16.76	19.30	38.86	19.05	46.22
PAP-PWC 8 - 6P	1/2	3/8	17.10	10.41	13/16	7/8	22.86	21.84	33.27	14.22	43.43
PAP-PWC 8 - 8P	1/2	1/2	21.30	10.41	7/8	7/8	22.86	21.84	38.86	19.05	49.02
PAP-PWC 8 - 12P	1/2	3/4	26.67	10.41	1-1/16	7/8	22.86	21.84	40.38	19.05	50.54
PAP-PWC 10 - 12P	5/8	1/2	21.30	12.70	15/16	1	24.38	21.84	38.86	19.05	49.02
PAP-PWC 12 - 12P	3/4	3/4	26.67	15.74	1-1/16	1-1/8	24.38	21.84	40.38	19.05	50.54
PAP-PWC 16 - 16P	1	1	33.40	22.35	1-3/8	1-1/2	31.24	26.41	50.03	23.87	62.23

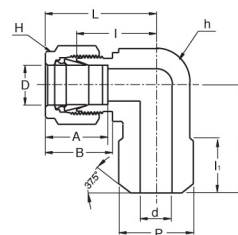
Connects Metric Tubes To Pipe

Part No.	Tube O.D. D	Male Pipe Size P		d Min	Width Across Flat		A	B	I	I ₁	L
		Nom.	O.D.		h	H					
PAP-PWC 3M - 2P	3	1/8	10.3	2.4	12	12	12.9	15.3	23.9	9.7	30.5
PAP-PWC 4M - 2P	4	1/8	10.3	2.4	12	12	13.7	16.1	24.6	9.7	31.2
PAP-PWC 6M - 2P	6	1/8	10.3	4.8	14	14	15.3	17.7	25.4	9.7	32.8
PAP-PWC 6M - 4P	6	1/4	13.7	4.8	14	14	15.3	17.7	30.5	14.2	37.9
PAP-PWC 8M - 2P	8	1/8	10.3	5.1	15	16	16.2	18.6	26.7	9.7	34.2
PAP-PWC 8M - 4P	8	1/4	13.7	6.4	15	16	16.2	18.6	31.2	14.2	38.7
PAP-PWC 8M - 8P	8	1/2	21.3	6.4	22	16	16.2	18.6	38.1	19.0	45.6
PAP-PWC 10M - 4P	10	1/4	13.7	7.1	18	19	17.2	19.5	33.3	14.2	40.9
PAP-PWC 10M - 6P	10	3/8	17.1	7.9	18	19	17.2	19.5	33.3	14.2	40.9
PAP-PWC 10M - 8P	10	1/2	21.3	7.9	22	19	17.2	19.5	38.9	19.0	46.5
PAP-PWC 12M - 4P	12	1/4	13.7	7.1	22	22	22.8	22.0	33.3	14.2	43.4
PAP-PWC 12M - 6P	12	3/8	17.1	9.5	22	22	22.8	22.0	33.3	14.2	43.4
PAP-PWC 12M - 8P	12	1/2	21.3	9.5	22	22	22.8	22.0	38.9	19.0	49.0
PAP-PWC 15M - 8P	15	1/2	21.3	11.9	24	25	24.4	22.0	38.9	19.0	49.0
PAP-PWC 16M - 8P	16	1/2	21.3	12.7	24	25	24.4	22.0	38.9	19.0	49.0
PAP-PWC 18M - 8P	18	1/2	21.3	13.5	27	30	24.4	22.0	40.4	19.0	50.5

• All dimensions in millimeters unless specified as "inch"

PAP-PWE

Male Pipe Weld Elbow

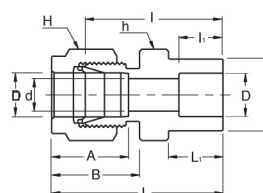


Connects Fractional Tubes To Pipe

Part No.	Tube O.D. D (inch)	Pipe Size (P)		d Min	Width Across Flat		A	B	I	I ₁	L	L ₁
		Nom.	O.D.		h (inch)	H (inch)						
PAP-PWE 4 - 4P	1/4	1/4	13.70	4.82	1/2	9/16	15.24	17.78	19.55	14.22	26.90	23.37
PAP-PWE 6 - 4P	3/8	1/4	13.70	7.11	5/8	11/16	16.76	19.30	23.11	14.22	30.48	25.40
PAP-PWE 8 - 8P	1/2	1/2	21.30	10.41	13/16	7/8	22.86	21.84	25.90	19.05	36.06	33.02

PAP-SWC

Socket Weld Connector

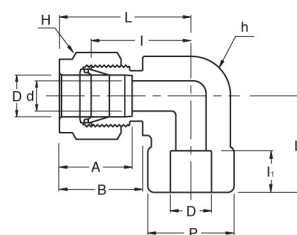


Connects Fractional Tubes To Pipe

Part No.	Tube O.D. D (inch)	d Min	P	Width Across Flat		A	B	I	I ₁	L	L ₁
				h (inch)	H (inch)						
PAP-SWC - 2	1/8	2.28	7.87	7/16	7/16	12.70	15.24	22.35	6.35	28.95	8.63
PAP-SWC - 4	1/4	4.82	11.17	1/2	9/16	15.24	17.78	26.16	7.87	33.52	10.41
PAP-SWC - 6	3/8	7.11	15.74	5/8	11/16	16.76	19.30	30.22	9.65	37.59	11.93
PAP-SWC - 8	1/2	10.41	19.05	13/16	7/8	22.86	21.84	30.98	12.70	41.14	11.93
PAP-SWC -12	3/4	15.74	26.67	1-1/16	1-1/8	24.38	21.84	33.27	14.22	43.43	11.93
PAP-SWC -16	1	22.35	33.27	1-3/8	1-1/2	31.24	26.41	40.38	19.05	52.57	14.22

PAP-SWE

Socket Weld Elbow

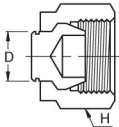


Connects Fractional Tubes To Pipe

Part No.	Tube O.D. D (inch)	d Min	P	Width Across Flat		A	B	I	I ₁	L	L ₁
				h (inch)	H (inch)						
PAP-SWE - 4	1/4	4.82	12.70	1/2	9/16	15.24	17.78	19.55	7.87	26.92	19.55
PAP-SWE - 6	3/8	7.11	15.75	5/8	11/16	16.76	19.30	23.11	9.65	30.48	23.11
PAP-SWE - 8	1/2	10.41	20.57	13/16	7/8	22.86	21.84	25.90	12.70	36.06	25.90
PAP-SWE - 12	3/4	15.74	26.92	1-1/16	1-1/8	24.38	21.84	29.71	14.22	39.87	29.71
PAP-SWE - 16	1	22.35	35.05	1-3/8	1-1/2	31.24	26.41	36.83	19.05	49.02	36.83

• All dimensions in millimeters unless specified as "inch"

PAP-P Plug



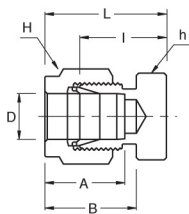
Fractional

Part No.	Tube O.D. D (inch)	Width Across Flat H (inch)	Part No.	Tube O.D. D (inch)	Width Across Flat H (inch)
PAP-P 2	1/8	7/16	SP - 8	1/2	7/8
PAP-P 3	3/16	1/2	SP - 10	5/8	1
PAP-P 4	1/4	9/16	SP - 12	3/4	1-1/8
PAP-P 5	5/16	5/8	SP - 14	7/8	1-1/4
PAP-P 6	3/8	11/16	SP - 16	1	1-1/2

Metric

Part No.	Tube O.D. D	Width Across Flat H	Part No.	Tube O.D. D	Width Across Flat H
PAP-P 2M	2	12	SP - 15M	15	25
PAP-P 3M	3	12	SP - 16M	16	25
PAP-P 4M	4	12	SP - 18M	18	30
PAP-P 6M	6	14	SP - 20M	20	32
PAP-P 8M	8	16	SP - 22M	22	32
PAP-P 10M	10	19	SP - 25M	25	38
PAP-P 12M	12	22			

PAP-C Cap



Connects Caps End of Fractional Tubes

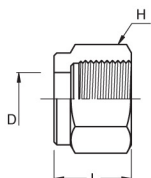
Part No.	Tube O.D. D (inch)	Width Across Flat		A	B	I	L
		h (inch)	H (inch)				
PAP-C - 1	1/16	5/16	5/16	8.63	10.92	11.20	14.98
PAP-C - 2	1/8	7/16	7/16	12.70	15.24	13.46	20.06
PAP-C - 3	3/16	7/16	1/2	13.71	16.00	14.73	21.33
PAP-C - 4	1/4	1/2	9/16	15.24	17.78	16.00	23.36
PAP-C - 5	5/16	9/16	5/8	16.25	18.54	17.01	24.38
PAP-C - 6	3/8	5/8	11/16	16.76	19.30	18.28	25.65
PAP-C - 8	1/2	13/16	7/8	22.86	21.84	19.05	29.21
PAP-C - 10	5/8	15/16	1	24.38	21.84	19.81	29.97
PAP-C - 12	3/4	1-1/16	1-1/8	24.38	21.84	21.33	31.49
PAP-C - 14	7/8	1-3/16	1-1/4	25.90	21.84	23.87	34.03
PAP-C - 16	1	1-3/8	1-1/2	31.24	26.41	26.16	38.35

Connects Metric Tubes

Part No.	Tube O.D. D	Width Across Flat		A	B	I	L	Part No.	Tube O.D. D	Width Across Flat		A	B	I	L
		h	H							h	H				
PAP-C - 2M	2	12	12	12.9	15.3	13.5	20.1	PAP-C -15M	15	24	25	24.4	22.0	19.8	29.9
PAP-C - 3M	3	12	12	12.9	15.3	13.5	20.1	PAP-C -16M	16	24	25	24.4	22.0	19.8	29.9
PAP-C - 4M	4	12	12	13.7	16.1	14.7	21.3	PAP-C -18M	18	27	30	24.4	22.0	21.3	31.4
PAP-C - 6M	6	14	14	15.3	17.7	15.7	23.1	PAP-C -20M	20	30	32	26.0	22.0	23.9	34.0
PAP-C - 8M	8	15	16	16.2	18.6	17.0	24.5	PAP-C -22M	22	30	32	26.0	22.0	23.9	34.0
PAP-C -10M	10	18	19	17.2	19.5	19.0	26.6	PAP-C -25M	25	35	38	31.3	26.5	26.2	38.5
PAP-C -12M	12	22	22	22.8	22.0	19.0	29.1								

PAP-N

Nut



Fractional

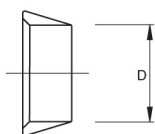
Part No.	Tube O.D. D (inch)	Width Across Flat H (inch)	L	Part No.	Tube O.D. D (inch)	Width Across Flat H (inch)	L
PAP-N - 1	1/16	5/16	7.90	PAP-N - 8	1/2	7/8	17.52
PAP-N - 2	1/8	7/16	11.93	PAP-N - 10	5/8	1	17.52
PAP-N - 3	3/16	1/2	11.93	PAP-N - 12	3/4	1-1/8	17.52
PAP-N - 4	1/4	9/16	12.70	PAP-N - 14	7/8	1-1/4	17.52
PAP-N - 5	5/16	5/8	13.46	PAP-N - 16	1	1-1/2	20.6
PAP-N - 6	3/8	11/16	14.22				

Metric

Part No.	Tube O.D. D	Width Across Flat H	L	Part No.	Tube O.D. D	Width Across Flat H	L
PAP-N - 2M	2	12	11.9	PAP-N - 14M	14	25	17.4
PAP-N - 3M	3	12	11.9	PAP-N - 15M	15	25	17.4
PAP-N - 4M	4	12	11.9	PAP-N - 16M	16	25	17.4
PAP-N - 6M	6	14	12.7	PAP-N - 18M	18	30	17.4
PAP-N - 8M	8	16	13.5	PAP-N - 20M	20	32	17.4
PAP-N - 10M	10	19	15.1	PAP-N - 22M	22	32	17.4
PAP-N - 12M	12	22	17.4	PAP-N - 25M	25	38	20.6

PAP-FF

Front Ferrule



Fractional

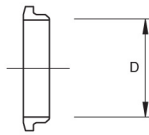
Part No.	Tube O.D. D (inch)	Part No.	Tube O.D. D (inch)
PAP-FF - 1	1/16	PAP-FF - 8	1/2
PAP-FF - 2	1/8	PAP-FF - 10	5/8
PAP-FF - 3	3/16	PAP-FF - 12	3/4
PAP-FF - 4	1/4	PAP-FF - 14	7/8
PAP-FF - 5	5/16	PAP-FF - 16	1
PAP-FF - 6	3/8		

Metric

Part No.	Tube O.D. D	Part No.	Tube O.D. D
PAP-FF - 2M	2	PAP-FF - 14M	14
PAP-FF - 3M	3	PAP-FF - 15M	15
PAP-FF - 4M	4	PAP-FF - 16M	16
PAP-FF - 6M	6	PAP-FF - 18M	18
PAP-FF - 8M	8	PAP-FF - 20M	20
PAP-FF - 10M	10	PAP-FF - 22M	22
PAP-FF - 12M	12	PAP-FF - 25M	25

• All dimensions in millimeters unless specified as "inch"

PAP-BF Back Ferrule



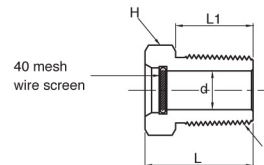
Fractional

Part No.	Tube O.D. D (inch)	Part No.	Tube O.D. D (inch)	Part No.	Tube O.D. D (inch)
PAP-BF - 1	1/16	PAP-BF - 5	5/16	PAP-BF - 12	3/4
PAP-BF - 2	1/8	PAP-BF - 6	3/8	PAP-BF - 14	7/8
PAP-BF - 3	3/16	PAP-BF - 7	1/2	PAP-BF - 16	1
PAP-BF - 4	1/4	PAP-BF - 10	5/8		

Metric

Part No.	Tube O.D. D	Part No.	Tube O.D. D	Part No.	Tube O.D. D
PAP-BF - 2M	2	PAP-BF - 10M	10	PAP-BF - 18M	18
PAP-BF - 3M	3	PAP-BF - 12M	12	PAP-BF - 20M	20
PAP-BF - 4M	4	PAP-BF - 14M	14	PAP-BF - 22M	22
PAP-BF - 6M	6	PAP-BF - 15M	15	PAP-BF - 25M	25
PAP-BF - 8M	8	PAP-BF - 16M	16		

PAP-VP Vent Protector

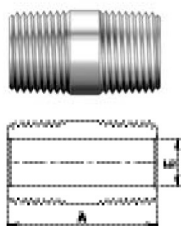


Part No.	T	L	L1	d	H
PAP-VP - 4N	1/4	19.81	14.22	7.11	9/16
PAP-VP - 4N	3/8	20.57	14.22	10.41	11/16
PAP-VP - 4N	1/2	26.16	19.05	12.70	7/8
PAP-VP - 4N	3/4	26.92	19.05	18.29	1-1/16

• All dimensions in millimeters unless specified as "inch"

Close Nipple

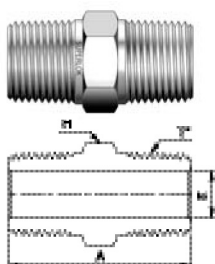
Male NPT Threads



NPT Pipe Size	Dimension(mm)	
	A	E
1/8	19.1	4.8
1/4	28.4	7.1
3/8	28.4	9.6
1/2	38.1	11.9
3/4	38.1	15.7
1	47.8	22.4

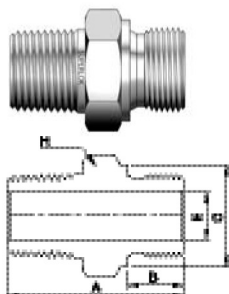
Hex Nipple

Male NPT Threads



NPT Pipe Size	Dimension(mm)			T* ISO/BSP Pipe Size (ISO 7/1)
	A	E	H	
1/8	25.6	4.8	11.1	1/8
1/4	35.6	7.1	14.2	1/4
3/8	36.3	9.6	17.4	3/8
1/2	46.7	11.9	22.2	1/2
3/4	46.7	15.7	26.9	3/4
1	58.9	22.4	34.9	1

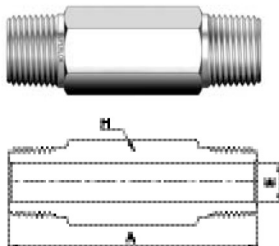
Male NPT to Male ISO Parallel Pipe Threads



NPT Pipe Size	ISO/BSP Pipe Size (ISO 228)	Dimension(mm)				
		A	B	C	E	H
1/8	1/8	27.7	7.1	13.7	4.1	14.2
1/4	1/4	36.8	11.2	18.0	5.8	19.1
3/8	3/8	37.6	11.2	21.6	7.9	22.2
1/2	1/2	44.4	14.2	25.9	11.9	26.9
3/4	3/4	49.0	15.7	32.0	15.7	33.3
1	1	56.6	18.3	38.9	19.8	41.2

Hex Long Nipple

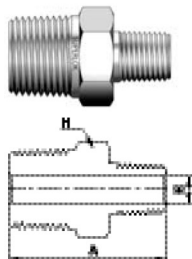
Male NPT Threads



NPT Pipe Size	Dimension(mm)		
	A	E	H
1/8	*	4.8	11.1
1/4	*	7.1	14.2
3/8	*	9.6	17.4
1/2	*	11.9	22.2
3/4	*	15.7	26.9
1	*	22.8	34.9

Hex Reducing Nipple

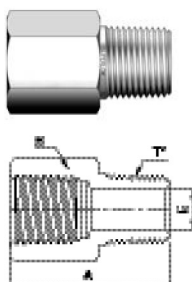
Male NPT Threads



NPT Pipe Size	Reduced Pipe Size	Dimension(mm)		
		A	E	H
1/8	1/16	25.6	3.0	11.1
1/4	1/8	31.0	4.8	14.2
3/8	1/8	31.8	4.8	17.4
3/8	1/4	36.3	7.1	17.4
1/2	1/8	37.3	4.8	22.2
1/2	1/4	41.9	7.1	22.2
1/2	3/8	41.9	9.6	22.2
3/4	1/4	41.9	7.1	26.9
3/4	1/2	46.7	11.9	26.9
1	1/4	49.3	7.1	34.9
1	1/2	54.1	11.9	34.9
1	3/4	54.1	15.7	34.9

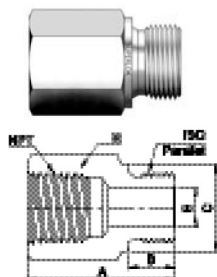
Adapter

Female to Male NPT Threads



NPT Pipe Size	Dimension(mm)			T* ISO/BSP Pipe Size (ISO 7/1)
	A	E	H	
1/8	27.9	4.8	14.2	1/8
1/4	35.6	7.1	19.1	1/4
3/8	38.4	9.6	22.2	3/8
1/2	49.3	11.9	26.9	1/2
3/4	51.3	15.7	33.3	3/4
1	57.9	22.4	41.2	1

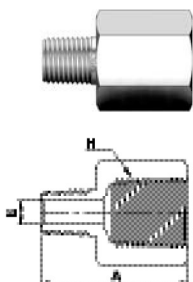
Female NPT to Male ISO Parallel Pipe Threads



NPT Pipe Size	ISO/BSP Pipe Size (ISO 228)	Dimension(mm)				
		A	B	C	E	H
1/8	1/8	25.1	7.1	13.7	4.1	14.2
1/4	1/4	33.5	11.2	18.0	5.8	19.1
3/8	3/8	35.8	11.2	21.6	7.9	22.2
1/2	1/2	44.2	14.2	25.9	11.9	26.9
3/4	3/4	48.0	15.7	32.0	15.7	33.3
1	1	53.3	18.3	38.9	19.8	41.2

Reducing Adapter

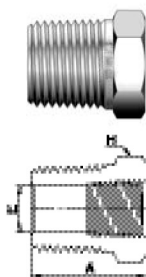
Male to Female NPT Threads



Male Pipe Size	Female Pipe Size	Dimension(mm)		
		A	E	H
1/8	1/4	32.0	4.8	19.1
1/8	3/8	33.8	4.8	22.2
1/4	3/8	38.1	7.1	22.2
1/8	1/2	40.1	4.8	26.9
1/4	1/2	44.7	7.1	26.9
3/8	1/2	44.4	9.6	26.9
1/4	3/4	47.0	7.1	33.3
3/8	3/4	46.2	9.6	33.3
1/2	3/4	51.3	11.9	33.3
1/4	1	49.8	7.1	41.2
1/2	1	54.9	11.9	41.2
3/4	1	55.1	15.7	41.2

Reducing Hex Bushing

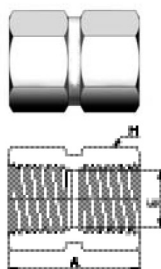
Male to Female NPT Threads



Male Pipe Size	Female Pipe Size	Dimension(mm)		
		A	E	H
1/4	1/8	26.9	7.1	14.2
3/8	1/8	21.8	8.6	17.4
3/8	1/4	30.2	9.6	19.1
1/2	1/8	27.4	8.6	22.2
1/2	1/4	27.4	11.4	22.2
1/2	3/8	35.8	11.9	22.2
3/4	1/4	27.4	11.4	26.9
3/4	3/8	27.4	15.0	26.9
3/4	1/2	41.4	15.7	26.9
1	1/4	34.8	11.4	34.9
1	3/8	34.8	15.0	34.9
1	1/2	34.8	18.5	34.9
1	3/4	47.0	22.4	34.9

Hex Coupling

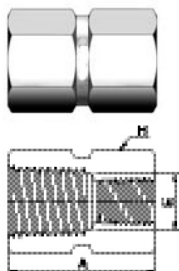
Female NPT Threads



Pipe Size	Dimension(mm)		
	A	E	H
1/8	20.6	8.6	14.2
1/4	30.2	11.4	19.1
3/8	33.3	15.0	22.2
1/2	39.6	18.5	26.9
3/4	41.1	23.9	33.3
1	50.8	29.7	41.2

Hex Reducing Coupling

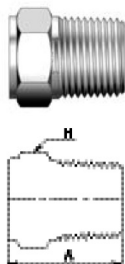
■ Female NPT Threads



Pipe Size	Reduced Pipe Size	Dimension(mm)		
		A	E	H
1/4	1/8	31.0	8.6	19.1
3/8	1/4	35.1	11.4	22.2
1/2	1/8	39.6	8.6	26.9
1/2	1/4	44.4	11.4	26.9
1/2	3/8	45.2	15.0	26.9
3/4	1/4	46.0	11.4	33.3
3/4	1/2	52.3	18.5	33.3
1	1/2	55.6	18.5	41.2
1	3/4	57.2	23.9	41.2

Pipe Plug

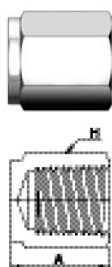
■ Female NPT Threads



Pipe Size	Dimension(mm)	
	A	H
1/8	19.1	11.1
1/4	24.4	14.2
3/8	25.1	17.4
1/2	30.7	22.2
3/4	30.7	26.9
1	38.1	34.9

Pipe Cap

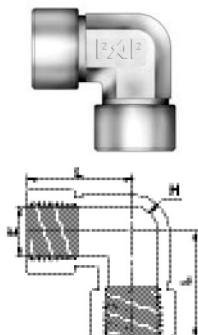
■ Female NPT Threads



Pipe Size	Dimension(mm)	
	A	H
1/8	19.1	14.2
1/4	23.1	19.1
3/8	26.2	22.2
1/2	34.0	26.9
3/4	36.6	33.3
1	41.1	41.2

Female Elbow

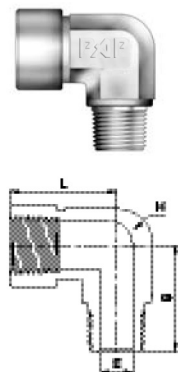
Female NPT Threads



Pipe Size	Dimension(mm)		
	E	L	H
1/8	8.6	24.0	12.7
1/4	11.4	29.0	17.5
3/8	15.0	34.5	20.6
1/2	18.5	37.0	25.4
3/4	23.9	46.5	31.8
1	29.7	48.8	42.9

Street Elbow

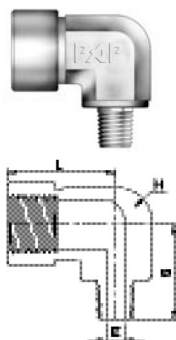
Female to Male NPT Threads



Pipe Size	Dimension(mm)			
	E	L	S	H
1/8	4.8	24.1	19.6	12.7
1/4	7.1	29.0	26.5	17.5
3/8	9.6	34.5	28.2	20.6
1/2	11.9	37.0	35.3	25.4
3/4	15.7	46.5	39.6	31.8
1	22.4	48.8	49.2	42.9

Reducing Street Elbow

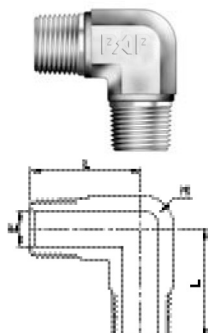
Female to Male NPT Threads



Female Pipe Size	Male Pipe Size	Dimension(mm)			
		E	L	S	H
1/8	1/16	3.0	26.4	22.1	12.7
1/4	1/8	4.8	29.0	22.4	17.5
3/8	1/4	7.1	34.5	28.2	20.6
1/2	1/4	7.1	37.0	30.5	25.4
1/2	3/8	9.6	37.0	30.5	25.4
3/4	1/2	11.9	46.5	39.6	31.8
1	1/2	11.9	48.8	44.5	42.9

Male Elbow

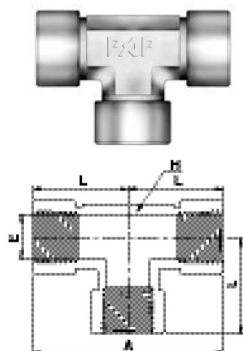
Male NPT Threads



Pipe Size	Dimension(mm)		
	E	L	H
1/8	4.8	19.1	12.7
1/4	7.1	24.5	12.7
3/8	9.6	26.9	17.5
1/2	11.9	33.2	20.6
3/4	15.7	35.3	25.4
1	22.4	44.5	31.8

Female Tee

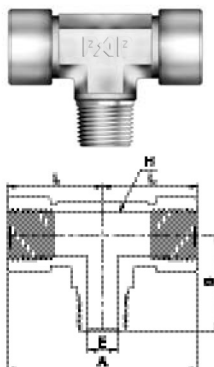
Female NPT Threads



Pipe Size	Dimension(mm)			
	A	E	L	H
1/8	48.0	8.6	24.0	12.7
1/4	58.0	11.4	29.0	17.5
3/8	69.0	15.0	34.5	20.6
1/2	74.0	18.5	37.0	25.4
3/4	93.0	23.9	46.5	31.8
1	97.0	29.7	48.5	42.9

Branch Tee

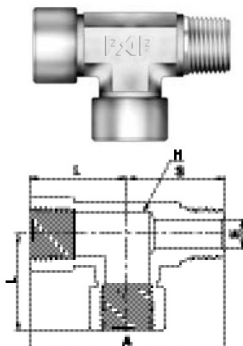
Male to Female NPT Threads



Pipe Size	Dimension(mm)				
	A	E	L	S	H
1/8	48.0	4.8	24.0	19.6	12.7
1/4	58.0	7.1	29.0	26.5	17.5
3/8	69.0	9.6	34.5	28.2	20.6
1/2	74.0	11.9	37.0	35.3	25.4
3/4	93.0	15.7	46.5	39.6	31.8
1	97.0	22.4	48.5	49.2	42.9

Run Tee

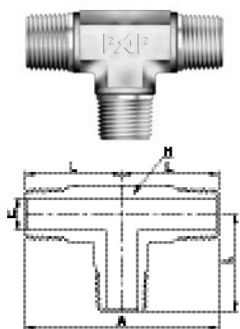
■ Male to Female NPT Threads



Pipe Size	Dimension(mm)				
	A	E	L	S	H
1/8	43.6	4.8	24.0	19.6	12.7
1/4	56.2	7.1	29.0	26.5	17.5
3/8	62.7	9.6	34.5	28.2	20.6
1/2	72.3	11.9	37.0	35.3	25.4
3/4	86.1	15.7	46.5	39.6	31.8
1	97.7	22.4	48.5	49.2	42.9

Male Tee

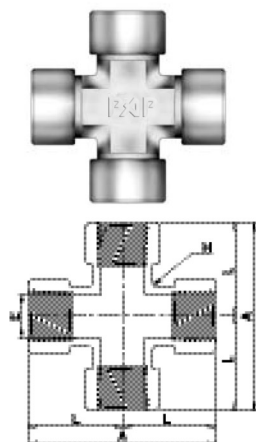
■ Male NPT Threads



Pipe Size	Dimension(mm)			
	A	E	L	H
1/8	38.2	4.8	19.1	12.7
1/4	49.0	7.1	24.5	12.7
3/8	53.8	9.6	26.9	17.5
1/2	66.4	11.9	33.2	20.6
3/4	70.6	15.7	35.3	25.4
1	89.0	22.4	44.5	31.8

Female Cross

■ Female NPT Threads



Pipe Size	Dimension(mm)			
	A	E	L	H
1/8	48.0	8.6	24.0	12.7
1/4	58.0	11.4	29.0	17.5
3/8	69.0	15.0	34.5	20.6
1/2	74.0	18.5	37.0	25.4
3/4	93.0	23.9	46.5	31.8
1	97.0	29.7	48.5	42.9