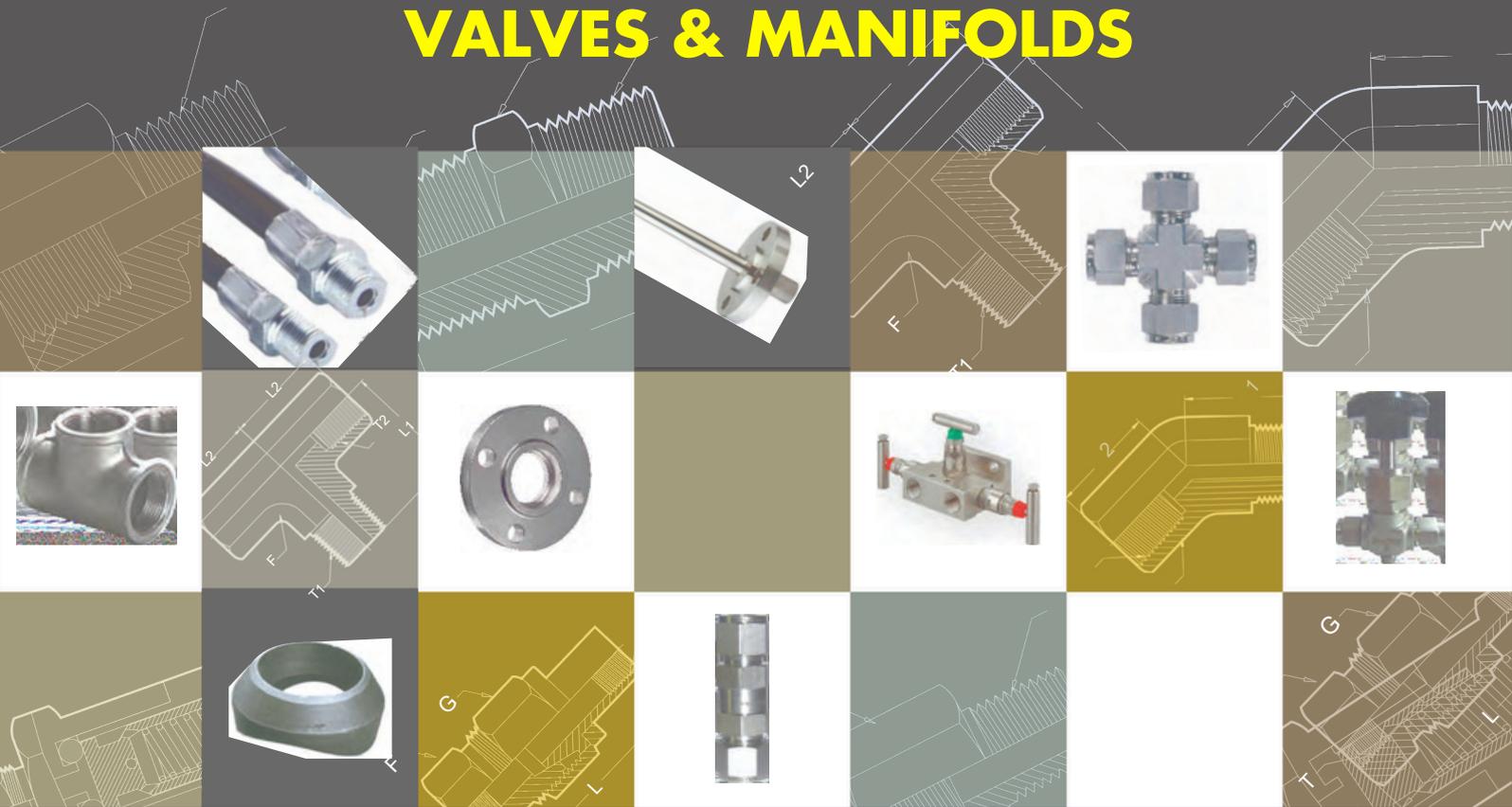




INSTRUMENTATION TUBE FITTINGS, VALVES & MANIFOLDS



- DOUBLE COMPRESSION TUBE FITTINGS
- NEEDLE VALVES
- BALL VALVES
- VALVE MANIFOLDS
- QUICK RELEASE COUPLING
- ACCESSORIES

We deliver the best



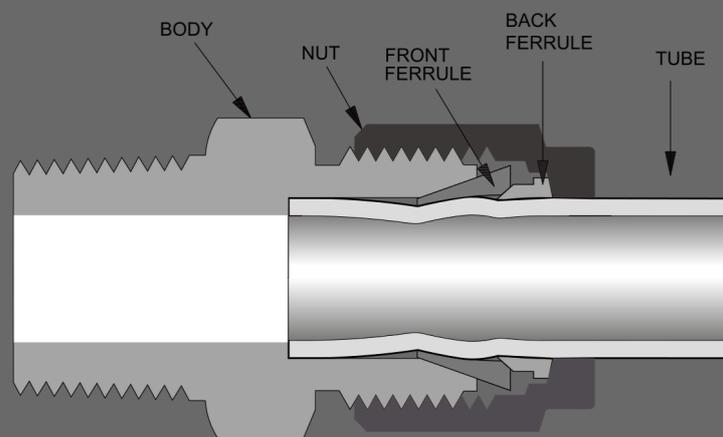
Founded in 1981 in Bangalore, India, Associated Industrial Concern brings over 40+ years of trusted expertise to the industrial supply sector. As a leading supplier of valves, pipes, we pride ourselves on delivering high-quality products that power industries across diverse sectors, we pride ourselves on delivering high-quality products that power industries across diverse sectors, we pride ourselves on delivering high-quality products that power industries across diverse sectors, such as mining, petroleum, hospitality, defence, aviation, railways, construction, steel plants, oil and gas, and the energy sector. With a legacy of reliability in the energy sector, a legacy of reliability, innovation, and customer-centric service, we remain the partner of choice for businesses seeking excellence.

DOUBLE COMPRESSION TUBE FITTINGS

Design & Function

Double compression (Double ferrule) tube fittings provide a leak proof, torque free joints in all instrumentation & process tubing connections which will withstand high pressure, Impulse, Vacuum, Vibration and temperature. These features eliminates costly, hazardous leaks and provide highest safety and maintenance free tubing joints.

All action in the fittings move axially, i.e. Tube is not twisted during assembly. Since no torque is transmitted from the fittings to the tubing, there is no initial strain, which might weaken the tubing. Each part in the fitting assembly is machined to most exact dimensional tolerance on CNC machines. Total quality management is practiced throughout the manufacturing process as per ISO standard to achieve best quality joints at all tubing end connections. Tube fitting assembly consist of four precision machined components namely body, nut, front ferrule and back ferrule. All you need to do is to insert the tube and tighten the nut by 1 ¼ turn from finger tight position. This action forces both front & back ferrule to move forward between nut and body, Back ferrule is driven against the rear taper of the front ferrule and swaged radially inward on the tube & thus holding the tube against vibration and mechanical pull due to pressure. Back ferrule also lift the front ferrule out to form a full faced seal on the taper surface of the body. Front ferrule also moves forward against the taper portion of the fitting body and due to wedging action forces inward, gripping and subsequently sealing the front edge tightly on to the tubing.



Design Features

Double ferrule fitting consists of 4 parts for leak proof maintenance free joints.

- Back ferrule dampens the tube circuit mechanical vibration through spring like action, also prevent carry over tightening torque from nut to front ferrule.
- The front ferrule circumferentially seals the surface between tube and the fitting body. The front edge of the ferrule is pressed on to the tube so that pressure tight impression is formed.
- The nut is silver plated to avoid galling and give low assembly torque.
- No Pre-Lubrication needed, also allows repeated make and remake.

Other Features

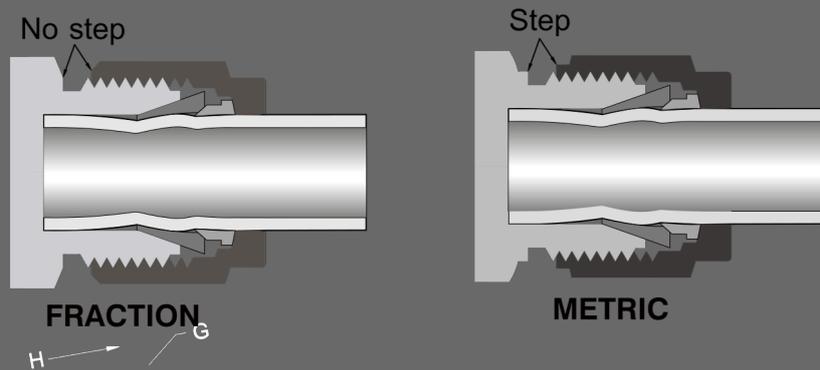
- Flare less design.
- Available for metric and fractional (imperial inch size) tubes with choice of NPT/BSPT/BSP/SAE/ISO pipe threads.
- Wide range of sizes and configurations.
- Manufacture in wide range of material like Stainless Steel, Steel, Brass, Aluminum, Titanium, Hastalloy, Monel and other special alloys.
- All components of fittings are made of same material.
- Excellent make and remake life.
- Interchangeable with leading international brands.
- Suitable with thin or thick walled tubes.
- Fittings are tested for high pressure, vacuum, impulse, vibration and temperature to ensure safety.

Material Specifications And Standard

Material	Barstock	Forgings	Designator
SS316/316L	ASTMA276 ASMESA479	ASTMA182 ASMESA182	316/316L
CarbonSteel	ASTMA105	ASTMA105	CS
Aluminum	ASTMB211	ASTMB247	AL
Alloy400(Monel)	ASTMB164 ASMESB164	ASTMB564 ASMESB564	M
Alloy600	ASTMB166 ASMESB166	ASTMB564 ASMESB564	A600
Alloy20	ASTMB473	ASTMB462	A20
AlloyC276 (Hastalloy)	ASTMB574	ASTMB564	H
Titanium	ASTMB348	ASTMB381	TI
Brass	ASTMB16 ASTMB453	ASTMB283	B

Identification of Fractional and Metric Tube Fittings

As there is marginal difference in nearest metric and fractional size of tubes, visually it is difficult to identify fitting tube sizes. Therefore step is provided on both body and nut for metric tube fittings as shown in following illustration.



Pipe Thread Specification

THREADTYPE REFERENCE SPECIFICATION	NPT	ISOP/BSP	ISOT/BSPT	SAE
	ANSI B 1.20.1 SAEAS71051	ISO228,B S2779, ISO7,Bs21	JISB0202 JISB0203	ASMEB1.1

Pressure Rating and Tubing Selection

Double and single compression SS Tube fittings are rated to the maximum working pressure of the tubing as shown below. Therefore proper selection of tubing must be done while making safe leak free joint. Tube should be fully annealed, high quality stainless steel tubing. The preferred hardness is Rb70 or less. The tubing should be free from scratches, surface defects and suitable for bending.

Following rating is based on annealed seamless 304 or 316 SS tubing with ultimate tensile strength 517000 kPa and allowable working pressure load of 137800 kPa.

Seamless tube wall thickness (SWG/Inch)

	Tube OD.	22 0.028	20 0.035	18 0.049	16 0.064	14 0.083	12 0.104
Maximum Working Pressure inPSI	1/4"	4000	5000	7500	10200		
	5/16"		4000	5800	8000		
	3/8"		3300	4800	6500		
	1/2"		2400	3500	4700	6200	
	5/8"			2900	4000	5200	6000
	3/4"			2400	3300	4200	4900
	7/8"			2000	2800	3600	4200
1"					2400	3100	3600

NOTE : No allowance is made for corrosion or erosion, for welded tubing multiply above pressure rating by 0.80

INSTRUMENT TUBING MATERIAL SELECTION GUIDE

Spraytech's instrument tube fittings have been designed to work in different application and environments, until & unless the material of tubing is selected properly for respective application the life of the system will remain in worry.

General Selection

The fluid media contained to flow inside the tubes and is compatibility with tube material play a main role.

Stainless steel fittings should be used only with stainless steel tubing, Aluminum fittings with aluminium tubes etc. mixing of different materials is to be prohibited. The only exception is brass fittings with copper tubing.

Gas Service

Special care must be taken during selection of tubes for pressurised gas services. In order to achieve leak proof sealing between ferule and tube the tube material must be softer than ferrule so it will penetrate in to tube.

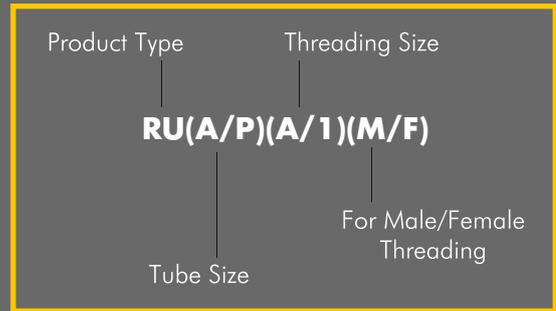
Tube material	General Application	Recommended Temp. Range
SS 316 / SS 304	High Pressure, High Temperature, Corrosive media	-250°C to 600°C
Carbon Steel	High Pressure, High Temperature oil, Air, Inert Chemicals	-29°C to 425°C
Copper	Low temperature, Low pressure water, Oil, Air, Gas	-40°C to 200°C
Aluminum	Low temperature, Low pressure water, Oil, Air, Gas	-40°C to 200°C
Monel 400	Sour Gas application, Marine Chemical application	-195°C to 420°C
Hastelloy C-276	Excellent corrosion resistance to both oxidizing and reducing media and localized corrosion attack	-195°C to 520°C
Inconel 600	High temperature application with corrosive media	-145°C to 620°C
Titanium	Sea water, salt solutions, acidic media	-59°C to 316°C

System Pressure

The system pressure is another mechanical parameter for selection of material off tubes. In general, high pressure installations require strong materials such as steel or stainless steel. Copper may be used if chemical compatibility exists with the media. The higher strength of steel or stainless steel permits the use of thinner tubes without reducing the ultimate rating of the system.

Product Coding System

Following example will show how to prepare product code.



1) Product Type

RU - Reducing Union
UN - Union
BU - Bulkhead Union etc.

2) Tube Size

INCHES	METRIC
A - 1/8"	P - 3mm
B - 3/16"	Q - 6mm
C - 1/4"	R - 8mm
E - 5/16"	T - 10mm
F - 3/8"	U - 12mm
G - 1/2"	V - 16mm
H - 5/8"	W - 20mm
J - 3/4"	X - 25mm
K - 7/8"	
L - 1"	

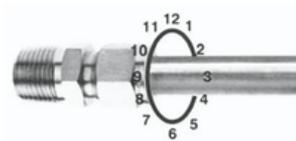
3) Threading Size

INCHES	SAE
A - 1/8"	1 = 7/16-20
B - 3/16"	2 = 9/16-18
C - 1/4"	3 = 5/16-24
E - 5/16"	4 = 3/4-16
F - 3/8"	5 = 7/8-14
G - 1/2"	6 = 1/2-20
H - 5/8"	7 = 1-1/16-12
J - 3/4"	8 = 1-5/16-12
K - 7/8"	9 = 1-3/16-12
L - 1"	

STEP1



STEP2



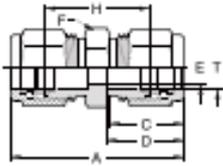
STEP3



Safety Precautions

- Select proper tube thickness as per working pressure requirement (refer table)
- Usefully annealed tube (preferred hardness 70-74 HRB), free from scratches, surface defects
- While assembling always hold the body firmly and rotate the nut, do not turn the body
- Use proper thread sealant while assembling taper threads
- While installing fitting near tube bends, leave sufficient straight length to allow tube to be bottomed the fitting
- While tightening or loosening a fitting be sure that the system is not pressurized
- Do not loosen the nut or pipe thread to bleed the system line
- No axial movement of ferrule after swaging is allowed

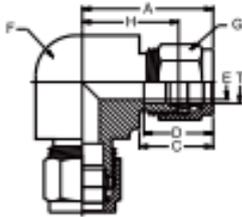
UNION



Imperial Tubing Union								
PART NO	T TUBE OD	A	C	D	E MIN	F A/F	G A/F	H Body
UNA	1/8"	1.41	0.61	0.51	0.10	7/16"	7/16"	0.88
UNB	3/16"	1.48	0.64	0.65	0.13	7/16"	1/2"	0.95
UNC	1/4"	1.62	0.71	0.61	0.20	1/2"	9/16"	1.03
UNE	5/16"	1.70	0.74	0.65	0.26	9/16"	5/8"	1.11
UNF	3/8"	1.78	0.77	0.67	0.29	5/8"	11/16"	1.19
UNG	1/2"	2.03	0.87	0.91	0.42	13/16"	7/8"	1.22
UNH	5/8"	2.06	0.87	0.97	0.51	15/16"	1"	1.25
UNJ	3/4"	2.12	0.87	0.97	0.63	1-1/16"	1-1/8"	1.31
UNK	7/8"	2.18	0.87	1.03	0.73	1-1/4"	1-1/4"	1.37
UNL	1"	2.56	1.05	1.24	0.89	1-3/8"	1-1/2"	1.59

Metric Tubing Um								
PART NO	T TUBE OD	A	C	D	E	F	G	H
UNP	3	35.31	15.31	12.91	2.41	11.01	11.01	22.21
UNQ	6	41.01	17.71	15.31	4.81	14.01	14.01	26.21
UNR	8	43.21	18.61	16.21	6.31	14.01	16.01	28.21
UNT	10	46.21	19.51	17.21	7.71	17.01	19.01	31.01
UNU	12	51.21	22.01	23.01	9.51	20.61	22.01	31.01
UNV	16	52.31	22.01	24.41	12.71	24.01	25.41	31.81
UNW	20	55.01	22.01	26.11	15.91	30.01	32.01	34.81
UNX	25	65.01	26.51	31.21	21.81	35.01	38.01	40.41

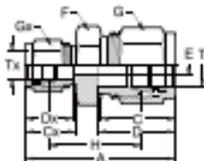
UNION ELBOW



Imperial Tubing								
PART NO	T TUBE OD	A	C	D	E	F A/F	G A/F	H Body
UEA	1/8"	0.89	0.61	0.51	0.10	1/2"	7/16"	0.62
UEB	3/16"	1.01	0.64	0.65	0.13	1/2"	1/2"	0.74
UEC	1/4"	1.07	0.71	0.61	0.20	9/16"	9/16"	0.77
UEE	5/16"	1.14	0.74	0.65	0.26	9/16"	5/8"	0.84
UEF	3/8"	1.21	0.77	0.67	0.29	5/8"	11/16"	0.91
UEG	1/2"	1.43	0.87	0.91	0.42	13/16"	7/8"	1.02
UEH	5/8"	1.51	0.87	0.97	0.51	15/16"	1"	1.10
UEJ	3/4"	1.57	0.87	0.97	0.63	1-1/16"	1-1/8"	1.17
UEK	7/8"	1.77	0.87	1.03	0.73	1-1/4"	1-1/4"	1.36
UEL	1"	1.94	1.05	1.24	0.89	1-3/8"	1-1/2"	1.45

Metric Tubing								
PART NO	T TUBE OD	A	C	D	E	F	G	H
UEP	3	22.31	15.31	12.91	2.41	11.01	11.01	15.71
UEQ	6	27.01	17.71	15.31	4.81	15.01	14.01	19.61
UER	8	28.81	18.61	16.21	6.31	15.01	16.01	21.31
UET	10	31.51	19.51	17.21	7.91	17.01	19.01	23.91
UEU	12	36.01	22.01	23.01	9.51	20.51	22.01	25.91
UEV	16	38.01	22.01	24.61	12.71	24.01	25.41	28.01
UEW	20	44.61	22.01	26.11	15.91	32.01	32.01	34.51
UEX	25	49.01	26.51	31.21	21.81	35.01	38.11	36.81

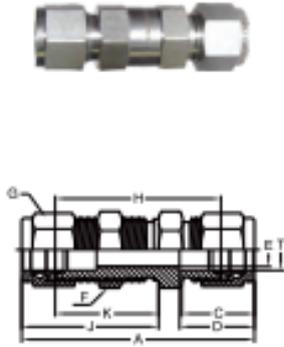
REDUCING UNION



Imperial Tubing												
PART NO.	TUBE OD T	TUBE OD Tx	A	C	Cx	D	Dx	E MIN	F A/F	G NUT	GX NUT	H BODY
RUCA	1/4"	1/8"	1.53	0.71	0.61	0.61	0.51	0.10	1/2"	9/16"	7/16"	0.97
RUEA	5/16"	1/4"	1.67	0.74	0.71	0.65	0.61	0.20	9/16"	5/8"	9/16"	1.08
RUFA	3/8"	1/4"	1.71	0.77	0.71	0.67	0.61	0.20	5/8"	11/16"	9/16"	1.12
RUGA	1/2"	1/4"	1.86	0.87	0.71	0.91	0.61	0.20	13/16"	7/8"	9/16"	1.16
RUGF	1/2"	3/8"	1.91	0.87	0.77	0.91	0.67	0.29	13/16"	7/8"	11/16"	1.22
RUHA	5/8"	3/8"	1.95	0.87	0.77	0.97	0.67	0.29	15/16"	1"	11/16"	1.25
RUHG	5/8"	1/2"	2.06	0.87	0.87	0.97	0.91	0.42	15/16"	1"	7/8"	1.25
RUJF	3/4"	3/8"	2.01	0.87	0.87	0.97	0.67	0.29	1-1/16"	1-1/8"	11/16"	1.31
RUJG	3/4"	1/2"	2.12	0.87	0.87	0.97	0.91	0.42	1-1/16"	1-1/8"	7/8"	1.31
RUJH	3/4"	5/8"	2.12	0.87	0.87	0.97	0.97	0.51	1-1/16"	1-1/8"	15/16"	1.31
RULJ	1"	3/4"	2.39	1.05	0.87	1.24	0.97	0.63	1-3/8"	1-1/2"	1-1/8"	1.50

Metric Tubing												
PART NO.	TUBE OD T	TUBE OD Tx	A	C	Cx	D	Dx	E	F	G	Gx	H
RUQP	6	3	38.61	17.71	15.31	15.31	12.91	2.41	15.1	15.01	24.01	24.01
RURQ	8	6	42.31	18.61	17.71	16.21	15.31	4.81	15.1	17.01	27.401	27.401
RUTQ	10	6	44.51	19.51	17.71	17.21	15.31	4.81	18.1	20.01	29.501	29.501
RUTR	10	8	45.11	19.51	18.61	17.21	16.21	6.31	18.1	20.01	31.001	31.001
RUUQ	12	6	47.01	22.01	17.71	23.01	15.31	4.81	20.7	22.01	29.501	29.501
RUUR	12	8	47.81	22.01	18.61	23.01	16.21	6.31	20.7	22.01	31.001	31.001
RUUT	12	10	48.71	22.01	19.51	23.01	17.21	7.91	20.7	22.01	31.901	31.901
RUVT	16	10	49.51	22.01	19.51	24.61	17.21	7.91	25.1	25.41	31.801	31.801
RUVU	16	12	52.01	22.01	22.01	24.61	23.01	9.51	25.1	25.41	32.801	32.801
RUXW	25	20	62.31	26.51	22.01	31.21	26.11	15.91	36.1	38.01	33.901	33.901

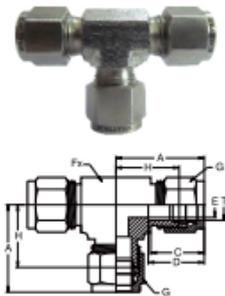
BULKHEAD UNION



Imperial Tubing BHU												
PART NO.	TUBE OD.	A	C	D	E	F	G	H	J	K	Panel Hole Size	
BUA	1/8"	2.03	0.61	0.51	0.10	1/2"	7/16"	1.50	1.23	0.97	0.33	
BUB	3/16"	2.12	0.64	0.65	0.13	7/16"	1/2"	1.59	1.26	1.00	0.39	
BUC	1/4"	2.28	0.71	0.61	0.20	5/8"	9/16"	1.69	1.32	1.03	0.45	
BUE	5/16"	2.40	0.74	0.65	0.26	11/16"	5/8"	1.81	1.41	1.12	0.52	
BUF	3/8"	2.46	0.77	0.67	0.29	3/4"	11/16"	1.87	1.45	1.16	0.58	
BUG	1/2"	2.81	0.87	0.91	0.42	15/16"	7/8"	2.00	1.65	1.25	0.77	
BUH	5/8"	2.87	0.87	0.97	0.51	1-1/16"	1"	2.06	1.68	1.28	0.89	
BUJ	3/4"	3.12	0.87	0.97	0.63	1-3/16"	1-1/8"	2.31	1.87	1.47	1.02	
BUL	1"	3.78	1.05	1.24	0.89	1-5/8"	1-1/2"	2.81	2.26	1.78	1.33	

Metric Tubing BHUm											
BUP	3	51.31	15.31	12.91	2.41	12.71	11.01	38.11	31.21	24.61	8.31
BUQ	6	57.71	17.71	15.31	4.81	16.01	14.01	42.91	33.51	26.21	11.51
BUR	8	61.01	18.61	16.21	6.31	17.41	16.01	46.01	36.11	28.61	13.11
BUT	10	63.71	19.51	17.21	7.91	19.01	17.41	48.51	37.01	29.41	16.31
BUU	12	71.01	22.01	23.01	9.51	24.01	22.01	50.81	41.91	31.81	19.51
BUV	16	72.51	22.01	24.61	12.71	27.01	25.41	52.41	42.61	32.51	22.81
BUW	20	84.51	22.01	26.11	15.91	35.01	32.01	64.31	53.01	42.91	29.01
BUX	25	95.81	26.21	31.21	21.81	41.01	38.01	71.41	57.41	45.21	33.71

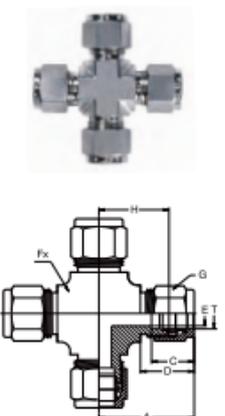
UNION TEE



Imperial Tubing								
PART NO.	TUBE OD.	A	C	D	E	Fx	G	H
UTA	1/8"	0.89	0.61	0.51	0.1	1/2"	7/16"	0.62
UTB	3/16"	1.01	0.64	0.65	0.13	1/2"	1/2"	0.70
UTC	1/4"	1.07	0.71	0.61	0.20	9/16"	9/16"	0.77
UTE	5/16"	1.18	0.74	0.65	0.26	9/16"	5/8"	0.88
UTF	3/8"	1.20	0.77	0.66	0.29	5/8"	11/16"	0.91
UTG	1/2"	1.42	0.87	0.91	0.42	13/16"	7/8"	1.02
UTH	5/8"	1.51	0.87	0.97	0.51	15/16"	1"	1.13
UTJ	3/4"	1.57	0.87	0.97	0.63	1-1/16"	1-1/8"	1.17
UTK	7/8"	1.77	0.87	1.03	0.73	1-1/4"	1-1/4"	1.36
UTL	1"	1.94	1.05	1.24	0.89	1-3/8"	1-1/2"	1.45

Metric Tubing								
UTP	3	22.31	15.31	12.71	2.41	12.71	11.01	15.71
UTQ	6	27.01	17.71	15.31	4.81	12.71	14.01	19.61
UTR	8	29.71	18.61	16.21	6.31	15.01	16.01	22.21
UTT	10	31.51	19.51	17.51	7.91	17.01	19.01	23.91
UTU	12	36.01	22.01	23.01	9.51	22.01	22.01	25.91
UTV	16	38.01	22.01	24.61	12.71	24.01	25.41	28.71
UTW	20	44.61	22.01	26.11	15.91	32.01	32.01	34.51
UTX	25	49.01	26.51	21.81	21.81	35.01	38.01	36.81

UNION CROSS



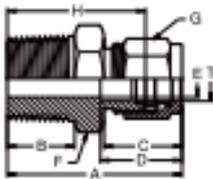
Imperial Tubing								
PART NO.	TUBE OD.	A	C	D	E	Fx	G	H
UCA	1/8"	0.89	0.61	0.51	0.10	1/2"	7/16"	0.62
UCB	3/16"	1.01	0.64	0.65	0.13	1/2"	1/2"	0.70
UCC	1/4"	1.07	0.71	0.61	0.20	9/16"	9/16"	0.77
UCE	5/16"	1.18	0.74	0.65	0.26	9/16"	5/8"	0.88
UCF	3/8"	1.20	0.77	0.66	0.29	5/8"	11/16"	0.91
UCG	1/2"	1.42	0.87	0.91	0.42	13/16"	7/8"	1.02
UCH	5/8"	1.51	0.87	0.97	0.51	15/16"	1"	1.13
UCJ	3/4"	1.57	0.87	0.97	0.63	1-1/16"	1-1/8"	1.17
UCK	7/8"	1.77	0.87	1.03	0.73	1-1/4"	1-1/4"	1.36
UCL	1"	1.94	1.05	1.24	0.89	1-3/8"	1-1/2"	1.45

Metric Tubing								
UCP	3	22.31	15.31	12.71	2.41	12.71	11.01	15.71
UCQ	6	27.01	17.71	15.31	4.81	12.71	14.01	19.61
UCR	8	29.71	18.61	16.21	6.31	15.01	16.01	22.21
UCT	10	31.51	19.51	17.51	7.91	17.01	19.01	23.91
UCU	12	36.01	22.01	23.01	9.51	22.01	22.01	25.91
UCV	16	38.01	22.01	24.61	12.71	24.01	25.41	28.71
UCW	20	44.61	22.01	26.11	15.91	32.01	32.01	34.51
UCX	25	49.01	26.51	21.81	21.81	35.01	38.01	36.81

MALE CONNECTOR

Imperial Tubing

ART O.	T TUBE OD.	N.P.T 'P'	A ~	B ~	C ~	D ~	E MIN	F A/F	G A/F	H BODY
MCAA	1/8"	1/8"	1.21	0.39	0.61	0.51	0.09	1/2"	7/16"	0.94
MCAC	1/8"	1/4"	1.41	0.57	0.61	0.51	0.09	9/16"	7/16"	1.14
MCBA	3/16"	1/8"	1.24	0.39	0.64	0.54	0.12	1/2"	1/2"	0.97
MCBC	3/16"	1/4"	1.44	0.57	0.64	0.54	0.12	9/16"	1/2"	1.17
MCCA	1/4"	1/8"	1.30	0.39	0.71	0.61	0.19	1/2"	9/16"	1.00
MCCC	1/4"	1/4"	1.50	0.57	0.71	0.61	0.19	9/16"	9/16"	1.20
MCCF	1/4"	3/8"	1.52	0.57	0.71	0.61	0.19	11/16"	9/16"	1.22
MCCG	1/4"	1/2"	1.77	0.76	0.71	0.61	0.19	7/8"	9/16"	1.47
MCEC	5/16"	1/4"	1.52	0.57	0.74	0.65	0.25	9/16"	5/8"	1.23
MCFA	3/8"	1/8"	1.40	0.39	0.77	0.67	0.19	5/8"	11/16"	1.10
MCFC	3/8"	1/4"	1.58	0.57	0.77	0.67	0.28	5/8"	11/16"	1.28
MCFE	3/8"	3/8"	1.58	0.57	0.77	0.67	0.28	11/16"	11/16"	1.28
MCFG	3/8"	1/2"	1.83	0.76	0.77	0.67	0.28	7/8"	11/16"	1.53
MCGC	1/2"	1/4"	1.72	0.57	0.87	0.90	0.28	13/16"	7/8"	1.31
MCGF	1/2"	3/8"	1.72	0.57	0.87	0.90	0.38	13/16"	7/8"	1.31
MCGG	1/2"	1/2"	1.94	0.76	0.87	0.90	0.41	7/8"	7/8"	1.53
MCGJ	1/2"	3/4"	2.00	0.76	0.87	0.90	0.41	1-1/16"	7/8"	1.59
MCHF	5/8"	3/8"	1.75	0.57	0.87	0.97	0.38	13/16"	1"	1.34
MCHG	5/8"	3/8"	1.94	0.76	0.87	0.97	0.47	13/16"	1"	1.53
MCJG	5/8"	1/2"	2.00	0.76	0.87	0.97	0.47	13/16"	1"	1.53
MCJJ	3/4"	1/2"	2.00	0.76	0.87	0.97	0.62	1-1/16"	1-1/8"	1.59
MCJL	3/4"	3/4"	2.26	0.95	0.87	0.97	0.62	1-1/16"	1-1/8"	1.59
MCKJ	3/4"	1"	2.00	0.76	0.87	1.03	0.62	1-3/8"	1-1/8"	1.85
MCLJ	7/8"	3/4"	2.27	0.76	0.87	1.03	0.62	1-1/4"	1-1/4"	1.59
MCLL	1"	3/4"	2.45	0.95	1.05	1.24	0.62	1-3/8"	1-1/2"	1.78
	1"	1"					0.88	1-3/8"	1-1/2"	1.97

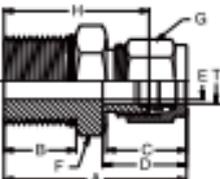


Metric Tubing

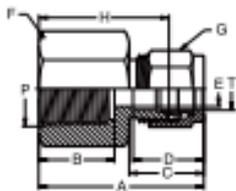
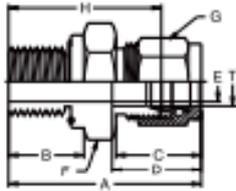
MCPA	3	1/8"	30.51	9.71	15.31	12.91	2.41	12.71	12.71	23.91
MCPC	3	1/4"	35.61	14.21	15.31	12.91	2.41	14.01	12.71	29.01
MCQA	6	1/8"	32.81	9.71	17.71	15.31	4.81	14.01	14.01	25.41
MCQC	6	1/4"	38.01	14.21	17.71	15.31	4.81	14.01	14.01	30.51
MCQF	6	3/8"	38.41	14.21	17.71	15.31	4.81	17.01	14.01	31.01
MCQG	6	1/2"	44.71	19.01	17.71	15.31	4.81	22.01	14.01	37.31
MCRC	8	1/4"	38.71	14.21	18.61	16.21	6.31	14.01	16.01	31.41
MCRF	8	3/8"	39.21	14.21	18.61	16.21	6.31	17.01	16.01	31.81
MCRG	8	1/2"	45.61	19.01	18.61	16.21	6.31	22.01	16.01	38.11
MCTC	10	1/4"	41.01	14.21	19.51	17.21	7.11	19.01	19.01	33.31
MCTF	10	3/8"	41.01	14.21	19.51	17.21	7.91	19.01	19.01	33.31
MCTG	10	1/2"	46.51	19.01	19.51	17.21	7.91	22.01	19.01	38.91
MCUC	12	1/4"	43.41	14.21	22.01	22.81	7.11	20.51	22.01	33.31
MCUF	12	3/8"	43.41	14.21	22.01	22.81	9.51	20.51	22.01	33.31
MCUG	12	1/2"	49.01	19.01	22.01	22.81	9.51	22.01	22.01	38.91
MCVF	16	3/8"	44.11	14.21	22.01	24.41	9.51	24.01	25.41	34.11
MCVG	16	1/2"	49.01	19.01	22.01	24.41	11.91	24.01	25.41	39.01
MCVJ	16	3/4"	50.51	19.01	22.01	24.41		27.01	25.41	
MCWG	16	1/2"	52.31	19.01	22.01	26.01	12.71	32.01	32.01	40.41
MCWJ	20	1/2"	52.31	23.91	22.01	26.01	11.91	32.01	32.01	42.21
MCXJ	20	3/4"	57.51	19.01	26.51	31.31	15.91	35.01	38.01	42.21
MCXL	25	3/4"	62.31	23.91	26.51	31.31	15.91	35.01	38.01	45.21
	25	1"					21.81			50.01

MALE CONNECTOR

Male Connector SAE/MS



PART NO.	T TUBE SAE/MS OD. thread size	A ~	B ~	C ~	D ~	E MIN	F A/F	G A/F	H BODY
MCA1M	1/8" 7/16-20	1.25	0.37	0.61	0.51	0.10	9/16"	7/16"	0.99
MCA2M	1/8" 9/16-18	1.32	0.40	0.61	0.51	0.10	11/16"	7/16"	1.06
MCB1M	1/4" 7/16-20	1.35	0.37	0.71	0.61	0.20	9/16"	9/16"	1.06
MCB2M	1/4" 9/16-18	1.41	0.40	0.71	0.61	0.20	11/16"	9/16"	1.12
MCB4M	1/4" 3/4-16	1.49	0.45	0.71	0.61	0.20	7/8"	9/16"	1.20
MCB5M	1/4" 7/8-14	1.61	0.51	0.71	0.61	0.20	1"	9/16"	1.48
MCE6M	5/16" 1/2-20	1.38	0.37	0.74	0.65	0.26	5/8"	5/8"	1.09
MCC1M	3/8" 7/16-20	1.41	0.37	0.77	0.67	0.21	5/8"	11/16"	1.12
MCC2M	3/8" 9/16-18	1.47	0.40	0.77	0.67	0.29	11/16"	11/16"	1.18
MCC4M	3/8" 3/4-16	1.55	0.45	0.77	0.67	0.29	7/8"	11/16"	1.26
MCC5M	3/8" 7/8-14	1.67	0.51	0.77	0.67	0.29	1"	11/16"	1.38
MCE2M	1/2" 9/16-18	1.55	0.40	0.87	0.91	0.29	13/16"	7/8"	1.15
MCE4M	1/2" 3/4-16	1.66	0.45	0.87	0.91	0.42	7/8"	7/8"	1.26
MCE5M	1/2" 7/8-14	1.78	0.51	0.87	0.91	0.42	1"	7/8"	1.38
MCE7M	1/2" 11/16-12	1.94	0.60	0.87	0.91	0.42	1-1/4"	7/8"	1.54
MCH4M	5/8" 3/4-16	1.66	0.45	0.87	0.97	0.43	15/16"	1"	1.29
MCH5M	5/8" 7/8-14	1.79	0.51	0.87	0.97	0.51	1"	1"	1.36
MCF4M	3/4" 3/4-16	1.82	0.45	0.87	0.97	0.43	1-1/16"	1-1/8"	1.42
MCF7M	3/4" 11/16-12	1.94	0.60	0.87	0.97	0.63	1-1/4"	1-1/8"	1.54
MCL7M	1" 11/16-12	2.11	0.60	1.05	1.24	0.67	1-3/8"	1-1/2"	1.63
MCL8M	1" 15/16-12	2.15	0.60	1.05	1.24	0.89	1-1/2"	1-1/2"	1.67



Male Connector O Seal Straight Thread

PART NO.	TUBE OD.	Pipe thread size	A ~	B ~	C ~	D ~	E MIN	F A/F	G A/F	H BODY
MCA3M	1/8"	5/16-24	1.30	0.35	0.61	0.51	0.10	9/16"	7/16"	1.04
MCC1M	1/4"	7/16-20	1.52	0.42	0.71	0.61	0.20	3/4"	9/16"	1.23
MCE6M	5/16"	1/2-20	1.61	0.45	0.74	0.65	0.26	7/8"	5/8"	1.32
MCF2M	3/8"	9/16-18	1.68	0.48	0.77	0.67	0.29	15/16"	11/16"	1.39
MCG4M	1/2"	3/4-16	1.82	0.48	0.87	0.91	0.42	11/8"	7/8"	1.42
MCJ7M	3/4"	11/16-12	2.07	0.57	0.87	0.97	0.63	11/2"	11/8"	1.67
MCL8M	1"	15/16-12	2.30	0.57	1.05	1.24	1.89	13/4"	11/2"	1.82

FEMALE CONNECTOR

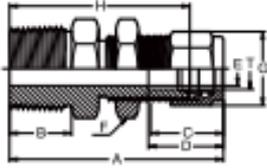
Imperial Tubing

PART NO.	TUBE OD "T"	NPT. "P"	A ~	B ~	C ~	D ~	E MIN	F A/F	G A/F	H BODY
FCAA	1/8"	1/8"	1.14	0.40	0.61	0.51	0.1	9/16"	7/16"	0.88
FCAC	1/8"	1/4"	1.33	0.60	0.61	0.51	0.1	3/4"	7/16"	1.07
FCBA	3/16"	1/8"	1.18	0.40	0.64	0.55	0.13	9/16"	1/2"	0.92
FCCA	1/4"	1/8"	1.24	0.40	0.71	0.61	0.2	9/16"	9/16"	0.95
FCCC	1/4"	1/4"	1.42	0.60	0.71	0.61	0.2	3/4"	9/16"	1.13
FCCF	1/4"	3/8"	1.49	0.60	0.71	0.61	0.2	7/8"	9/16"	1.20
FCCG	1/4"	1/2"	1.68	0.79	0.71	0.61	0.2	1-1/16"	9/16"	1.39
FCEA	5/16"	1/8"	1.27	0.40	0.74	0.65	0.26	9/16"	5/8"	0.98
FCEC	5/16"	1/4"	1.46	0.60	0.74	0.65	0.26	3/4"	5/8"	1.17
FCFC	3/8"	1/4"	1.49	0.60	0.77	0.67	0.29	3/4"	11/16"	1.20
FCFF	3/8"	3/8"	1.55	0.60	0.77	0.67	0.29	7/8"	11/16"	1.26
FCFG	3/8"	1/2"	1.74	0.79	0.77	0.67	0.29	1-1/16"	11/16"	1.45
FCGG	1/2"	1/4"	1.60	0.60	0.87	0.91	0.42	13/16"	7/8"	1.20
FCGF	1/2"	3/8"	1.66	0.60	0.87	0.91	0.42	7/8"	7/8"	1.26
FCGG	1/2"	1/2"	1.85	0.79	0.87	0.91	0.42	1-1/16"	7/8"	1.45
FCHF	5/8"	3/8"	1.66	0.60	0.87	0.97	0.51	15/16"	1"	1.26
FCHG	5/8"	1/2"	1.85	0.79	0.87	0.97	0.51	1-1/16"	1"	1.45
FCHJ	5/8"	3/4"	1.91	0.82	0.87	0.97	0.51	1-1/4"	1"	1.51
FCJG	3/4"	1/2"	1.85	0.82	0.87	0.97	0.63	1-1/16"	1-1/8"	1.45
FCJJ	3/4"	3/4"	2.91	0.82	0.87	0.97	0.63	1-1/4"	1-1/8"	1.51
FCKJ	7/8"	3/4"	2.97	0.82	1.05	1.03	0.73	1-1/4"	1-1/4"	1.57
FCLJ	1"	3/4"	2.11		1.05	1.24	0.89	1-3/8"	1-1/2"	1.63
FCLL	1"	1"	2.46	1.01		1.24	0.89	1-5/8"	1-1/2"	1.98

Metric Tubing

FCPA	3	1/8	28.71	9.71	15.31	12.91	2.41	14.01	12.71	22.11
FCPC	3	1/4	34.01	14.21	15.31	12.91	2.41	19.01	12.71	27.01
FCQA	6	1/8"	31.21	9.71	17.71	15.31	4.81	14.01	14.01	23.91
FCQC	6	1/4	35.81	14.21	17.71	15.31	4.81	19.01	14.01	28.61
FCQF	6	3/8	37.61	14.21	17.71	15.31	4.81	22.01	14.01	30.21
FCQG	6	1/2	42.51	19.01	17.71	15.31	4.81	27.01	14.01	35.11
FCRC	8	1/4"	37.01	14.21	18.61	16.21	6.31	19.01	16.01	29.51
FCRF	8	3/8	38.51	14.21	18.61	16.21	6.31	22.01	16.01	31.01
FCRG	8	1/2	43.31	19.01	18.61	16.21	6.31	27.01	16.01	35.81
FCTC	10	1/4"	37.81	14.21	19.51	17.21	7.11	19.01	19.01	30.51
FCTF	10	3/8"	39.41	14.21	19.51	17.21	7.91	22.01	19.01	31.81
FCTG	10	1/2"	44.21	19.01	19.51	17.21	7.91	27.01	19.01	36.61
FCUC	12	1/4"	40.31	14.21	22.01	22.81	9.51	20.51	22.01	30.21
FCUF	12	3/8"	42.91	14.21	22.01	22.81	9.51	22.01	22.01	31.81
FCUG	12	1/2"	46.71	19.01	22.01	22.81	9.51	27.01	22.01	36.61
FCVG	16	1/2"	46.91	19.01	22.01	24.41	12.71	27.01	25.41	36.61
FCWJ	20	3/4"	50.01	19.01	22.01	26.01	15.91	32.01	32.01	39.61
FCXJ	25	3/4"	53.41	19.01	26.51	31.31	15.91	36.01	38.01	41.21
FCXL	25	1"	62.31	23.91	26.51	31.31	21.91	41.01	38.01	50.01

MALE BULKHEAD CONNECTOR



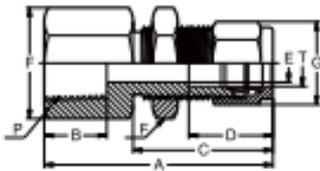
Imperial Tubing

PART NO.	TUBE OD.	NPT T'	A	H BODY	C	D	E min	F A/F	B	Panel Hole Size	Max Panel Thk
BCMAA	1/8"	1/8"	1.84	1.58	0.98	0.51	0.1	1/2"	0.39	21/64"	0.51
BCMCA	1/4"	1/8"	1.96	1.67	1.04	0.61	0.2	5/8"	0.39	29/64"	0.41
BCMCC	1/4"	1/4"	2.14	1.85	1.04	0.61	0.2	5/4"	0.57	29/64"	0.41
BCMFC	3/8"	1/4"	2.27	1.98	1.17	0.67	0.29	3/4"	0.57	37/64"	0.45
BCMFF	3/8"	3/8"	2.27	1.98	1.17	0.67	0.29	3/4"	0.57	37/64"	0.45
BCMFG	3/8"	1/2"	2.52	2.23	1.17	0.67	0.29	7/8"	0.76	37/64"	0.45
BCMGF	1/2"	3/8"	2.50	3.00	1.26	0.91	0.39	15/16"	0.57	49/64"	0.51
BCMGG	1/2"	1/2"	2.72	2.32	1.26	0.91	0.42	15/16"	0.76	49/64"	0.51
BCMJJ	3/4"	3/4"	3.01	2.61	1.48	0.97	0.63	1-3/16"	0.76	1-1/64"	0.67
BCMLL	1"	1"	3.68	3.20	1.79	1.24	1.89	1-5/8"	0.95	1-21/64"	0.76

Metric Tubing

BCMQC	6	1/4"	53.61	46.21	26.21	15.31	4.81	16.01	14.01	11.51	10.21
BCMUG	12	1/2"	68.81	58.71	31.81	22.81	9.51	24.01	19.01	19.51	12.71

FEMALE BULKHEAD CONNECTOR



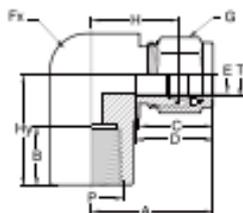
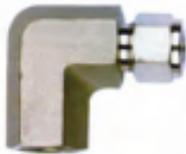
Imperial Tubing

PART NO.	TUBE OD.	NPT P'	A	H BODY	C	D	E min	F A/F	B	Panel Hole Size	Max Panel Thk	
BCFAA	1/8"	1/8"	1.77	1.51	0.98	0.51	0.1	9/16"	0.2	0.42	21/64"	0.51
BCFCA	1/4"	1/8"	1.86	1.57	1.04	0.61	5/8"	0.2	3/4"	0.42	29/64"	0.41
BCFCC	1/4"	1/4"	2.05	1.76	1.04	0.61	0.29	3/4"	0.60	29/64"	0.41	
BCFFC	3/8"	1/4"	2.18	1.89	1.17	0.67	0.39	15/16"	0.60	37/64"	0.45	
BCFGF	1/2"	3/8"	2.44	2.04	1.26	0.91	0.42	1-1/16"	0.60	49/64"	0.51	
BCFGG	1/2"	1/2"	2.63	2.23	1.26	0.91			0.79	49/64"	0.51	

Metric Tubing

BCFQC	6	1/4"	51.81	44.41	26.21	15.31	4.81	19.01	15.01	11.51	10.21
BCFUG	12	1/2"	66.51	56.41	31.81	22.81	9.51	27.01	19.81	19.51	12.71

FEMALE ELBOW



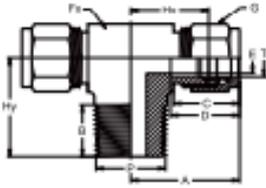
Imperial Tubing

PART NO.	TUBE OD	NPT FEMALE T' P'	A	B	C	D	E MIN	Fx A/F	Gx A/F	Hy	Hx BODY
FEAA	1/8"	1/8"	0.98	0.40	0.61	0.51	0.1	9/16"	7/16"	0.76	0.72
FEAC	1/8"	1/4"	1.09	0.60	0.61	0.51	0.1	3/4"	7/16"	0.89	0.83
FECA	1/4"	1/8"	1.07	0.40	0.71	0.61	0.2	9/16"	9/16"	0.76	0.78
FECC	1/4"	1/4"	1.18	0.60	0.71	0.61	0.2	3/4"	9/16"	0.89	0.89
FEFC	1/4"	3/8"	1.26	0.60	0.71	0.61	0.2	7/8"	9/16"	0.89	0.96
FECG	1/4"	1/2"	1.37	0.79	0.71	0.61	0.2	1-1/16"	9/16"	1.13	1.08
FEHC	5/16"	1/4"	1.21	0.60	0.74	0.65	0.26	3/4"	5/8"	0.89	0.92
FEFC	3/8"	1/4"	1.24	0.60	0.77	0.67	0.29	3/4"	11/16"	0.89	0.95
FEFF	3/8"	3/8"	1.32	0.60	0.77	0.67	0.29	7/8"	11/16"	0.89	1.03
FEFG	3/8"	1/2"	1.43	0.79	0.77	0.67	0.29	1-1/16"	11/16"	1.13	1.14
FEGC	1/2"	1/4"	1.43	0.60	0.87	0.91	0.42	13/16"	7/8"	0.89	1.03
FECC	1/2"	3/8"	1.43	0.60	0.87	0.91	0.42	7/8"	7/8"	0.89	1.03
FECC	1/2"	1/2"	1.54	0.79	0.87	0.91	0.42	1-1/16"	7/8"	1.13	1.14
FEHC	5/8"	1/2"	1.58	0.79	0.87	0.97	0.51	1-1/16"	1"	1.13	1.18
FEJC	3/4"	1/2"	1.58	0.79	0.87	0.97	0.63	1-1/16"	1-1/8"	1.13	1.18
FEJJ	3/4"	3/4"	1.77	0.82	0.87	0.97	0.63	1-1/4"	1-1/8"	1.26	1.37

Metric Tubing

FEPA	3	1/8"	24.7	9.71	15.31	12.91	2.41	14.01	11.01	19.01	18.01
FEPC	3	1/4"	27.1	14.21	15.31	12.91	2.41	19.01	11.01	22.41	20.81
FEQA	6	1/8"	27.1	9.71	17.71	15.31	4.81	14.01	14.01	19.01	19.61
FEQC	6	1/4"	29.9	14.21	17.71	15.31	4.81	19.01	14.01	22.41	22.41
FEQF	6	3/8"	31.8	14.21	17.71	15.31	4.81	22.01	14.01	22.41	24.41
FEQG	6	1/2"	34.7	19.01	17.71	15.31	4.81	27.01	14.01	28.41	27.21
FERC	8	1/4"	30.7	14.21	18.61	16.21	6.31	19.01	16.01	22.41	23.11
FETC	10	1/4"	33.6	14.21	19.51	17.21	7.11	19.01	19.01	22.41	25.91
FEUC	12	1/4"	36.1	14.21	22.01	22.91	9.51	20.51	22.01	22.41	25.91
FEUF	12	3/8"	36.1	14.21	22.01	22.91	9.51	22.01	22.01	22.41	25.91
FEUG	12	1/2"	38.9	19.01	22.01	22.91	9.51	27.01	22.01	28.41	28.71
FEVG	16	1/2"	39.6	19.01	22.01	24.41	12.71	27.01	25.01	28.41	29.71

MALE BRANCH TEE



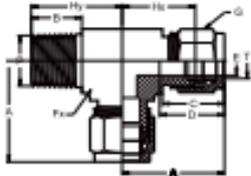
Imperial Tubing

PART NO.	TUBE NPT. OD 'T'	A	B	C	D	E MIN	F A/F	G A/F	Hy	Hx BODY
BTMAA	1/8" 1/8"	0.94	0.39	0.61	0.51	0.1	1/2"	7/16"	0.71	0.68
BTMAC	1/8" 1/4"	0.98	0.57	0.61	0.51	0.1	9/16"	7/16"	0.93	0.72
BTMCA	1/4" 1/8"	1.07	0.39	0.71	0.61	0.2	1/2"	9/16"	0.75	0.78
BTMCC	1/4" 1/4"	1.07	0.57	0.71	0.61	0.2	9/16"	9/16"	0.93	0.78
BTMEC	5/16" 1/4"	1.18	0.57	0.74	0.65	0.26	9/16"	5/8"	0.93	0.89
BTMFC	3/8" 1/4"	1.21	0.57	0.77	0.67	0.29	9/16"	11/16"	1.01	0.92
BTMFF	3/8" 3/8"	1.32	0.57	0.77	0.67	0.29	11/16"	11/16"	1.12	1.03
BTMGF	1/2" 3/8"	1.43	0.57	0.87	0.91	0.39	13/16"	7/8"	1.12	1.03
BTMGG	1/2" 1/2"	1.43	0.76	0.87	0.91	0.42	7/8"	7/8"	1.31	1.03
BTMHG	5/8" 1/2"	1.54	0.76	0.87	0.97	0.48	15/16"	1"	1.42	1.14
BTMJJ	3/4" 3/4"	1.58	0.76	0.87	0.97	0.63	1-1/16"	1-1/8"	1.46	1.18

Metric Tubing

BTMPA	3 1/8"	23.61	9.71	15.31	12.91	2.41	12.71	11.01	17.81	17.01
BTMPC	3 1/4"	23.61	14.21	15.31	12.91	2.41	14.01	11.01	23.41	18.01
BTMQA	6 1/8"	26.91	9.71	17.71	15.4	4.81	12.71	14.01	18.81	19.61
BTMQC	6 1/4"	26.91	14.21	17.71	15.4	4.81	14.01	14.01	23.41	19.61
BTMRA	8 1/8"	29.81	9.71	18.61	16.3	4.81	14.01	16.01	19.01	22.41
BTMRC	8 1/4"	29.81	14.21	18.61	16.3	6.31	14.01	16.01	23.41	22.41
BTMTC	10 1/4"	33.51	14.21	19.51	17.3	7.11	17.01	19.01	28.21	25.91
BTMTF	10 3/8"	33.51	14.21	19.51	17.3	7.91	17.01	19.01	28.21	25.91
BTMUF	12 3/8"	36.01	14.21	22.01	22.9	9.51	20.51	22.01	28.21	25.91
BTMUG	12 1/2"	36.01	19.01	22.01	22.9	9.51	22.01	22.01	33.01	25.91
BTMVG	16 1/2"	38.81	19.01	22.01	24.5	12.71	24.01	25.01	35.81	28.71

MALE RUN TEE



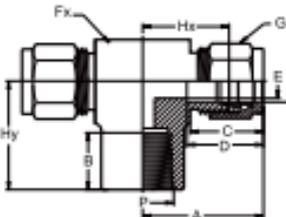
Imperial Tubing

PART NO.	TUBE NPT. OD 'T'	A	B	C	D	E MIN	F A/F	G A/F	Hy	Hx BODY
RTMAA	1/8" 1/8"	0.94	0.39	0.61	0.51	0.1	1/2"	7/16"	0.71	0.68
RTMAC	1/8" 1/4"	0.98	0.57	0.61	0.51	0.1	9/16"	7/16"	0.93	0.72
RTMCA	1/4" 1/8"	1.07	0.39	0.71	0.61	0.2	1/2"	9/16"	0.75	0.78
RTMCC	1/4" 1/4"	1.07	0.57	0.71	0.61	0.2	9/16"	9/16"	0.93	0.78
RTMEC	5/16" 1/4"	1.18	0.57	0.74	0.65	0.26	9/16"	5/8"	0.93	0.89
RTMFC	3/8" 1/4"	1.21	0.57	0.77	0.67	0.29	9/16"	11/16"	1.01	0.92
RTMFF	3/8" 3/8"	1.32	0.57	0.77	0.67	0.29	11/16"	11/16"	1.12	1.03
RTMGF	1/2" 3/8"	1.43	0.57	0.87	0.91	0.39	13/16"	7/8"	1.12	1.03
RTMGG	1/2" 1/2"	1.43	0.76	0.87	0.91	0.42	7/8"	7/8"	1.31	1.03
RTMHG	5/8" 1/2"	1.54	0.76	0.87	0.97	0.48	15/16"	1"	1.42	1.14
RTMJJ	3/4" 3/4"	1.58	0.76	0.87	0.97	0.63	1-1/16"	1-1/8"	1.46	1.18

Metric Tubing

RTMPA	3 1/8"	23.61	9.71	15.31	12.91	2.41	23.61	12.71	11.01	17.81	17.01
RTMOC	3 1/4"	14.21	15.31	12.91	2.41	26.91	14.01	11.01	23.41	18.01	
RTMQA	6 1/8"	9.71	17.71	15.4	4.81	26.91	14.21	12.71	14.01	18.81	19.61
RTMQC	6 1/4"	17.71	15.4	4.81	29.81	9.71	18.61	14.01	14.01	23.41	19.61
RTMRA	8 1/8"	16.3	4.81	29.81	14.21	18.61	16.3	14.01	16.01	19.01	22.41
RTMRC	8 1/4"	6.31	33.51	14.21	19.51	17.3	7.11	14.01	16.01	23.41	22.41
RTMTC	10 1/4"	33.51	14.21	19.51	17.3	7.91	36.01	17.01	19.01	28.21	25.91
RTMTF	10 3/8"	14.21	22.01	22.9	9.51	36.01	19.01	17.01	19.01	28.21	25.91
RTMUF	12 3/8"	22.01	22.9	9.51	38.81	19.01	22.01	20.51	22.01	28.21	25.91
RTMUG	12 1/2"	24.5	12.71					22.01	22.01	33.01	25.91
RTMVG	16 1/2"							24.01	25.01	35.81	28.71

FEMALE BRANCH TEE



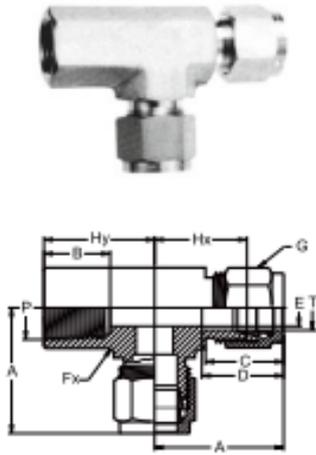
Imperial Tubing

PART NO.	TUBE NPT. OD 'T'	A	B	C	D	E MIN	F A/F	G A/F	Hy	Hx BODY
BTFAA	1/8" 1/8"	0.98	0.40	0.61	0.51	0.1	9/16"	7/16"	0.76	0.72
BTFCA	1/4" 1/8"	1.07	0.40	0.71	0.61	0.2	9/16"	9/16"	0.76	0.78
BTFCC	1/4" 1/4"	1.18	0.60	0.71	0.61	0.2	3/4"	9/16"	0.89	0.89
BTFEC	5/16" 1/4"	1.21	0.60	0.74	0.65	0.26	3/4"	5/8"	0.89	0.91
BTFFC	3/8" 1/4"	1.24	0.60	0.77	0.67	0.29	3/4"	11/16"	0.89	0.94
BTFFF	3/8" 3/8"	1.32	0.60	0.77	0.67	0.29	7/8"	11/16"	0.89	1.03
BTFGC	1/2" 1/4"	1.43	0.60	0.87	0.91	0.42	13/16"	7/8"	0.89	1.03
BTFGF	1/2" 3/8"	1.43	0.60	0.87	0.91	0.42	7/8"	7/8"	0.89	1.03
BTFGG	1/2" 1/2"	1.54	0.79	0.87	0.91	0.42	1-1/16"	7/8"	1.13	1.14
BTFHG	5/8" 1/2"	1.58	0.79	0.87	0.97	0.51	1-1/16"	1"	1.13	1.18
BTFJG	3/4" 1/2"	1.58	0.79	0.87	0.97	0.63	1-1/16"	1-1/8"	1.13	1.18
BTFJJ	3/4" 3/4"	1.77	0.82	0.87	0.97	0.63	1-1/4"	1-1/8"	1.26	1.37

Metric Tubing

BTFQA	6 1/8"	27.1	9.71	17.8	15.4	4.9	14.01	14.01	19.11	19.61
BTFCA	6 1/4"	29.9	14.3	17.8	15.4	4.9	19.01	14.01	22.51	22.41
BTFQC	6 1/8"	29.8	10.5	18.7	16.3	6.4	15.01	16.01	22.51	19.61
BTFRC	6 1/4"	30.7	14.3	18.7	16.3	6.4	19.01	16.01	22.51	23.11
BTFUC	10 1/4"	33.6	14.3	19.6	17.3	7.1	19.01	19.01	22.51	25.91
BTFVG	12 1/4"	36.1	14.3	22.1	22.9	9.6	20.51	22.01	22.51	25.91
	12 3/8"	36.1	14.3	22.1	22.9	9.6	22.01	22.01	22.51	25.91
	16 1/2"	39.6	19.1	22.1	24.5	12.8	27.01	25.01	28.51	29.71

FEMALE RUN TEE



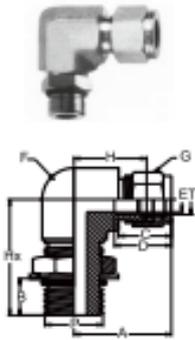
Imperial Tubing

PART NO.	TUBE OD	NPT. 'P'	A	B	C	D	E MIN	F A/F	G A/F	Hy	Hx BODY
RTFAA	1/8"	1/8"	0.98	0.40	0.61	0.51	0.1	9/16"	7/16"	0.76	0.72
RTFCA	1/4"	1/8"	1.07	0.40	0.71	0.61	0.2	9/16"	9/16"	0.76	0.78
RTFCC	1/4"	1/4"	1.18	0.60	0.71	0.61	0.2	3/4"	9/16"	0.89	0.89
RTFEC	5/16"	1/4"	1.21	0.60	0.74	0.65	0.26	3/4"	5/8"	0.89	0.91
RTFFC	3/8"	1/4"	1.24	0.60	0.77	0.67	0.29	3/4"	11/16"	0.89	0.94
RTFFF	3/8"	3/8"	1.32	0.60	0.77	0.67	0.29	7/8"	11/16"	0.89	1.03
RTFGC	1/2"	1/4"	1.43	0.60	0.87	0.91	0.42	13/16"	7/8"	0.89	1.03
RTFGF	1/2"	3/8"	1.43	0.60	0.87	0.91	0.42	7/8"	7/8"	0.89	1.03
RTFGG	1/2"	1/2"	1.54	0.79	0.87	0.91	0.42	1-1/16"	7/8"	1.13	1.14
RTFHG	5/8"	1/2"	1.58	0.79	0.87	0.97	0.51	1-1/16"	1"	1.13	1.18
RTFJG	3/4"	1/2"	1.58	0.79	0.87	0.97	0.63	1-1/16"	1-1/8"	1.13	1.18
RTFJJ	3/4"	3/4"	1.77	0.82	0.87	0.97	0.63	1-1/4"	1-1/8"	1.26	1.37

Metric Tubing

RTFQA	6	1/8"	27.1	9.71	17.8	15.4	4.9	14.1	14.1	19.1	19.7
RTFQC	6	1/4"	29.9	14.3	17.8	15.4	4.9	19.1	14.1	22.5	22.5
RTFRA	6	1/8"	29.8	10.5	18.7	16.3	6.4	15.1	16.1	22.5	19.7
RTFRC	6	1/4"	30.7	14.3	18.7	16.3	6.4	19.1	16.1	22.5	23.2
RTFUF	10	1/4"	33.6	14.3	19.6	17.3	7.1	19.1	19.1	22.5	25.91
	12	1/4"	36.1	14.3	22.1	22.9	9.6	20.6	22.1	22.5	25.91
	12	3/8"	36.1	14.3	22.1	22.9	9.6	22.1	22.1	22.5	25.91

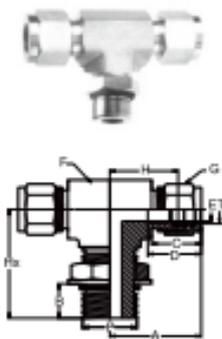
POSITIONABLE MALE ELBOW



Imperial Tubing

PART NO.	TUBE OD	Pipe thread size	A	B	C	D	E MIN	F A/F	G A/F	Hx	H BODY
PEMC1	1/4"	7/16-20	1.13	0.40	0.71	0.61	0.20	9/16"	9/16"	1.13	0.85
PEMC2	1/4"	9/16-18	1.21	0.45	0.71	0.61	0.20	5/8"	11/16"	1.28	0.92
PEME6	5/16"	1/2-20	1.20	0.40	0.74	0.65	0.24	9/16"	5/8"	1.17	0.91
PEMF2	3/8"	9/16-18	1.27	0.45	0.76	0.67	0.29	5/8"	11/16"	1.28	0.98
PEMF4	3/8"	3/4-16	1.38	0.51	0.76	0.67	0.29	13/16"	7/8"	1.50	1.09
PEMG4	1/2"	3/4-16	1.49	0.51	0.87	0.91	0.42	13/16"	7/8"	1.50	1.09
PEMH5	5/8"	7/8-14	1.57	0.57	0.87	0.96	0.51	15/16"	1"	1.72	1.17
PEMJ7	3/4"	11/16-12	1.64	0.67	0.87	0.96	0.63	1-1/16"	1-1/8"	1.93	1.24
PEMK9	7/8"	13/16-12	1.71	0.67	0.87	1.03	1.73	1-3/16"	1-1/4"	2	1.31
PEML8	1"	15/16-12	2	0.67	1.05	1.24	1.89	1-3/8"	1-1/2"	2.12	1.52

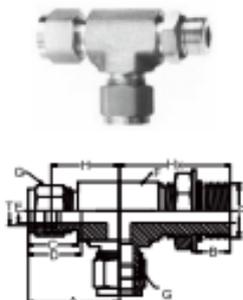
POSITIONABLE MALE BRANCH TEE



Imperial Tubing

PART NO.	TUBE OD	Pipe thread size	A	B	C	D	E MIN	F A/F	G A/F	Hx	H BODY
PBTMC1	1/4"	7/16-20	1.13	0.40	0.71	0.61	0.20	9/16"	9/16"	1.13	0.85
PBTMF2	3/8"	9/16-18	1.27	0.45	0.77	0.67	0.29	5/8"	11/16"	1.28	0.98
PBTMG4	1/2"	3/4-16	1.49	0.51	0.87	0.91	0.42	13/16"	7/8"	1.50	1.09
PBTMJ7	3/4"	11/16-12	1.64	0.67	0.87	0.97	0.63	1-1/16"	1-1/8"	1.93	1.24
PBTML8	1"	15/16-12	2	0.67	1.05	1.24	0.89	1-3/8"	1-1/2"	2.12	1.52

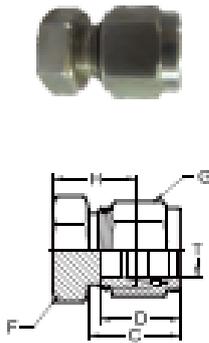
POSITIONABLE MALE RUN TEE



Imperial Tubing

PART NO.	TUBE OD	Pipe thread size	A	B	C	D	E MIN	F A/F	G A/F	Hx	H BODY
PRTMC1	1/4"	7/16-20	1.13	0.40	0.71	0.61	0.20	9/16"	9/16"	1.13	0.85
PRTMF2	3/8"	9/16-18	1.27	0.45	0.77	0.67	0.29	5/8"	11/16"	1.28	0.98
PRTMG4	1/2"	3/4-16	1.49	0.51	0.87	0.91	0.42	13/16"	7/8"	1.50	1.09
PRTMJ7	3/4"	11/16-12	1.64	0.67	0.87	0.97	0.63	1-1/16"	1-1/8"	1.93	1.24
PRTML8	1"	15/16-12	2	0.67	1.05	1.24	0.89	1-3/8"	2.12	1.52	1.52

D CAP



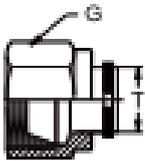
Imperial Tubing

ART O.	T TUBE OD	A ~	C ~	D ~	Fx A/F	G A/F
DCA	1/8"	0.80	0.61	0.51	7/16"	7/16"
DCB	3/16"	0.85	0.64	0.65	7/16"	1/2"
DCC	1/4"	0.93	0.71	0.61	1/2"	9/16"
DCE	5/16"	0.97	0.74	0.65	9/16"	5/8"
DCF	3/8"	1.02	0.77	0.67	5/8"	11/16"
DCG	1/2"	1.16	0.87	0.91	13/16"	7/8"
DCH	5/8"	1.19	0.87	0.97	15/16"	1"
DCJ	3/4"	1.25	0.87	0.97	1-1/16"	1-1/8"
DCK	7/8"	1.35	0.87	1.03	1-1/4"	1-1/4"
DCV	1"	1.52	1.05	1.24	1-3/8"	1-1/2"

Metric Tubing

ART O.	OD	3	6	8	10	12	16	20	25
DCP	ODCQ	3	20.11	12.91	12.71	11.01	11.01		
DCR	ODCT	6	23.11	15.31	15.31	14.01	14.01		
DCU	ODCV	8	24.51	16.21	16.31	14.01	16.01		
DCW	ODCX	10	26.61	17.21	17.51	17.01	19.01		
		12	29.11	23.01	22.91	20.61	22.01		
		16	29.91	24.61	24.41	24.01	25.41		
		20	34.01	26.11	25.91	30.01	32.01		
		25	38.51	31.21	31.21	35.01	38.01		

D PLUG



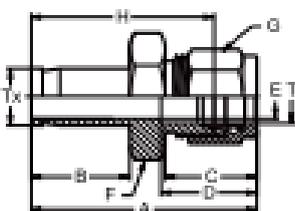
Imperial Tubing

ART O.	T TUBE OD	G A/F
DPA	1/8"	7/16
DPB	3/16"	1/2
DCC	1/4"	9/16
DCE	5/16"	5/8
DCF	3/8"	11/16
DCG	1/2"	7/8
DCH	5/8"	1
DCJ	3/4"	1-1/8
DCK	7/8"	1-1/4
DCL	1"	1-1/2

Metric Tubing

ART O.	3	6	8	10	12	16	20	25
DPP	3							
DCQ	6	11.01						
DCR	8	14.01						
DCT	10	16.01						
DCU	12	19.01						
DCV	16	22.01						
DCW	20	25.41						
DCX	25	32.01						
		38.01						

EDUCER



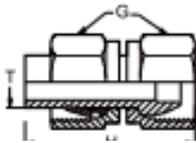
Imperial Tubing

ART O.	T TUBE OD.	Tx TubeOD	A ~	C ~	D ~	E MIN	F A/F	G A/F
AC	1/8"	1/4"	1.43	0.61	0.51	0.10	7/16"	7/16"
BC	3/16"	1/4"	1.47	0.64	0.55	0.13	7/16"	1/2"
CF	1/4"	3/8"	1.61	0.71	0.61	0.20	1/2"	9/16"
CG	1/4"	1/2"	1.83	0.71	0.61	0.20	9/16"	9/16"
EF	5/16"	3/8"	1.66	0.74	0.65	0.26	9/16"	5/8"
FC	3/8"	1/4"	1.64	0.77	0.67	0.20	5/8"	11/16"
FG	3/8"	1/2"	1.92	0.77	0.67	0.29	5/8"	11/16"
GC	1/2"	1/4"	1.78	0.87	0.91	0.20	13/16"	7/8"
GF	1/2"	3/8"	1.85	0.87	0.91	0.29	13/16"	7/8"
GJ	1/2"	3/4"	2.13	0.87	0.91	0.42	13/16"	7/8"
HJ	5/8"	3/4"	2.16	0.87	0.97	0.52	15/16"	1"
JG	3/4"	1/2"	2.16	0.87	0.97	0.40	1-1/16"	1-1/8"
JL	3/4"	1"	2.47	0.87	0.97	0.63	1-1/16"	1-1/8"

Metric Tubing

ART O.	6	8	10	12	16	20	25	
MQR	6	8	39.91	17.71	15.31	4.81	14.01	14.01
MQT	6	10	40.71	17.71	15.31	4.81	14.01	14.01
MQU	6	12	46.31	17.71	15.31	4.81	14.01	14.01
MRT	8	10	42.01	18.61	16.21	6.31	15.01	16.01
MRU	8	12	47.61	18.61	16.21	6.31	15.01	16.01
MTR	10	8	43.41	19.51	17.21	7.91	18.01	19.01
MTU	10	12	49.81	19.51	17.21	7.91	18.01	19.01
MUT	12	10	46.71	22.01	22.81	7.71	22.01	22.01
MUV	12	16	53.81	22.01	22.81	9.51	22.01	22.01
MWV	20	16	57.91	22.01	26.01	12.71	30.01	32.01
MWX	20	25	64.21	22.01	26.01	15.11	30.01	32.01
MXW	25	20	64.61	26.51	31.31	15.11	35.01	38.11

PORT CONNECTOR



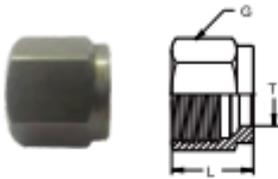
Inch size tubing

PART NO.	T'TUBE OD	H	J	E Min
PCA	1/8"	0.89	0.25	0.10
PCC	1/4"	0.98	0.38	0.20
PCE	5/16"	1.03	0.44	0.26
PCF	3/8"	1.04	0.51	0.31
PCG	1/2"	1.42	0.63	0.40
PCJ	3/4"	1.48	0.88	0.60
PCL	1"	1.90	1.13	0.81

Metric Tubing

PCQ	6	24.6	9.0	4.5
PCR	8	25.9	11.0	6.3
PCT	10	26.1	13.1	8.3
PCU	12	35.8	15.0	9.2
PCV	16	37.4	19.0	12.8
PCW	20	38.9	23.0	15.2
PCX	25	48.0	28.0	19.9

NUT



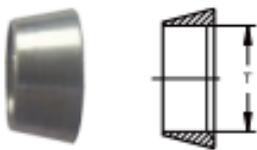
Inch size tubing

PART NO.	TUBE OD	G A/F	L
NTA	1/8"	7/16"	0.47
NTB	3/16"	1/2"	0.47
NTC	1/4"	9/16"	0.50
NTE	5/16"	5/8"	0.53
NTF	3/8"	11/16"	0.56
NTG	1/2"	7/8"	0.69
NTH	5/8"	1"	0.69
NTJ	3/4"	1-1/8"	0.69
NTK	7/8"	1-1/4"	0.69
NTL	1"	1-1/2"	0.81

Metric Tubing

PART NO.	TUBE OD	G A/F	L
NTP	3	11.0	11.9
NTQ	6	14.0	12.7
NTR	8	16.0	13.5
NTT	10	19.0	15.1
NTU	12	22.0	17.4
NTV	16	25.0	17.4
NTW	20	32.0	17.4
NTX	25	38.0	20.6

FRONT FERRULE



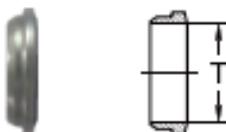
Inch size tubing

PART NO.	T'TUBE OD
FTA	1/8"
FTC	1/4"
FTE	5/16"
FTF	3/8"
FTG	1/2"
FTH	5/8"
FTJ	3/4"
FTK	7/8"
FTL	1"

Metric Size Tubing

PART NO.	T'TUBE OD
FTP	3
FTQ	6
FTR	8
FTT	10
FTU	12
FTV	16
FTW	20
FTX	25

BACK FERRULE



Inch size tubing

PART NO.	T'TUBE OD
BFA	1/8"
BFC	1/4"
BFE	5/16"
BFF	3/8"
BFG	1/2"
BFH	5/8"
BFJ	3/4"
BFK	7/8"
BFL	1"

Metric Size Tubing

PART NO.	T'TUBE OD
BFP	3
BFQ	6
BFR	8
BFT	10
BFU	12
BFV	16
BFW	20
BFX	25



Chromatograph Fittings :

Tube fittings in different sizes (1/16", 1/8") are available for gas and liquid chromatography. They are made in different material and configuration.

Bored-Through Fittings :

Bored through fittings are used for connecting thermocouples or dip tubes. These connectors are available in SS, Brass, Monel, Hastalloy, Titanium etc. The root diameter of the pipe thread end of male connectors makes it impractical to bore through all size so female connectors, for instance 1/2" Tube x 1/4" NPT or 3/8" Tubex 1/4" NPT can not bore through. Please add suffix BT to order bore through fittings.

Heat Exchanger Tee :

Available both in two piece (Union Tee and Bore through Reducer) and Single piece (Reducing Tee) design.

CHECK VALVES

- Check valves are available in Stainless Steel and Brass material
- Variety of end connections :- Male & Female NPT, BSPP, BSPT, ISO tapered pipe ends & SPRAYTECH tube fittings
- Maximum working pressure upto 6,000 psig (400 barg)
- Cracking pressure includes :- 1/3, 1, 5, 10, 25, 50, 75 & 100 psig
- All valves 100% factory tested
- Heat code traceability



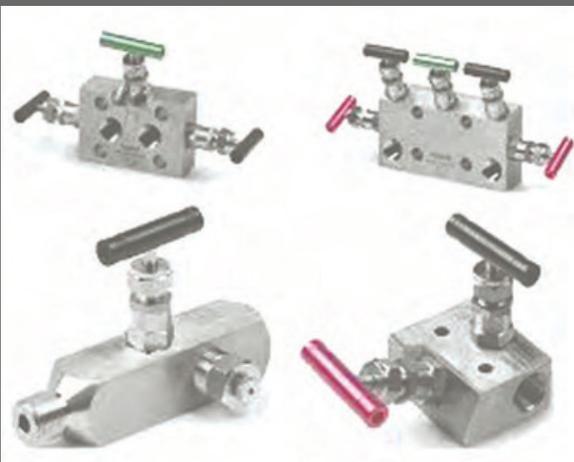
INSTRUMENT VALVES & MANIFOLDS

NEEDLE / BALL VALVES



- Needle valves are available in IB, HB, HP, SB & Mini Series
- Available in SS 316, SS 304, Brass, CS, Monel & Hastalloy materials is forged & bar stock construction
- Variety of end connections :- Male & Female NPT, BSPP, BSPT, ISO tepered pipe ends & SPRAYTECH tube fittings
- Maximum working pressure upto 20,000 psing (1406 Barg)
- PTFE Standard gland packing, Alternative graphoil packing for high temperature Max. temperature upto 5380C (10000F)
- Non-rotating vee tip provided repetitive leak tight shut-off
- Packing below threads to prevent lubricant washout
- All valves 100% factory tested as per MSS-SP-99
- Heat code traceability

2, 3, 5, VALVE MANIFOLDS



- Manifolds are available in SS 316, SS 304, CS, Monel & Hastalloys materials
- Various configuration - Pipe to Pipe, Pipe to Flange, Flange to Flange, Remote Mount and Direct Mount, T Type, H Type
- Non-Rotating vee tip provided repetitive leak tight shutt-off.
- Maximum working pressure upto 10,000 psing (689 Barg)
- PTFE Standard glass packing, Alternative graphoil packing for high temperature Max. temperature upto 5380C (10000F)
- Packing below threads to prevent lubricant washout
- Extremely adjustable gland
- Low operative torque
- All valves 100% factory tested as per MSS-SP-99
- Heat code traceability

QRC (QUICK RELEASE COUPLING - PUSH & PULL TYPE)

We use latest technology and comprehensive quality control systems in designing and manufacturing wide range of Quick Release Coupling. Designed for reliable performance, our entire range is fabricated from qualitative raw material for ultimate durability and strength. These corrosion resistant coupling come with single & double shut off valves for avoiding leakage.

Working Principle

QRC type coupling work on Push and Pull principle. When the Adaptor is pushed to the coupler, its is accurately held by the self locking arrangement resulting in a positive & leak proof connection. This action simultaneously opens the valve & fluid flow starts. To disconnect, pull back the sleeve of the coupler, the Adaptor ejects out and the valves shut off automatically. Valves are provided in type one way sealing & two way sealing.



Features

Quick connect / Release Couplings eliminate valves and screw on fittings in many pneumatic, hydraulic and chemical systems. Permits easy, safe, quick & reliable connections between delivery lines, pressure hoses etc. Connection disconnection of fluid systems is as easy as plugging in an electric gadget.

PRESSURE GAUGE ACCESSORIES

Siphon (Pig type, Ring type, U type) Gauge cock (2 way, 3 way), Snubber (Dampener), Gauge saver, Bleeder plug, Pressure gauge adaptors and reducers are available in SS 316/304.

Gauge saver



Bleeder Plug



Gauge cock



Snubber



Hose Nipple



Siphon





YOUR BRIDGE TO INDUSTRIAL EXCELLENCE



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