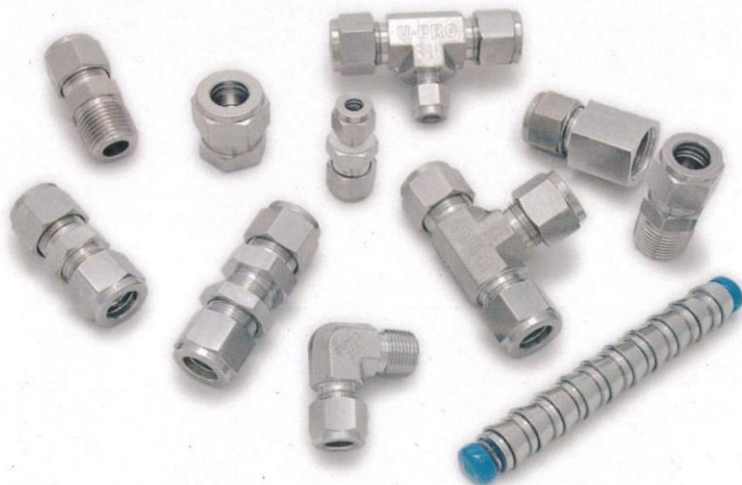


U-PRO FITTINGS INC.

U-PRO 316 12mm

TUBE FITTINGS

METRIC



Features

The **U-PRO** tube fitting has been specifically designed for use on instrumentation, process control systems and equipment employed in chemical, petroleum, power generating and pulp and paper plants.

The **U-PRO** Tube fittings provide a leak-proof, torque-free seal at all tubing connections and eliminate costly, hazardous leaks in instrumentations and process tubings.

All action in the fitting moves along the tube axially instead of with a rotary motion. Since tubing, there is no initial strain which might weaken the tubing.

Pressure & Temperature Ratings

U-PRO tube fittings are rated to the maximum working pressure & temperature of tubing as shown in the Tubing Data Chart. Some fittings may have lower ratings. For more further information, contact our company or your local **U-PRO** agent.

Tubing Data Chart

Tube Fitting No.	316 Stainless Steel										
	Tube O.D. Size mm	Wall Thickness(mm)									
		0.8	1.0	1.2	1.5	1.8	2.0	2.2	2.5	2.8	3.0
03M	3	665									
06M	6	305	418	540	715						
08M	8		312	390	505						
10M	10		238	300	400						
12M	12		202	250	350	410	470				
14M	14		164	200	267	347	380	430			
15M	15		151	189	255	315	357	401			
16M	16			170	230	286	330	365			
18M	18			167	200	260	289	330	370		
20M	20			140	177	230	262	290	330	369	
22M	22			120	148	215	231	260	303	339	
25M	25					183	200	232	261	291	322

Working Pressure: bar
Safety Factor : 3.7 :1

To convert psi:
1 bar = 14.51 psi
1 bar = 100 kpa

For more special material, contact our company connector division or your local **U-PRO** agent.

Note : For air, hydrogen, helium, nitrogen, etc , use tubing where working pressure is listed inside of

Allowable working pressure based on equations from ANSI B31.3 using a Stress value of 1370 bar and tensile strength of 5170 bar

System Temperature

Factors used to determine tubings pressure rating at elevated temperatures.

Ex. 12 mm x 1.5mm wall seamless 316 stainless steel tubing has a working pressure of 350 bar at room temperature. If the system were to operate at 538°C, a factor of 0.80 would apply and the "at temperature" system pressure would be 350bar x 0.80 = 280 bar

TEMPERATURE RATINGS	316 Stainless Steel
°C	Factors
93	1.00
204	0.97
260	0.90
316	0.85
371	0.82
427	0.80
486	0.78
538	0.77
593	0.62
649	0.37

TUBING MATERIAL	TEMPERATURE RATINGS
316 Stainless Steel	-255°C to 605°C (-425°F to 1200°F)
Brass	-40°C to 205°C (-40°F to 401°F)

All temperature ratings based on maximum temperatures per ASME/ASNI B31.3 Chemical Plant Refinery Piping

Product Test

The test includes air pressure, temperature, vibration, static pressure and vacuum. **U-PRO** tube fittings have been carefully tested to withstand the demand of high performance tube fittings.

Air Pressure Test : This test's purpose is to check for **U-PRO** tube fittings bears air pressure.

Temperature Test : A test of the **U-PRO** tube fittings, whose purpose is to check maximum and minimum temperature at which the tube fittings can be used.

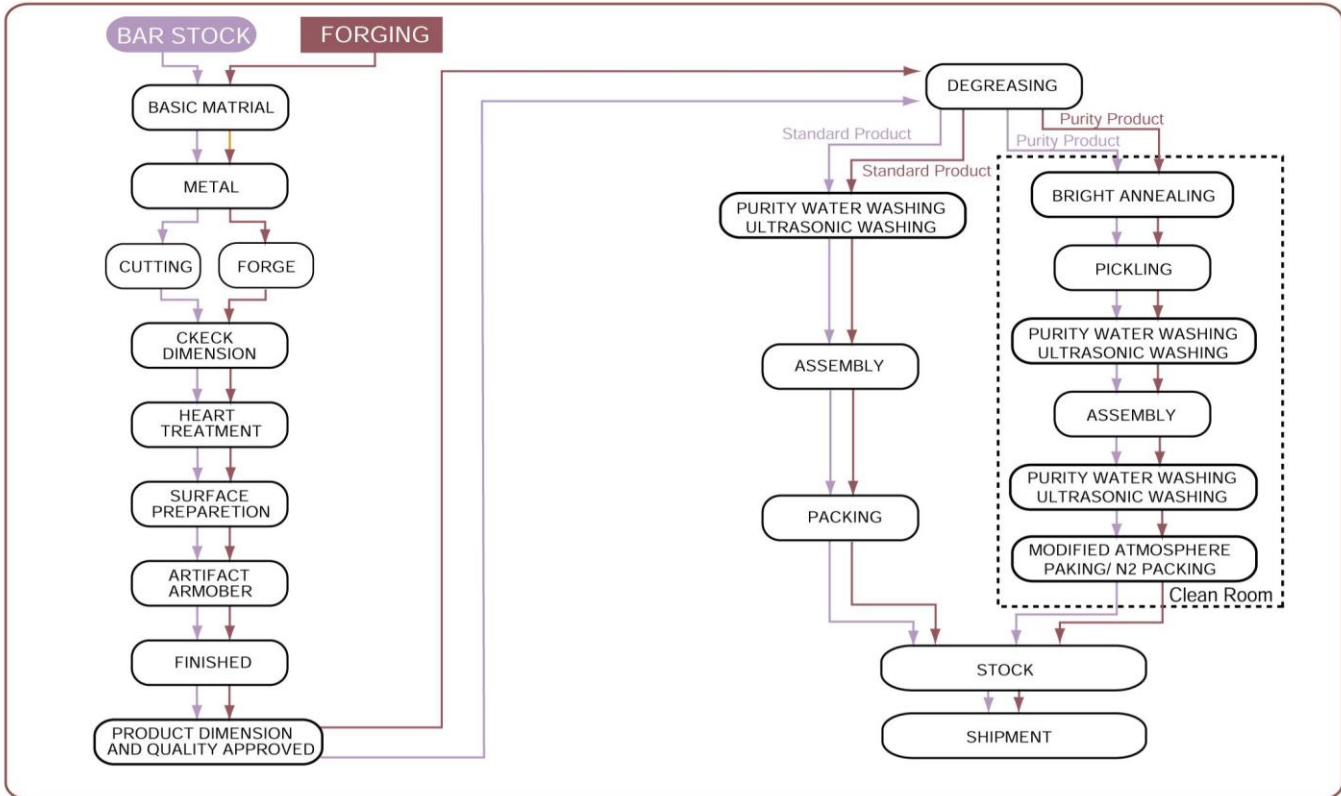
Static Pressure Test : Test's purpose is to check for maximum static pressure. It is done at fittings to burst apart, with oil.

Vibration Test : It's purpose also is to check for **U-PRO** tube fittings distortion or leakage.

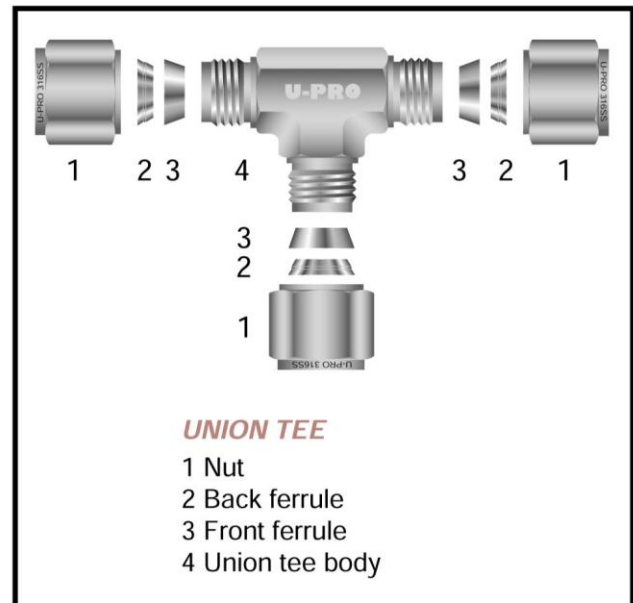
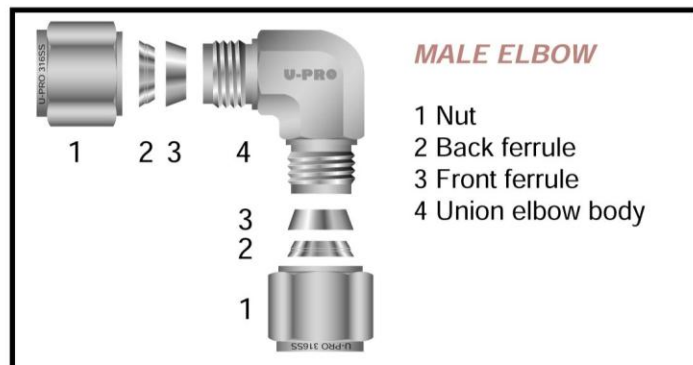
Vacuum Test : Test's purpose is to check for change sharp of tube fittings bears negative pressure.

Production Process

The flow diagram below traces the production of **U-PRO** tube fittings



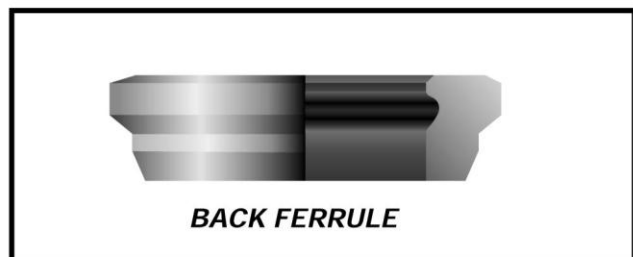
Fittings Analytic Drawings



Improved dual ferrule

upro tube fittings are supplied with improved back ferrule installed that provide reduce leakage-related costs and low installation torque when joining stainless steel tubing.

The improved back ferrule design was tested. The results indicate that you can have a reliable.



Assembly Instructions

U-PRO Instrument tube fittings are completely assembled and read for immediate use. Disassembly before use unnecessary and can result in dirt or foreign material getting into fitting and causing leaks.

1. Simply insert the tube as **Fig1.** until it bottoms in the fitting body.
2. Tighten nut finger tight. Hold fitting body with a second wrench to prevent body from turning. Then tighten nut with a first wrench an additional 1 1/4 turns indicated below. See **Fig2.**
3. Use of the gauge (1 1/4 turns from finger tight) ensures sufficient pull up.

Fig1.

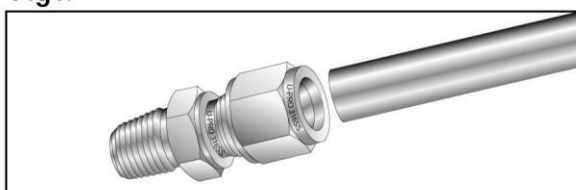
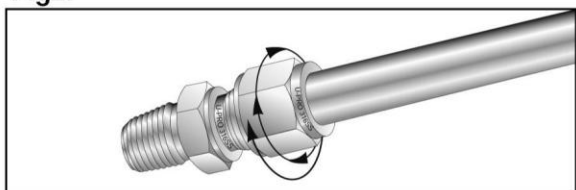
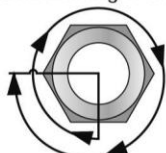


Fig2.



SIZE :
6 mm through 25 mm



1 1/4 turns from
finger-tight

SIZE :
2 mm through 4 mm

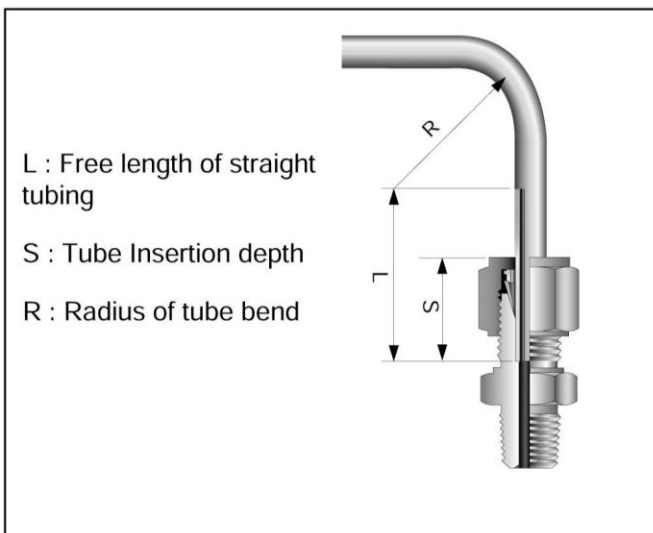


Only 3/4 turns from
finger tight is necessary

Assembly Diagrammatic

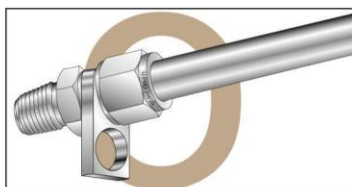
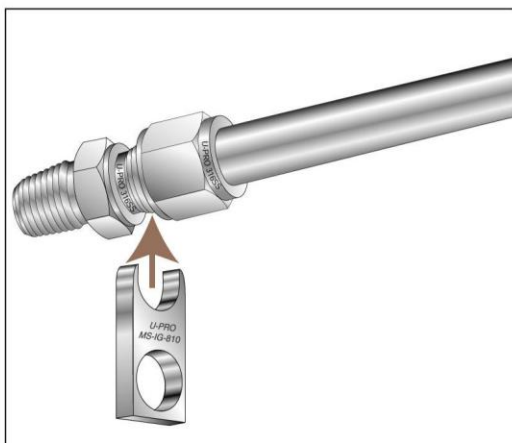
To make reliable tightness, the minimum lengths of straight portions are required as per the below table. It is desirable to keep the straight portion as long as possible to eliminate harmful effect caused by bending.

STANDARD DIMENSION OF BENDING TUBINGS						
Tube O.D.	L		S		R	
mm	mm	in.	mm	in.	mm	in.
3	18	0.70	13	0.52	10	0.38
6	20	0.80	15	0.61	14	0.56
8	22	0.88	17	0.66	17	0.69
10	24	0.94	18	0.69	24	0.94
12	30	1.19	24	0.94	38	1.50
14	32	1.25	25	0.98	48	1.88
15	32	1.25	25	0.98	48	1.88
16	32	1.25	25	0.98	48	1.88
18	32	1.25	25	0.98	48	1.88
20	32	1.25	25	0.98	57	2.25
22	32	1.25	25	0.98	67	2.63
25	38	1.50	31	1.22	76	3.00

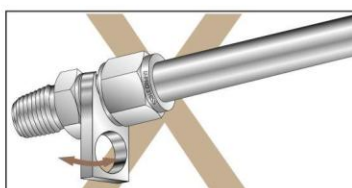


Gaugeability

Select the proper size inspection gauge and try place it, between the nut and the body hex. Gauge fits between nut and body hex.



Gauge FIT between nut and hex, fittings is
CORRECTLY TIGHTENED THE NUT.



Gauge SWAY between nut and hex.
ADDITIONAL TIGHTENING IS REQUIRED.

No.	Fitting Size (Tube O.D.)	
	mm	
MS-IG-200	2	3
MS-IG-300	4	
MS-IG-400	6	
MS-IG-500	8	
MS-IG-10M0	10	
MS-IG-810	12	
MS-IG-1010	14	15 16
MS-IG-1210	18	
MS-IG-1410	20	22
MS-IG-1610	25	

How to Order

U-PRO tube fittings are ordered by part number as listed in this catalog.



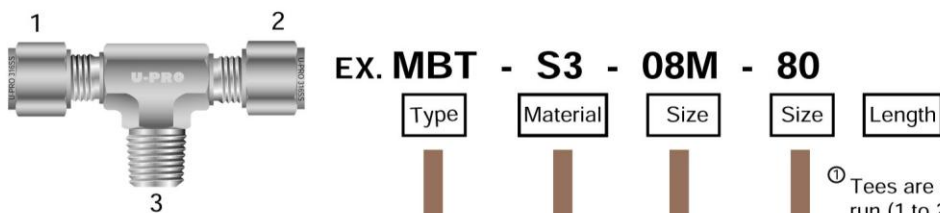
Male Connector = **MC**

S3 : S3-ASME 316SS **B1** : B1-ASTM B16

Tube O.D. Sizes : 8 mm

Pipe thread Sizes : 1/2" NPT thread (P.T.) (1/2" Pipe = 8/16" = 80)

Straights and elbow are described by first sizing the tube end 1 and then the tube end or pipe thread 2.



Male Branch Tee = **MBT**

S3 : S3-ASME 316SS **B1** : B1-ASTM B16

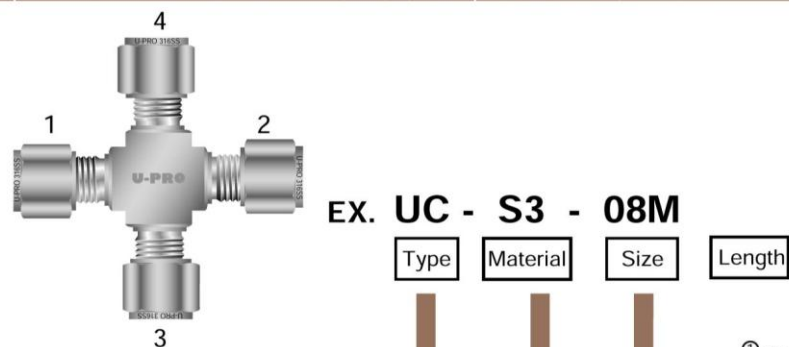
Tube O.D. Sizes : 8 mm Ⓞ

Pipe thread Sizes : 1/2" NPT thread (P.T.) (1/2" Pipe = 8/16" = 80)

① Tees are described by first sizing the run (1 to 2) and then the branch (3).

Note :

If there is any question as to the fitting desired, particularly for special fittings configurations, it is suggested that asketch be submitted with the fitting order.



Union Cross = **UC**

S3 : S3-ASME 316SS **B1** : B1-ASTM B16

Tube O.D. Sizes : 8 mm Ⓞ

① Crosses are described by first sizing the run (1 to 2) and then the branch (3 to 4).

For special fittings, consult our company or connector division.

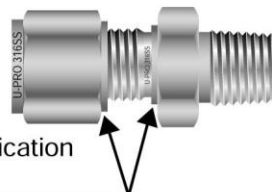
Identification of INCH or METRIC

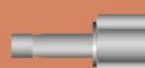
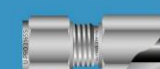
Due to the external similarity between metric and fractional sizes, a stepped shoulder has been machined into the body hex of barstock fittings and the nut hex for easy identification of Metric Tube Fittings.

Fractional



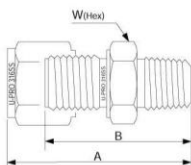
Metric



MC  Male Connector Tube to Male NPT(P.T.) 6	FRT  Female Run Tee Tube to Female NPT(P.T.) 13	BWC  Butt-Weld Connector Tube to Butt-weld pipe 18	INSERT  Insert Tube Soft Plastic Tubing 23
BMC  Bulkhead Male Connector Tube to Male NPT(P.T.) 7	FBT  Female Branch Tee Tube to Female NPT(P.T.) 14	RD  Reducer Tube to Port 19	BARB INSERT  Barb Insert Tube Soft Plastic Tubing 23
MC  Male Connector Tube to Male ISO Parallel Thread (PR) 8	U  Union Tube to Tube 14	RD  Reducer Metric Tube to Imperial Port 20	TN  Tube Nut 24
MC  Male Connector Tube to Male ISO Parallel Thread (PS) 9	CRU  Conversion Reducing Union METRIC Tube to FRACTIONAL Tube 15	MA  Male Adapter Port to Male Pipe NPT (P.T.) 20	BLN  Bulkhead Locknut 24
TMC  Thermocouple Connector Tube to Male NPT(P.T.) 9	RU  Reducing Union Tube to Tube 15	FA  Female Adapter Port to Female Pipe NPT (P.T.) 20	FFE  Front Ferrule 24
UME  Male ELBOW Tube to Male NPT(P.T.) 10	BU  Bulkhead Union Tube to Tube 16	PC  Port Connector Tube to Port 21	BFE  Back Ferrule 24
MBT  Male Branch Tee Tube to Male NPT(P.T.) 11	UE  Union Elbow Tube to Tube 16	RPC  Reducing Port Connector Tube to Port 21	MODEL NO. INDEX
MRT  Male Run Tee Tube to Male NPT(P.T.) 11	UT  Union Tee Tube to Tube 17	VP  Vent Plug End Tube Tube to Vent Plug 21	
FC  Female Connector Tube to Female NPT(P.T.) 12	UC  Union Cross Tube to Tube 17	VRT  Vent Plug Run Tee 21	
BFC  Bulkhead Female Connector Tube to Female NPT(P.T.) 13	SWC  Socket Weld Connector Tube to Socket weld pipe 18	VBT  Vent Plug Branch Tee 22	
UFE  Female ELBOW Tube to Female NPT(P.T.) 13		TC  Tube Cap 22	
		PLUG  Tube Plug 23	

Male Connector

Tube to Male NPT(P.T.)
(includes body, nut and
ferrules)



TUBE TO MALE
PIPE

No.	Tube O.D.	Pipe Thread	A		B		W(Hex) mm
			mm	in	mm	in	
MC-S3-02M-20	2	1/8	30.5	1.20	23.8	0.94	12
MC-B1-02M-20							
MC-S3-03M-20	3	1/8	30.5	1.20	23.8	0.94	12
MC-B1-03M-20							
MC-S3-03M-40	3	1/4	36.0	1.42	29.0	1.14	14
MC-B1-03M-40							
MC-S3-04M-20	4	1/8	31.5	1.24	24.6	0.97	12
MC-B1-04M-20							
MC-S3-04M-40	4	1/4	36.3	1.43	29.8	1.17	14
MC-B1-04M-40							
MC-S3-06M-20	6	1/8	33.7	1.33	26.1	1.03	14
MC-B1-06M-20							
MC-S3-06M-40	6	1/4	38.2	1.50	30.6	1.20	14
MC-B1-06M-40							
MC-S3-06M-60	6	3/8	39.2	1.54	31.6	1.24	17
MC-B1-06M-60							
MC-S3-06M-80	6	1/2	45.2	1.78	37.6	1.48	21
MC-B1-06M-80							
MC-S3-08M-20	8	1/8	35.7	1.41	27.5	1.08	14
MC-B1-08M-20							
MC-S3-08M-40	8	1/4	40.2	1.58	32.0	1.26	14
MC-B1-08M-40							
MC-S3-08M-60	8	3/8	41.2	1.62	33.0	1.30	17
MC-B1-08M-60							
MC-S3-08M-80	8	1/2	47.2	1.86	39.0	1.54	21
MC-B1-08M-80							
MC-S3-10M-20	10	1/8	37.7	1.48	28.5	1.12	17
MC-B1-10M-20							
MC-S3-10M-40	10	1/4	41.0	1.61	33.3	1.31	17
MC-B1-10M-40							
MC-S3-10M-60	10	3/8	41.0	1.61	33.3	1.31	17
MC-B1-10M-60							
MC-S3-10M-80	10	1/2	46.5	1.83	38.9	1.53	21
MC-B1-10M-80							
MC-S3-10M-120	10	3/4	48.0	1.89	40.4	1.59	27
MC-B1-10M-120							
MC-S3-12M-20	12	1/8	38.8	1.53	30.0	1.18	21
MC-B1-12M-20							
MC-S3-12M-40	12	1/4	43.4	1.71	34.0	1.34	21
MC-B1-12M-40							
MC-S3-12M-60	12	3/8	43.5	1.71	34.0	1.34	21
MC-B1-12M-60							
MC-S3-12M-80	12	1/2	49.0	1.93	39.0	1.54	21
MC-B1-12M-80							
MC-S3-12M-120	12	3/4	50.2	1.98	40.9	1.61	27
MC-B1-12M-120							
MC-S3-14M-40	14	1/4	44.1	1.74	34.5	1.36	24
MC-B1-14M-40							
MC-S3-14M-60	14	3/8	44.1	1.74	34.5	1.36	24
MC-B1-14M-60							
MC-S3-14M-80	14	1/2	50.2	1.98	38.9	1.53	24
MC-B1-14M-80							
MC-S3-15M-80	15	1/2	50.2	1.98	38.9	1.53	24
MC-B1-15M-80							
MC-S3-16M-60	16	3/8	44.5	1.75	34.0	1.34	24
MC-B1-16M-60							
MC-S3-16M-80	16	1/2	49.0	1.93	38.9	1.53	24
MC-B1-16M-80							
MC-S3-16M-120	16	3/4	50.5	1.99	40.4	1.59	27
MC-B1-16M-120							
MC-S3-18M-80	18	1/2	50.5	1.99	40.4	1.59	27
MC-B1-18M-80							
MC-S3-18M-120	18	3/4	50.5	1.99	40.4	1.59	27
MC-B1-18M-120							
MC-S3-20M-80	20	1/2	53.0	2.09	42.9	1.69	30
MC-B1-20M-80							
MC-S3-20M-120	20	3/4	53.0	2.09	42.9	1.69	30
MC-B1-20M-120							
MC-S3-22M-120	22	3/4	53.0	2.09	42.9	1.69	30
MC-B1-22M-120							
MC-S3-22M-160	22	1	58.0	2.28	47.0	1.85	35
MC-B1-22M-160							
MC-S3-25M-80	25	1/2	58.6	2.31	45.2	1.78	35
MC-B1-25M-80							
MC-S3-25M-120	25	3/4	58.6	2.31	45.2	1.78	35
MC-B1-25M-120							
MC-S3-25M-160	25	1	62.9	2.48	50.2	1.98	35
MC-B1-25M-160							

Schedule

No.	Pipe SCH.	Pipe Thread	A		B		W(Hex) mm
			mm	in	mm	in	
MC-S3-10.5-20	1/8B	1/8	39.1	1.54	29.9	1.18	19
MC-B1-10.5-20							
MC-S3-10.5-40	1/8B	1/4	41.2	1.62	32.0	1.26	19
MC-B1-10.5-40							
MC-S3-10.5-60	1/8B	3/8	42.2	1.66	33.0	1.30	19
MC-B1-10.5-60							
MC-S3-10.5-80	1/8B	1/2	47.6	1.87	38.3	1.51	19
MC-B1-10.5-80							
MC-S3-13.8-40	1/4B	1/4	42.9	1.69	33.0	1.30	26
MC-B1-13.8-40							
MC-S3-13.8-60	1/4B	3/8	44.9	1.77	35.0	1.38	26
MC-B1-13.8-60							
MC-S3-13.8-80	1/4B	1/2	49.4	1.50	39.6	1.56	26
MC-B1-13.8-80							
MC-S3-13.8-120	1/4B	3/4	52.5	2.07	42.4	1.67	26
MC-B1-13.8-120							
MC-S3-17.3-60	3/8B	3/8	50.5	1.99	39.6	1.56	30
MC-B1-17.3-60							
MC-S3-17.3-80	3/8B	1/2	53.0	2.09	41.9	1.65	30
MC-B1-17.3-80							
MC-S3-17.3-120	3/8B	3/4	54.9	2.16	43.9	1.73	30
MC-B1-17.3-120							
MC-S3-21.7-80	1/2B	1/2	54.4	2.14	42.9	1.69	35
MC-B1-21.7-80							
MC-S3-21.7-120	1/2B	3/4	56.1	2.21	45.0	1.77	35
MC-B1-21.7-120							

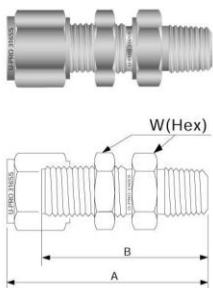
S3 : Stainless Steel

B1 : Brass

Dimensions for reference only,
Subject to change

Bulkhead Male Connector

Tube to Male NPT(P.T.)
(includes body, nut, locknut and ferrules)



S3 : Stainless Steel
B1 : Brass

Dimensions for reference only,
Subject to change

No.	Tube O.D.	Pipe Thread	A		B		W(Hex)	Bulkhead Hole Drill Size	Max. Bulkhead Thickness
			mm	in	mm	in			
BMC-S3-06M-40	6	1/4	49.6	1.95	42.2	1.69	16	11.5	10.0
BMC-B1-06M-40		1/4	49.6	1.95	42.2	1.69	16	11.5	10.0
BMC-S3-08M-20	8	1/8	53.2	2.09	48.1	1.80	17	13.0	11.2
BMC-B1-08M-20		1/8	53.2	2.09	48.1	1.80	17	13.0	11.2
BMC-S3-08M-40	8	1/4	57.7	2.27	49.1	1.98	17	13.0	11.2
BMC-B1-08M-40		1/4	57.7	2.27	49.1	1.98	17	13.0	11.2
BMC-S3-08M-60	8	3/8	58.7	2.31	55.1	2.02	17	13.0	11.2
BMC-B1-08M-60		3/8	58.7	2.31	55.1	2.02	17	13.0	11.2
BMC-S3-08M-80	8	1/2	64.7	2.55	45.0	2.26	24	13.0	11.2
BMC-B1-08M-80		1/2	64.7	2.55	45.0	2.26	24	13.0	11.2
BMC-S3-10M-20	10	1/8	55.2	2.17	46.0	1.88	21	16.2	11.2
BMC-B1-10M-20		1/8	55.2	2.17	46.0	1.88	21	16.2	11.2
BMC-S3-10M-40	10	1/4	59.7	2.35	50.5	2.06	21	16.2	11.2
BMC-B1-10M-40		1/4	59.7	2.35	50.5	2.06	21	16.2	11.2
BMC-S3-10M-60	10	3/8	59.7	2.35	50.5	2.06	21	16.2	11.2
BMC-B1-10M-60		3/8	59.7	2.35	50.5	2.06	21	16.2	11.2
BMC-S3-10M-80	10	1/2	65.7	2.59	56.5	2.30	21	16.2	11.2
BMC-B1-10M-80		1/2	65.7	2.59	56.5	2.30	21	16.2	11.2
BMC-S3-12M-60	12	3/8	65.6	2.58	54.9	2.18	24	19.5	12.5
BMC-B1-12M-60		3/8	65.6	2.58	54.9	2.18	24	19.5	12.5
BMC-S3-12M-80	12	1/2	70.6	2.78	59.9	2.38	24	19.5	12.5
BMC-B1-12M-80		1/2	70.6	2.78	59.9	2.38	24	19.5	12.5
BMC-S3-15M-80	15	1/2	71.3	2.81	60.6	2.41	27	22.7	12.5
BMC-B1-15M-80		1/2	71.3	2.81	60.6	2.41	27	22.7	12.5
BMC-S3-16M-60	16	3/8	67.3	2.65	56.6	2.17	27	22.7	12.5
BMC-B1-16M-60		3/8	67.3	2.65	56.6	2.17	27	22.7	12.5
BMC-S3-16M-80	16	1/2	72.3	2.85	61.6	2.45	27	22.7	12.5
BMC-B1-16M-80		1/2	72.3	2.85	61.6	2.45	27	22.7	12.5
BMC-S3-16M-120	16	3/4	72.8	2.87	62.1	2.39	27	22.7	12.5
BMC-B1-16M-120		3/4	72.8	2.87	62.1	2.39	27	22.7	12.5
BMC-S3-18M-80	18	1/2	77.6	3.06	66.9	2.58	30	26.0	16.5
BMC-B1-18M-80		1/2	77.6	3.06	66.9	2.58	30	26.0	16.5
BMC-S3-18M-120	18	3/4	77.6	3.06	66.9	2.58	30	26.0	16.5
BMC-B1-18M-120		3/4	77.6	3.06	66.9	2.58	30	26.0	16.5
BMC-S3-20M-120	20	3/4	79.2	3.12	68.2	2.64	30	29.0	19.0
BMC-B1-20M-120		3/4	79.2	3.12	68.2	2.64	30	29.0	19.0
BMC-S3-25M-160	25	1	95.2	3.75	83.0	3.27	35	33.8	19.0
BMC-B1-25M-160		1	95.2	3.75	83.0	3.27	35	33.8	19.0

TUBE TO MALE
PIPE

American Standard Pipe Thread (NPT)

60° thread angle Pitch measured in inches

Truncation of root and crest are flat

Taper angle 1°47'

1/8" (1/8-27)

1/4" (1/4-18)

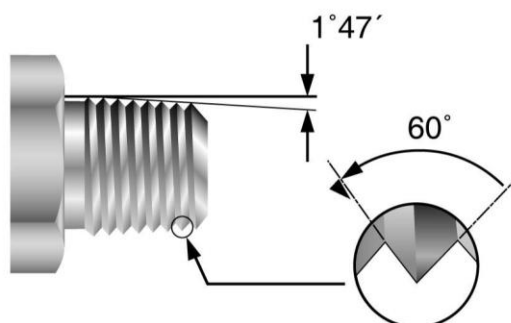
1/2" (1/2-14)

1" (1"-11 1/2)

Reference specifications :

ASNI B1.20.1

NPT
Thread



International Organization of Standardization (ISO) 7/1 Thread (P.T.)

55° thread angle Pitch measured in millimeters

Truncation of root and crest are round

Diameter measured in inches

Taper angle 1°47'

Reference specifications :

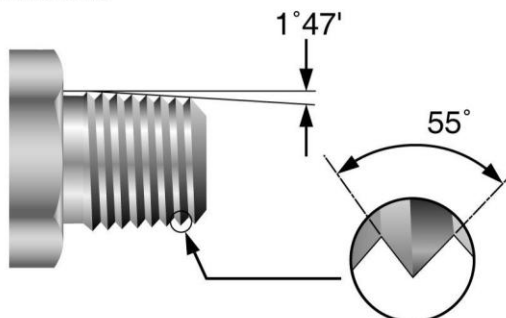
ISO 7/1

DIN-ISO 2999

JIS B0203

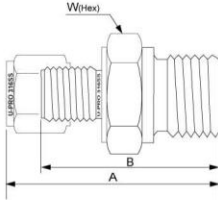
BS 21(BSPT)

P.T.
Thread



Male Connector

Tube to Male ISO Parallel Thread (PR)
(includes body, nut and ferrules)



S3 : Stainless Steel
B1 : Brass
Dimensions for reference only,
Subject to change

No.	Tube O.D.	Pipe Thread	A		B		W(Hex) mm
			mm	in	mm	in	
MC-S3-02M-20PR	2	1/8	30.0	1.18	23.5	0.93	14
MC-B1-02M-20PR							
MC-S3-03M-20PR							
MC-B1-03M-20PR	3	1/8	30.0	1.18	23.5	0.93	14
MC-S3-03M-40PR			35.3	1.39	28.7	1.13	19
MC-B1-03M-40PR							
MC-S3-04M-40PR	4	1/4	30.8	1.21	24.0	0.94	14
MC-B1-04M-40PR							
MC-S3-06M-20PR	6	1/8	32.3	1.27	25.0	0.98	14
MC-B1-06M-20PR							
MC-S3-06M-40PR		1/4	37.5	1.48	30.1	1.19	19
MC-B1-06M-40PR							
MC-S3-06M-60PR	6	3/8	38.9	1.53	31.5	1.24	21
MC-B1-06M-60PR							
MC-S3-06M-80PR		1/2	44.7	1.76	37.1	1.46	27
MC-B1-06M-80PR							
MC-S3-08M-20PR	8	1/8	33.2	1.31	25.5	1.00	17
MC-B1-08M-20PR							
MC-S3-08M-40PR		1/4	38.5	1.52	30.8	1.21	19
MC-B1-08M-40PR							
MC-S3-08M-60PR	8	3/8	39.8	1.57	32.4	1.28	21
MC-B1-08M-60PR							
MC-S3-08M-80PR		1/2	45.5	1.79	38.1	1.50	27
MC-B1-08M-80PR							
MC-S3-10M-40PR	10	1/4	39.5	1.56	31.9	1.26	19
MC-B1-10M-40PR							
MC-S3-10M-60PR		3/8	40.5	1.59	33.0	1.30	21
MC-B1-10M-60PR							
MC-S3-10M-80PR	10	1/2	46.5	1.83	39.0	1.54	27
MC-B1-10M-80PR							
MC-S3-12M-40PR	12	1/4	42.4	1.67	32.5	1.28	21
MC-B1-12M-40PR							
MC-S3-12M-60PR		3/8	43.1	1.70	33.0	1.30	21
MC-B1-12M-60PR							
MC-S3-12M-80PR	12	1/2	49.5	1.95	39.0	1.54	27
MC-B1-12M-80PR							
MC-S3-12M-120PR		3/4	52.8	2.08	42.5	1.67	35
MC-B1-12M-120PR							
MC-S3-16M-80PR	16	1/2	49.0	1.93	39.0	1.54	27
MC-B1-16M-80PR							
MC-S3-18M-80PR	18	1/2	49.0	1.93	39.0	1.54	27
MC-B1-18M-80PR							
MC-S3-18M-120PR		3/4	53.0	2.09	42.7	1.68	35
MC-B1-18M-120PR							
MC-S3-20M-80PR	20	1/2	50.6	1.99	40.5	1.59	30
MC-B1-20M-80PR							
MC-S3-20M-120PR		3/4	53.0	2.09	42.7	1.68	35
MC-B1-20M-120PR							
MC-S3-22M-120PR	22	3/4	53.0	2.09	42.7	1.68	35
MC-B1-22M-120PR							
MC-S3-22M-160PR		1	55.5	2.28	45.3	1.78	41
MC-B1-22M-160PR							
MC-S3-25M-120PR	25	3/4	57.5	2.26	45.3	1.78	35
MC-B1-25M-120PR							
MC-S3-25M-160PR		1	60.1	2.37	47.8	1.88	41
MC-B1-25M-160PR							

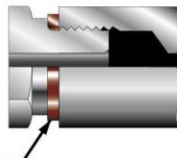
The ISO parallel threads of explanation

The ISO 228/1 threads were created the International Standards Organization to standardize the of several International pipe threads. The 288/1 is a parallel threads system where a pressure tight seal is not made on thread. With the 228/1, the seal is usually made metal to metal against the female port or with a gasket. Following are different descriptions of the 228/1 threads.

Example : 1/4 in. Pipe

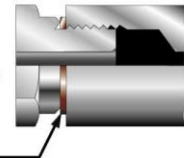
MC-S3-40-40PR

Bonded washer Seal



MC-S3-40-40PS

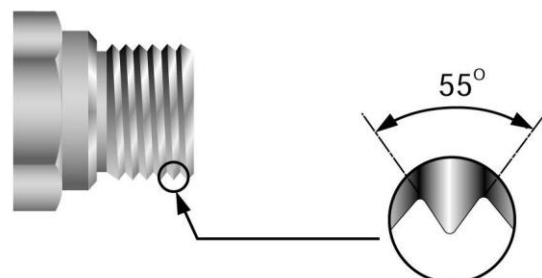
Matel Gasket Seal



55° thread angle Pitch measured in inches
Truncation of root and crest are round
Diameter measured in inches

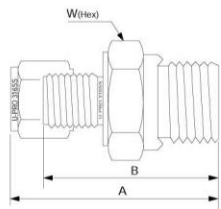
Reference specifications :
BS 2779 (BSPP)
DIN-ISO 228/1
JIS B0202
ISO 228/1

ISO
Parallel Thread



Male Connector

Tube to Male ISO Parallel Thread (PS)
(includes body, nut and ferrules)

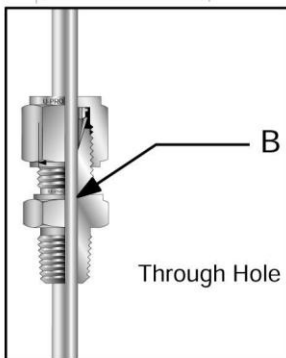
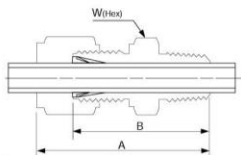
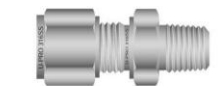


No.	Tube O.D.	Pipe Thread	A		B		W(Hex) mm
			mm	in	mm	in	
MC-S3-03M-20PS	3	1/8	30.0	1.18	23.5	0.93	14
MC-B1-03M-20PS	3	1/8	30.0	1.18	23.5	0.93	14
MC-S3-03M-40PS	3	1/4	35.3	1.39	28.7	1.13	19
MC-B1-03M-40PS	3	1/4	35.3	1.39	28.7	1.13	19
MC-S3-04M-40PS	4	1/4	30.8	1.21	24.0	0.94	14
MC-B1-04M-40PS	4	1/4	30.8	1.21	24.0	0.94	14
MC-S3-06M-20PS	6	1/8	32.3	1.27	25.0	0.98	14
MC-B1-06M-20PS	6	1/8	32.3	1.27	25.0	0.98	14
MC-S3-06M-40PS	6	1/4	37.5	1.48	30.1	1.19	19
MC-B1-06M-40PS	6	1/4	37.5	1.48	30.1	1.19	19
MC-S3-06M-60PS	6	3/8	38.9	1.53	31.5	1.24	21
MC-B1-06M-60PS	6	3/8	38.9	1.53	31.5	1.24	21
MC-S3-06M-80PS	6	1/2	44.7	1.76	37.1	1.46	27
MC-B1-06M-80PS	6	1/2	44.7	1.76	37.1	1.46	27
MC-S3-08M-20PS	8	1/8	33.2	1.31	25.5	1.00	17
MC-B1-08M-20PS	8	1/8	33.2	1.31	25.5	1.00	17
MC-S3-08M-40PS	8	1/4	38.5	1.52	30.8	1.21	19
MC-B1-08M-40PS	8	1/4	38.5	1.52	30.8	1.21	19
MC-S3-08M-60PS	8	3/8	39.8	1.57	32.4	1.28	21
MC-B1-08M-60PS	8	3/8	39.8	1.57	32.4	1.28	21
MC-S3-08M-80PS	8	1/2	45.5	1.79	38.1	1.50	27
MC-B1-08M-80PS	8	1/2	45.5	1.79	38.1	1.50	27
MC-S3-10M-40PS	10	1/4	39.5	1.56	31.9	1.26	19
MC-B1-10M-40PS	10	1/4	39.5	1.56	31.9	1.26	19
MC-S3-10M-60PS	10	3/8	40.5	1.59	33.0	1.30	21
MC-B1-10M-60PS	10	3/8	40.5	1.59	33.0	1.30	21
MC-S3-10M-80PS	10	1/2	46.5	1.83	39.0	1.54	27
MC-B1-10M-80PS	10	1/2	46.5	1.83	39.0	1.54	27
MC-S3-12M-40PS	12	1/4	42.4	1.67	32.5	1.28	21
MC-B1-12M-40PS	12	1/4	42.4	1.67	32.5	1.28	21
MC-S3-12M-60PS	12	3/8	43.1	1.70	33.0	1.30	21
MC-B1-12M-60PS	12	3/8	43.1	1.70	33.0	1.30	21
MC-S3-12M-80PS	12	1/2	49.5	1.95	39.0	1.54	27
MC-B1-12M-80PS	12	1/2	49.5	1.95	39.0	1.54	27
MC-S3-12M-120PS	12	3/4	52.8	2.08	42.5	1.67	35
MC-B1-12M-120PS	12	3/4	52.8	2.08	42.5	1.67	35
MC-S3-15M-80PS	15	1/2	49.0	1.93	39.0	1.54	27
MC-B1-15M-80PS	15	1/2	49.0	1.93	39.0	1.54	27
MC-S3-16M-80PS	16	1/2	49.0	1.93	39.0	1.54	27
MC-B1-16M-80PS	16	1/2	49.0	1.93	39.0	1.54	27
MC-S3-18M-80PS	18	1/2	49.0	1.93	39.0	1.54	27
MC-B1-18M-80PS	18	1/2	49.0	1.93	39.0	1.54	27
MC-S3-18M-120PS	18	3/4	53.0	2.09	42.7	1.68	35
MC-B1-18M-120PS	18	3/4	53.0	2.09	42.7	1.68	35
MC-S3-20M-80PS	20	1/2	50.6	1.99	40.5	1.59	30
MC-B1-20M-80PS	20	1/2	50.6	1.99	40.5	1.59	30
MC-S3-20M-120PS	20	3/4	53.0	2.09	42.7	1.68	35
MC-B1-20M-120PS	20	3/4	53.0	2.09	42.7	1.68	35
MC-S3-22M-120PS	22	3/4	53.0	2.09	42.7	1.68	35
MC-B1-22M-120PS	22	3/4	53.0	2.09	42.7	1.68	35
MC-S3-22M-160PS	22	1	55.5	2.19	45.3	1.78	41
MC-B1-22M-160PS	22	1	55.5	2.19	45.3	1.78	41
MC-S3-25M-120PS	25	3/4	57.5	2.26	45.3	1.78	35
MC-B1-25M-120PS	25	3/4	57.5	2.26	45.3	1.78	35
MC-S3-25M-160PS	25	1	60.1	2.37	47.8	1.88	41
MC-B1-25M-160PS	25	1	60.1	2.37	47.8	1.88	41

TUBE TO MALE
PIPE

Thermocouple Connector

Tube to Male NPT(P.T.)
(includes body, nut and ferrules)



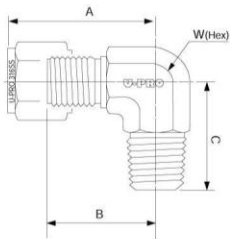
No.	Tube O.D.	Pipe Thread	A		B		W(Hex) mm
			mm	in	mm	in	
TMC-S3-02M-20	2	1/8	30.5	1.20	23.8	0.94	12
TMC-B1-02M-20	2	1/8	30.5	1.20	23.8	0.94	12
TMC-S3-03M-20	3	1/8	30.5	1.20	23.8	0.94	12
TMC-B1-03M-20	3	1/8	30.5	1.20	23.8	0.94	12
TMC-S3-03M-40	3	1/4	36.0	1.42	29.0	1.14	14
TMC-B1-03M-40	3	1/4	36.0	1.42	29.0	1.14	14
TMC-S3-04M-20	4	1/8	31.5	1.24	24.6	0.97	12
TMC-B1-04M-20	4	1/8	31.5	1.24	24.6	0.97	12
TMC-S3-04M-40	4	1/4	36.3	1.43	29.8	1.17	14
TMC-B1-04M-40	4	1/4	36.3	1.43	29.8	1.17	14
TMC-S3-06M-20	6	1/8	33.7	1.33	26.1	1.03	14
TMC-B1-06M-20	6	1/8	33.7	1.33	26.1	1.03	14
TMC-S3-06M-40	6	1/4	38.2	1.50	30.6	1.20	14
TMC-B1-06M-40	6	1/4	38.2	1.50	30.6	1.20	14
TMC-S3-08M-40	8	1/4	40.2	1.58	32.0	1.26	14
TMC-B1-08M-40	8	1/4	40.2	1.58	32.0	1.26	14
TMC-S3-10M-40	10	1/4	41.0	1.61	33.3	1.31	17
TMC-B1-10M-40	10	1/4	41.0	1.61	33.3	1.31	17
TMC-S3-10M-60	10	3/8	41.0	1.61	33.3	1.31	17
TMC-B1-10M-60	10	3/8	41.0	1.61	33.3	1.31	17
TMC-S3-10M-80	10	1/2	46.5	1.83	38.9	1.53	21
TMC-B1-10M-80	10	1/2	46.5	1.83	38.9	1.53	21
TMC-S3-12M-80	12	1/2	49.0	1.93	39.0	1.54	21
TMC-B1-12M-80	12	1/2	49.0	1.93	39.0	1.54	21
TMC-S3-14M-80	14	1/2	50.2	1.98	38.9	1.53	24
TMC-B1-14M-80	14	1/2	50.2	1.98	38.9	1.53	24
TMC-S3-15M-80	15	1/2	50.2	1.98	38.9	1.53	24
TMC-B1-15M-80	15	1/2	50.2	1.98	38.9	1.53	24
TMC-S3-16M-80	16	1/2	49.0	1.93	38.9	1.53	24
TMC-B1-16M-80	16	1/2	49.0	1.93	38.9	1.53	24
TMC-S3-18M-80	18	1/2	50.5	1.99	40.4	1.59	27
TMC-B1-18M-80	18	1/2	50.5	1.99	40.4	1.59	27
TMC-S3-18M-120	18	3/4	50.5	1.99	40.4	1.59	27
TMC-B1-18M-120	18	3/4	50.5	1.99	40.4	1.59	27
TMC-S3-20M-120	20	3/4	53.0	2.09	42.9	1.69	30
TMC-B1-20M-120	20	3/4	53.0	2.09	42.9	1.69	30
TMC-S3-22M-160	22	1	58.0	2.28	47.0	1.85	35
TMC-B1-22M-160	22	1	58.0	2.28	47.0	1.85	35
TMC-S3-25M-160	25	1	62.9	2.48	50.2	1.98	35
TMC-B1-25M-160	25	1	62.9	2.48	50.2	1.98	35

S3 : Stainless Steel
B1 : Brass

Dimensions for reference only,
Subject to change

Male ELBOW

Tube to Male NPT(P.T.)
(includes body, nut and
ferrules)



No.	Tube O.D.	Pipe Thread	A		B		C		W(Hex)
			mm	in	mm	in	mm	in	in
UME-S3-03M-20	3	1/8	23.6	0.93	17.0	0.67	17.8	0.70	7/16
UME-B1-03M-20	3	1/8	23.6	0.93	17.0	0.67	17.8	0.70	7/16
UME-S3-03M-40	3	1/4	24.4	0.96	18.0	0.71	23.4	0.92	1/2
UME-B1-03M-40	3	1/4	24.4	0.96	18.0	0.71	23.4	0.92	1/2
UME-S3-04M-20	4	1/8	25.4	1.00	18.8	0.74	18.8	0.74	1/2
UME-B1-04M-20	4	1/8	25.4	1.00	18.8	0.74	18.8	0.74	1/2
UME-S3-04M-40	4	1/4	25.4	1.00	18.8	0.74	23.4	0.92	1/2
UME-B1-04M-40	4	1/4	25.4	1.00	18.8	0.74	23.4	0.92	1/2
UME-S3-06M-20	6	1/8	26.9	1.06	19.6	0.77	18.8	0.74	1/2
UME-B1-06M-20	6	1/8	26.9	1.06	19.6	0.77	18.8	0.74	1/2
UME-S3-06M-40	6	1/4	26.9	1.06	19.6	0.77	23.4	0.92	1/2
UME-B1-06M-40	6	1/4	26.9	1.06	19.6	0.77	23.4	0.92	1/2
UME-S3-06M-60	6	3/8	29.7	1.17	22.4	0.88	26.2	1.03	11/16
UME-B1-06M-60	6	3/8	29.7	1.17	22.4	0.88	26.2	1.03	11/16
UME-S3-06M-80	6	1/2	31.8	1.25	24.4	0.96	33.0	1.30	13/16
UME-B1-06M-80	6	1/2	31.8	1.25	24.4	0.96	33.0	1.30	13/16
UME-S3-08M-20	8	1/8	28.7	1.13	21.3	0.84	19.8	0.78	9/16
UME-B1-08M-20	8	1/8	28.7	1.13	21.3	0.84	19.8	0.78	9/16
UME-S3-08M-40	8	1/4	28.7	1.13	21.3	0.84	24.4	0.96	9/16
UME-B1-08M-40	8	1/4	28.7	1.13	21.3	0.84	24.4	0.96	9/16
UME-S3-08M-60	8	3/8	30.5	1.20	23.1	0.91	26.2	1.03	11/16
UME-B1-08M-60	8	3/8	30.5	1.20	23.1	0.91	26.2	1.03	11/16
UME-S3-08M-80	8	1/2	32.5	1.28	24.9	0.98	33.0	1.30	13/16
UME-B1-08M-80	8	1/2	32.5	1.28	24.9	0.98	33.0	1.30	13/16
UME-S3-10M-20	10	1/8	31.2	1.23	23.9	0.94	21.6	0.85	11/16
UME-B1-10M-20	10	1/8	31.2	1.23	23.9	0.94	21.6	0.85	11/16
UME-S3-10M-40	10	1/4	31.2	1.23	23.9	0.94	26.2	1.03	11/16
UME-B1-10M-40	10	1/4	31.2	1.23	23.9	0.94	26.2	1.03	11/16
UME-S3-10M-60	10	3/8	31.2	1.23	23.9	0.94	26.2	1.03	11/16
UME-B1-10M-60	10	3/8	31.2	1.23	23.9	0.94	26.2	1.03	11/16
UME-S3-10M-80	10	1/2	33.3	1.31	25.9	1.02	33.0	1.30	13/16
UME-B1-10M-80	10	1/2	33.3	1.31	25.9	1.02	33.0	1.30	13/16
UME-S3-12M-40	12	1/4	36.1	1.42	25.9	1.02	28.2	1.11	13/16
UME-B1-12M-40	12	1/4	36.1	1.42	25.9	1.02	28.2	1.11	13/16
UME-S3-12M-60	12	3/8	36.1	1.42	25.9	1.02	28.2	1.11	13/16
UME-B1-12M-60	12	3/8	36.1	1.42	25.9	1.02	28.2	1.11	13/16
UME-S3-12M-80	12	1/2	36.1	1.42	25.9	1.02	33.0	1.30	13/16
UME-B1-12M-80	12	1/2	36.1	1.42	25.9	1.02	33.0	1.30	13/16
UME-S3-12M-120	12	3/4	39.9	1.57	29.7	1.17	36.8	1.45	1 1/16
UME-B1-12M-120	12	3/4	39.9	1.57	29.7	1.17	36.8	1.45	1 1/16
UME-S3-15M-80	15	1/2	38.1	1.50	27.9	1.10	35.1	1.38	15/16
UME-B1-15M-80	15	1/2	38.1	1.50	27.9	1.10	35.1	1.38	15/16
UME-S3-16M-60	16	3/8	38.1	1.50	27.9	1.10	30.2	1.19	15/16
UME-B1-16M-60	16	3/8	38.1	1.50	27.9	1.10	30.2	1.19	15/16
UME-S3-16M-80	16	1/2	38.1	1.50	27.9	1.10	35.1	1.38	15/16
UME-B1-16M-80	16	1/2	38.1	1.50	27.9	1.10	35.1	1.38	15/16
UME-S3-16M-120	16	3/4	39.9	1.57	29.7	1.17	36.8	1.45	1 1/16
UME-B1-16M-120	16	3/4	39.9	1.57	29.7	1.17	36.8	1.45	1 1/16
UME-S3-18M-80	18	1/2	39.9	1.57	29.7	1.17	36.8	1.45	1 1/16
UME-B1-18M-80	18	1/2	39.9	1.57	29.7	1.17	36.8	1.45	1 1/16
UME-S3-18M-120	18	3/4	39.9	1.57	29.7	1.17	36.8	1.45	1 1/16
UME-B1-18M-120	18	3/4	39.9	1.57	29.7	1.17	36.8	1.45	1 1/16
UME-S3-20M-80	20	1/2	44.7	1.76	34.5	1.36	41.7	1.64	1 3/8
UME-B1-20M-80	20	1/2	44.7	1.76	34.5	1.36	41.7	1.64	1 3/8
UME-S3-20M-120	20	3/4	44.7	1.76	34.5	1.36	41.7	1.64	1 3/8
UME-B1-20M-120	20	3/4	44.7	1.76	34.5	1.36	41.7	1.64	1 3/8
UME-S3-22M-120	22	3/4	44.7	1.76	34.5	1.36	41.7	1.64	1 3/8
UME-B1-22M-120	22	3/4	44.7	1.76	34.5	1.36	41.7	1.64	1 3/8
UME-S3-22M-160	22	1	44.7	1.76	34.5	1.36	46.5	1.83	1 3/8
UME-B1-22M-160	22	1	44.7	1.76	34.5	1.36	46.5	1.83	1 3/8
UME-S3-25M-120	25	3/4	49.0	1.93	36.8	1.45	41.7	1.64	1 3/8
UME-B1-25M-120	25	3/4	49.0	1.93	36.8	1.45	41.7	1.64	1 3/8
UME-S3-25M-160	25	1	49.0	1.93	36.8	1.45	46.5	1.83	1 3/8
UME-B1-25M-160	25	1	49.0	1.93	36.8	1.45	46.5	1.83	1 3/8

Schedule

No.	Pipe SCH.	Pipe Thread	A		B		C		W(Hex)
			mm	in	mm	in	mm	in	in
UME-S3-10.5-20	1/8B	1/8	32.3	1.27	23.1	0.91	23.1	0.91	11/16
UME-B1-10.5-20	1/8B	1/8	32.3	1.27	23.1	0.91	23.1	0.91	11/16
UME-S3-10.5-40	1/8B	1/4	32.3	1.27	23.1	0.91	26.2	1.03	11/16
UME-B1-10.5-40	1/8B	1/4	32.3	1.27	23.1	0.91	26.2	1.03	11/16
UME-S3-10.5-60	1/8B	3/8	32.3	1.27	23.1	0.91	26.2	1.03	11/16
UME-B1-10.5-60	1/8B	3/8	32.3	1.27	23.1	0.91	26.2	1.03	11/16
UME-S3-10.5-80	1/8B	1/2	34.3	1.35	24.9	0.98	33.5	1.32	13/16
UME-B1-10.5-80	1/8B	1/2	34.3	1.35	24.9	0.98	33.5	1.32	13/16
UME-S3-13.8-40	1/4B	1/4	39.1	1.54	29.0	1.14	30.0	1.18	15/16
UME-B1-13.8-40	1/4B	1/4	39.1	1.54	29.0	1.14	30.0	1.18	15/16
UME-S3-13.8-60	1/4B	3/8	39.1	1.54	29.0	1.14	32.0	1.26	15/16
UME-B1-13.8-60	1/4B	3/8	39.1	1.54	29.0	1.14	32.0	1.26	15/16
UME-S3-13.8-80	1/4B	1/2	39.1	1.54	29.0	1.14	33.5	1.32	15/16
UME-B1-13.8-80	1/4B	1/2	39.1	1.54	29.0	1.14	33.5	1.32	15/16
UME-S3-13.8-120	1/4B	3/4	39.9	1.57	30.0	1.18	41.9	1.62	1 1/16
UME-B1-13.8-120	1/4B	3/4	39.9	1.57	30.0	1.18	41.9	1.62	1 1/16
UME-S3-17.3-60	3/8B	3/8	40.9	1.61	30.0	1.18	34.0	0.34	1 1/16
UME-B1-17.3-60	3/8B	3/8	40.9	1.61	30.0	1.18	34.0	0.34	1 1/16
UME-S3-17.3-80	3/8B	1/2	40.9	1.61	30.0	1.18	37.1	1.46	1 1/16
UME-B1-17.3-80	3/8B	1/2	40.9	1.61	30.0	1.18	37.1	1.46	1 1/16
UME-S3-17.3-120	3/8B	3/4	40.9	1.61	30.0	1.18	41.9	1.62	1 1/16
UME-B1-17.3-120	3/8B	3/4	40.9	1.61	30.0	1.18	41.9	1.62	1 1/16
UME-S3-21.7-80	1/2B	1/2	43.2	1.70	32.0	1.26	37.1	1.46	1 3/8
UME-B1-21.7-80	1/2B	1/2	43.2	1.70	32.0	1.26	37.1	1.46	1 3/8
UME-S3-21.7-120	1/2B	3/4	43.2	1.70	32.0	1.26	41.9	1.62	1 3/8
UME-B1-21.7-120	1/2B	3/4	43.2	1.70	32.0	1.26	41.9	1.62	1 3/8

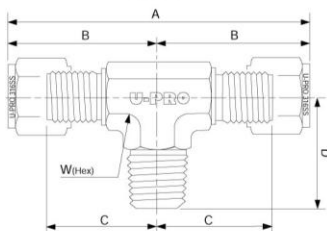
S3 : Stainless Steel

B1 : Brass

Dimensions for reference only,
Subject to change

Male Branch Tee

Tube to Male NPT(P.T.)
(includes body, nuts and ferrules)

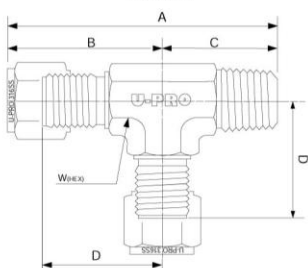


No.	Tube O.D.	Pipe Thread	A		B		C		D		W(Hex)
			mm	in	mm	in	mm	in	mm	in	
MBT-S3-06M-06M-20	6	1/8	53.8	2.12	26.9	1.06	19.6	0.77	18.8	0.74	1/2
MBT-B1-06M-06M-20		1/8	53.8	2.12	26.9	1.06	19.6	0.77	18.8	0.74	1/2
MBT-S3-06M-06M-40		1/4	53.8	2.12	26.9	1.06	19.6	0.77	23.4	0.92	1/2
MBT-B1-06M-06M-40	8	1/8	59.7	2.35	29.8	1.18	22.4	0.88	20.3	0.80	5/8
MBT-S3-08M-08M-20		1/8	59.7	2.35	29.8	1.18	22.4	0.88	20.3	0.80	5/8
MBT-B1-08M-08M-20		1/8	59.7	2.35	29.8	1.18	22.4	0.88	20.3	0.80	5/8
MBT-S3-08M-08M-40	8	1/4	59.7	2.35	29.8	1.18	22.4	0.88	25.4	1.00	5/8
MBT-B1-08M-08M-40		1/4	59.7	2.35	29.8	1.18	22.4	0.88	25.4	1.00	5/8
MBT-S3-10M-10M-40		1/4	67.1	2.64	33.5	1.32	25.9	1.02	28.2	1.11	13/16
MBT-B1-10M-10M-40	10	1/4	67.1	2.64	33.5	1.32	25.9	1.02	28.2	1.11	13/16
MBT-S3-12M-12M-30		3/8	72.1	2.84	36.1	1.42	25.9	1.02	28.2	1.11	13/16
MBT-B1-12M-12M-30		3/8	72.1	2.84	36.1	1.42	25.9	1.02	28.2	1.11	13/16
MBT-S3-12M-12M-40	12	1/4	72.1	2.84	36.1	1.42	25.9	1.02	28.2	1.11	13/16
MBT-B1-12M-12M-40		1/4	72.1	2.84	36.1	1.42	25.9	1.02	28.2	1.11	13/16
MBT-S3-12M-12M-80		1/2	72.1	2.84	36.1	1.42	25.9	1.02	33.0	1.30	13/16
MBT-B1-12M-12M-80	12	1/2	72.1	2.84	36.1	1.42	25.9	1.02	33.0	1.30	13/16
MBT-S3-16M-16M-80		1/2	77.7	3.06	38.9	1.53	28.7	1.13	35.8	1.41	1
MBT-B1-16M-16M-80		1/2	77.7	3.06	38.9	1.53	28.7	1.13	35.8	1.41	1

TUBE TO MALE
PIPE

Male Run Tee

Tube to Male NPT(P.T.)
(includes body, nuts and ferrules)



No.	Tube O.D.	Pipe Thread	A		B		C		D		W(Hex)
			mm	in	mm	in	mm	in	mm	in	
MRT-S3-06M-20-06M	6	1/8	45.7	1.80	26.9	1.06	17.8	0.70	19.8	0.78	1/2
MRT-B1-06M-20-06M		1/8	45.7	1.80	26.9	1.06	17.8	0.70	19.8	0.78	1/2
MRT-S3-06M-40-06M		1/4	50.3	1.98	26.9	1.06	23.4	0.92	19.8	0.78	1/2
MRT-B1-06M-40-06M	8	1/4	50.3	1.98	26.9	1.06	23.4	0.92	19.8	0.78	1/2
MRT-S3-08M-40-08M		1/4	55.4	2.18	30.0	1.18	25.4	1.00	22.4	0.88	5/8
MRT-B1-08M-40-08M		1/4	55.4	2.18	30.0	1.18	25.4	1.00	22.4	0.88	5/8
MRT-S3-12M-40-12M	12	1/4	64.3	2.53	35.8	1.41	28.2	1.11	25.9	1.02	13/16
MRT-B1-12M-40-12M		1/4	64.3	2.53	35.8	1.41	28.2	1.11	25.9	1.02	13/16
MRT-S3-12M-80-12M		1/2	69.1	2.72	35.8	1.41	33.0	1.30	25.9	1.02	13/16
MRT-B1-12M-80-12M	12	1/2	69.1	2.72	35.8	1.41	33.0	1.30	25.9	1.02	13/16
MRT-S3-16M-80-16M		1/2	73.2	2.88	38.1	1.50	35.1	1.38	27.9	1.10	15/16
MRT-B1-16M-80-16M		1/2	73.2	2.88	38.1	1.50	35.1	1.38	27.9	1.10	15/16

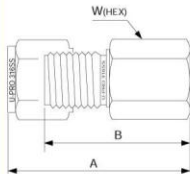
S3 : Stainless Steel

B1 : Brass

Dimensions for reference only,

Subject to change

Female Connector Tube to Female NPT(P.T.) (includes body, nut and ferrules)



No.	Tube O.D.	Pipe Thread	A		B		W(Hex) mm
			mm	in	mm	in	
FC-S3-03M-20	3	1/8	28.5	1.12	22.1	0.87	14
FC-B1-03M-20		1/8					
FC-S3-03M-40		1/4	33.5	1.32	26.9	1.06	19
FC-B1-03M-40	4	1/8	29.7	1.17	23.1	0.91	14
FC-S3-04M-20		1/8					
FC-B1-04M-20		1/8					
FC-S3-06M-20	6	1/8	31.2	1.23	23.9	0.94	14
FC-B1-06M-20		1/8					
FC-S3-06M-40		1/4	35.7	1.41	28.4	1.12	19
FC-B1-06M-40	6	1/4					
FC-S3-06M-60		3/8	37.5	1.48	30.2	1.19	22
FC-B1-06M-60		3/8					
FC-S3-06M-80	6	1/2	42.1	1.66	35.1	1.38	27
FC-B1-06M-80		1/2					
FC-S3-08M-20	8	1/8	32.2	1.27	24.6	0.97	16
FC-B1-08M-20		1/8					
FC-S3-08M-40		1/4	37.0	1.46	29.5	1.16	19
FC-B1-08M-40	8	1/4					
FC-S3-08M-60		3/8	38.5	1.52	31.0	1.22	22
FC-B1-08M-60		3/8					
FC-S3-08M-80	8	1/2	43.3	1.70	35.9	1.41	27
FC-B1-08M-80		1/2					
FC-S3-10M-40	10	1/4	37.8	1.49	30.2	1.19	19
FC-B1-10M-40		1/4					
FC-S3-10M-60		3/8	39.5	1.56	31.9	1.26	22
FC-B1-10M-60	10	3/8					
FC-S3-10M-80		1/2	44.2	1.74	36.6	1.44	27
FC-B1-10M-80		1/2					
FC-S3-12M-40	12	1/4	40.3	1.59	30.2	1.19	21
FC-B1-12M-40		1/4					
FC-S3-12M-60		3/8	41.9	1.65	31.9	1.26	21
FC-B1-12M-60	12	3/8					
FC-S3-12M-80		1/2	46.7	1.84	36.6	1.44	27
FC-B1-12M-80		1/2					
FC-S3-15M-80	15	1/2	46.7	1.84	36.6	1.44	27
FC-B1-15M-80		1/2					
FC-S3-16M-80	16	1/2	46.9	1.85	36.6	1.44	27
FC-B1-16M-80		1/2					
FC-S3-20M-80	20	1/2	47.9	1.89	37.8	1.49	30
FC-B1-20M-80		1/2					
FC-S3-20M-120		3/4	49.7	1.96	39.6	1.56	35
FC-B1-20M-120	20	3/4					
FC-S3-22M-120		3/4	49.7	1.96	39.6	1.56	35
FC-B1-22M-120	22	3/4					
FC-S3-22M-160		1	57.9	2.28	47.8	1.88	40
FC-B1-22M-160		1					
FC-S3-25M-120	25	3/4	53.5	2.11	41.1	1.62	35
FC-B1-25M-120		3/4					
FC-S3-25M-160		1	63.0	2.48	50.0	1.97	40
FC-B1-25M-160							

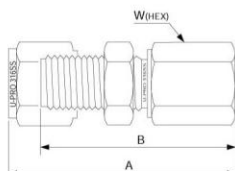
Schedule

No.	Pipe SCH.	Pipe Thread	A		B		W(Hex) mm
			mm	in	mm	in	
FC-S3-10.5-20	1/8B	1/8	38.1	1.50	29.2	1.15	17
FC-B1-10.5-20		1/8					
FC-S3-10.5-40		1/4	39.1	1.54	30.0	1.18	17
FC-B1-10.5-40	1/8B	1/4					
FC-S3-10.5-60		3/8	41.1	1.62	31.9	1.26	22
FC-B1-10.5-60		3/8					
FC-S3-10.5-80	1/8B	1/2	43.2	1.70	34.0	1.34	26
FC-B1-10.5-80		1/2					
FC-S3-13.8-40		1/4	43.0	1.69	33.0	1.30	23
FC-B1-13.8-40	1/4B	1/4					
FC-S3-13.8-60		3/8	43.0	1.69	33.0	1.30	23
FC-B1-13.8-60		3/8					
FC-S3-13.8-80	1/4B	1/2	45.0	1.77	35.1	1.38	26
FC-B1-13.8-80		1/2					
FC-S3-17.3-40		1/4	47.0	1.85	36.1	1.42	27
FC-B1-17.3-40	3/8B	1/4					
FC-S3-17.3-80		1/2	47.0	1.85	36.1	1.42	27
FC-B1-17.3-80		1/2					
FC-S3-21.7-80	1/2B	1/2	49.3	1.94	38.1	1.50	30
FC-B1-21.7-80		1/2					
FC-S3-21.7-120		3/4	50.3	1.98	39.2	1.54	35
FC-B1-21.7-120							

S3 : Stainless Steel
B1 : Brass
Dimensions for reference only,
Subject to change

Bulkhead Female Connector

Tube to Female NPT(P.T.)
(includes body, nut and ferrules)

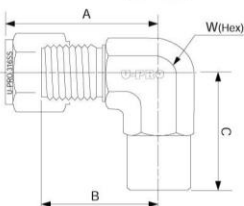


No.	Tube O.D.	Pipe Thread	A		B		W(Hex)	Bulkhead Hole Drill Size	Max. Bulkhead Thickness
			mm	in	mm	in			
BFC-S3-06M-40	6	1/4	51.1	2.01	44.5	1.75	19	11.5	10.0
BFC-B1-06M-40									
BFC-S3-08M-20	8	1/8	50.0	1.97	42.4	1.67	17	13.0	11.2
BFC-B1-08M-20									
BFC-S3-08M-40	8	1/4	54.6	2.15	47.2	1.86	19	13.0	11.2
BFC-B1-08M-40									
BFC-S3-10M-40	10	1/4	58.2	2.29	47.2	1.86	21	16.2	11.2
BFC-B1-10M-40									
BFC-S3-10M-60	10	3/8	59.9	2.36	49.0	1.93	21	16.2	11.2
BFC-B1-10M-60									
BFC-S3-10M-80	10	1/2	64.3	2.53	53.6	2.11	27	16.2	11.2
BFC-B1-10M-80									
BFC-S3-12M-60	12	3/8	62.2	2.45	52.3	2.06	24	19.5	12.5
BFC-B1-12M-60									
BFC-S3-12M-80	12	1/2	66.5	2.62	57.2	2.25	27	19.5	12.5
BFC-B1-12M-80									
BFC-S3-15M-80	15	1/2	67.4	2.654	57.9	2.28	27	22.7	12.5
BFC-B1-15M-80									
BFC-S3-16M-80	16	1/2	67.3	2.65	57.9	2.28	27	22.7	12.5
BFC-B1-16M-80									
BFC-S3-18M-80	18	1/2	72.1	2.84	62.5	2.46	27	26.0	16.5
BFC-B1-18M-80									
BFC-S3-18M-120	18	3/4	75.7	2.98	65.5	2.58	35	26.0	16.5
BFC-B1-18M-120									

TUBE TO
FEMALE PIPE

Female Elbow

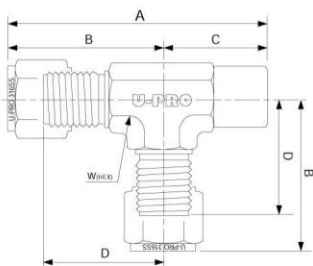
Tube to Female NPT(P.T.)
(includes body, nut and ferrules)



No.	Tube O.D.	Pipe Thread	A		B		C		W(Hex)
			mm	in	mm	in	mm	in	in
UFE-S3-06M-20	6	1/8	27.0	1.06	19.6	0.77	19.0	0.75	1/2
UFE-B1-06M-20									
UFE-S3-06M-40	6	1/4	29.7	1.17	22.5	0.89	22.5	0.89	11/16
UFE-B1-06M-40									
UFE-S3-06M-80	6	1/2	24.5	0.96	27.3	1.07	28.5	1.12	1
UFE-B1-06M-80									
UFE-S3-08M-40	8	1/4	30.6	1.20	23.2	0.91	22.5	0.89	11/16
UFE-B1-08M-40									
UFE-S3-10M-20	10	1/8	31.5	1.24	24.0	0.94	19.0	0.75	11/16
UFE-B1-10M-20									
UFE-S3-10M-40	10	1/4	33.5	1.32	25.7	1.01	22.5	0.89	13/16
UFE-B1-10M-40									
UFE-S3-12M-40	12	1/4	36.0	1.42	25.7	1.01	22.5	0.89	13/16
UFE-B1-12M-40									
UFE-S3-12M-80	12	1/2	38.9	1.53	28.7	1.13	28.5	1.12	1
UFE-B1-12M-80									
UFE-S3-16M-80	16	1/2	39.5	1.56	29.9	1.18	28.5	1.12	1 1/16
UFE-B1-16M-80									

Female Run Tee

Tube to Female NPT(P.T.)
(includes body, nuts and ferrules)



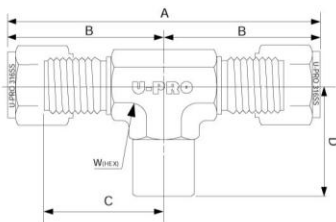
No.	Tube O.D.	Pipe Thread	A		B		C		D		W(Hex)
			mm	in	mm	in	mm	in	mm	in	in
FRT-S3-06M-20-06M	6	1/8	46.0	1.81	27.0	1.06	19.0	0.75	19.6	0.77	1/2
FRT-B1-06M-20-06M											
FRT-S3-06M-40-06M	6	1/4	52.1	2.05	29.9	1.18	22.4	0.88	22.4	0.88	11/16
FRT-B1-06M-40-06M											
FRT-S3-08M-20-08M	8	1/8	49.0	1.93	30.1	1.19	19.0	0.75	22.4	0.88	5/8
FRT-B1-08M-20-08M											
FRT-S3-08M-40-08M	8	1/4	53.0	2.09	30.8	1.21	22.4	0.88	23.1	0.91	11/16
FRT-B1-08M-40-08M											
FRT-S3-10M-40-10M	10	1/4	55.7	2.19	33.5	1.32	22.4	0.88	26.0	1.02	13/16
FRT-B1-10M-40-10M											
FRT-S3-12M-40-12M	12	1/4	58.4	2.30	36.2	1.43	22.4	0.88	26.0	1.02	13/16
FRT-B1-12M-40-12M											
FRT-S3-12M-60-12M	12	3/8	58.4	2.30	36.2	1.43	22.4	0.88	26.0	1.02	13/16
FRT-B1-12M-60-12M											
FRT-S3-16M-80-16M	16	1/2	68.0	2.68	40.0	1.57	28.4	1.12	29.8	1.17	1 1/16
FRT-B1-16M-80-16M											

S3 : Stainless Steel
B1 : Brass

Dimensions for reference only,
Subject to change

Female Branch Tee

Tube to Female NPT(P.T.)
(includes body, nuts and ferrules)



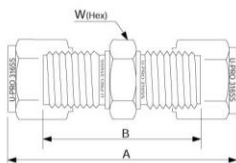
No.	Tube O.D.	Pipe Thread	A		B		C		D		W(Hex)
			mm	in	mm	in	mm	in	mm	in	
FBT-S3-06M-06M-20	6	1/8	53.9	2.12	27.0	1.06	19.6	0.77	19.0	0.75	1/2
FBT-B1-06M-06M-20	6	1/8	53.9	2.12	27.0	1.06	19.6	0.77	19.0	0.75	1/2
FBT-S3-06M-06M-40	6	1/4	59.6	2.35	29.9	1.18	22.4	0.88	22.4	0.88	11/16
FBT-B1-06M-06M-40	6	1/4	59.6	2.35	29.9	1.18	22.4	0.88	22.4	0.88	11/16
FBT-S3-08M-08M-20	8	1/8	59.7	2.35	30.1	1.19	22.4	0.88	19.0	0.75	5/8
FBT-B1-08M-08M-20	8	1/8	59.7	2.35	30.1	1.19	22.4	0.88	19.0	0.75	5/8
FBT-S3-08M-08M-40	8	1/4	61.0	2.40	30.8	1.21	23.1	0.91	22.4	0.88	11/16
FBT-B1-08M-08M-40	8	1/4	61.0	2.40	30.8	1.21	23.1	0.91	22.4	0.88	11/16
FBT-S3-10M-10M-40	10	1/4	67.5	2.66	33.5	1.32	26.0	1.02	22.4	0.88	13/16
FBT-B1-10M-10M-40	10	1/4	67.5	2.66	33.5	1.32	26.0	1.02	22.4	0.88	13/16
FBT-S3-12M-12M-40	12	1/4	72.0	2.83	36.2	1.43	26.0	1.02	22.4	0.88	13/16
FBT-B1-12M-12M-40	12	1/4	72.0	2.83	36.2	1.43	26.0	1.02	22.4	0.88	13/16
FBT-S3-12M-12M-60	12	3/8	72.0	2.83	36.2	1.43	26.0	1.02	22.4	0.88	13/16
FBT-B1-12M-12M-60	12	3/8	72.0	2.83	36.2	1.43	26.0	1.02	22.4	0.88	13/16
FBT-S3-16M-16M-80	16	1/2	77.5	3.05	39.2	1.54	28.7	1.13	28.4	1.12	1
FBT-B1-16M-16M-80	16	1/2	77.5	3.05	39.2	1.54	28.7	1.13	28.4	1.12	1

TUBE TO
FEMALE PIPE

TUBE TO TUBE UNIONS

Union

Tube to Tube
(includes body, nuts and ferrules)



No.	Tube O.D.	A		B		W(Hex)
		mm	in	mm	in	
U-S3-02M-02M	2	35.6	1.40	22.4	0.88	12
U-B1-02M-02M	2	35.6	1.40	22.4	0.88	12
U-S3-03M-03M	3	35.3	1.39	22.1	0.87	12
U-B1-03M-03M	3	35.3	1.39	22.1	0.87	12
U-S3-04M-04M	4	37.3	1.47	24.1	0.95	12
U-B1-04M-04M	4	37.3	1.47	24.1	0.95	12
U-S3-06M-06M	6	41.0	1.61	26.0	1.02	14
U-B1-06M-06M	6	41.0	1.61	26.0	1.02	14
U-S3-08M-08M	8	43.2	1.70	28.2	1.11	16
U-B1-08M-08M	8	43.2	1.70	28.2	1.11	16
U-S3-10M-10M	10	46.2	1.82	31.0	1.22	17
U-B1-10M-10M	10	46.2	1.82	31.0	1.22	17
U-S3-12M-12M	12	52.3	2.06	31.0	1.22	21
U-B1-12M-12M	12	52.3	2.06	31.0	1.22	21
U-S3-14M-14M	14	52.3	2.06	31.8	1.25	24
U-B1-14M-14M	14	52.3	2.06	31.8	1.25	24
U-S3-15M-15M	15	52.3	2.06	31.8	1.25	24
U-B1-15M-15M	15	52.3	2.06	31.8	1.25	24
U-S3-16M-16M	16	53.3	2.10	31.8	1.25	24
U-B1-16M-16M	16	53.3	2.10	31.8	1.25	24
U-S3-18M-18M	18	53.4	2.10	33.3	1.31	27
U-B1-18M-18M	18	53.4	2.10	33.3	1.31	27
U-S3-20M-20M	20	55.6	2.19	34.8	1.37	30
U-B1-20M-20M	20	55.6	2.19	34.8	1.37	30
U-S3-22M-22M	22	55.6	2.19	34.8	1.37	30
U-B1-22M-22M	22	55.6	2.19	34.8	1.37	30
U-S3-25M-25M	25	65.0	2.56	41.0	1.61	35
U-B1-25M-25M	25	65.0	2.56	41.0	1.61	35

Schedule

No.	Pipe SCH.	A		B		W(Hex)
		mm	in	mm	in	
U-S3-10.5-10.5	1/8B	49.5	1.95	31.0	1.22	17
U-B1-10.5-10.5	1/8B	49.5	1.95	31.0	1.22	17
U-S3-13.8-13.8	1/4B	53.1	2.09	33.1	1.30	23
U-B1-13.8-13.8	1/4B	53.1	2.09	33.1	1.30	23
U-S3-17.3-17.3	3/8B	57.9	2.28	36.1	1.42	27
U-B1-17.3-17.3	3/8B	57.9	2.28	36.1	1.42	27
U-S3-21.7-21.7	1/2B	60.5	2.38	38.1	1.50	30
U-B1-21.7-21.7	1/2B	60.5	2.38	38.1	1.50	30

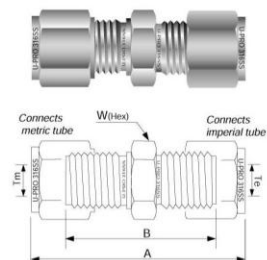
S3 : Stainless Steel

B1 : Brass

Dimensions for reference only,
Subject to change

Conversion Reducing Union

Metric Tube to Imperial Tube
(includes body, nuts and ferrules)

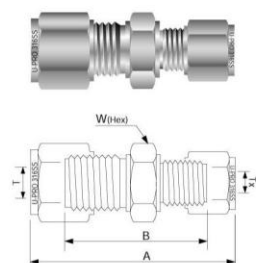


No.	Tube O.D.		A		B		W(Hex)
	Tm	Te	mm	in	mm	in	mm
CRU-S3-02M-20	2	1/8	35.2	1.39	22.1	0.87	12
CRU-B1-02M-20		1/8	35.2	1.39	22.1	0.87	12
CRU-S3-02M-40		1/4	38.6	1.52	34.6	1.36	14
CRU-B1-02M-40	3	1/8	35.2	1.39	22.1	0.87	12
CRU-S3-03M-20		1/8	35.2	1.39	22.1	0.87	12
CRU-B1-03M-20		1/8	35.2	1.39	22.1	0.87	12
CRU-S3-04M-20	4	1/8	36.5	1.44	23.5	0.93	12
CRU-B1-04M-20		1/8	36.5	1.44	23.5	0.93	12
CRU-S3-04M-40		1/4	39.4	1.55	25.4	1.00	14
CRU-B1-04M-40	6	1/8	38.5	1.52	24.6	0.97	14
CRU-S3-06M-20		1/8	38.5	1.52	24.6	0.97	14
CRU-B1-06M-20		1/8	38.5	1.52	24.6	0.97	14
CRU-S3-06M-40	6	1/4	41.0	1.61	26.2	1.03	14
CRU-B1-06M-40		1/4	41.0	1.61	26.2	1.03	14
CRU-S3-06M-50		5/16	42.3	1.67	27.5	1.08	14
CRU-B1-06M-50	8	1/4	42.3	1.67	27.5	1.08	14
CRU-S3-08M-40		1/4	42.3	1.67	27.5	1.08	14
CRU-B1-08M-40		1/4	42.3	1.67	27.5	1.08	14
CRU-S3-08M-60	8	3/8	44.3	1.74	29.5	1.16	17
CRU-B1-08M-60		3/8	44.3	1.74	29.5	1.16	17
CRU-S3-10M-20		1/8	41.8	1.65	27.7	1.09	17
CRU-B1-10M-20	10	1/4	44.5	1.75	29.5	1.16	17
CRU-S3-10M-40		1/4	44.5	1.75	29.5	1.16	17
CRU-B1-10M-40		1/4	44.5	1.75	29.5	1.16	17
CRU-S3-10M-50	10	5/16	45.0	1.77	30.0	1.18	17
CRU-B1-10M-50		5/16	45.0	1.77	30.0	1.18	17
CRU-S3-10M-60		3/8	46.0	1.81	31.0	1.22	17
CRU-B1-10M-60	12	5/16	47.8	1.88	30.2	1.19	21
CRU-S3-12M-50		5/16	47.8	1.88	30.2	1.19	21
CRU-B1-12M-50		5/16	47.8	1.88	30.2	1.19	21
CRU-S3-12M-60	12	3/8	48.4	1.91	31.0	1.22	21
CRU-B1-12M-60		3/8	48.4	1.91	31.0	1.22	21
CRU-S3-12M-80		1/2	51.2	2.02	31.0	1.22	21
CRU-B1-12M-80	15	1/2	52.0	2.05	31.8	1.25	24
CRU-S3-15M-80		1/2	52.0	2.05	31.8	1.25	24
CRU-B1-15M-80		1/2	52.0	2.05	31.8	1.25	24
CRU-S3-16M-100	16	5/8	52.0	2.05	31.8	1.25	24
CRU-B1-16M-100		5/8	52.0	2.05	31.8	1.25	24
CRU-S3-18M-120		3/4	53.5	2.11	33.3	1.31	27
CRU-B1-18M-120	20	1/2	55.0	2.17	34.8	1.37	30
CRU-S3-20M-80		1/2	55.0	2.17	34.8	1.37	30
CRU-B1-20M-80		1/2	55.0	2.17	34.8	1.37	30
CRU-S3-20M-160	20	1	62.9	2.48	40.4	1.59	35
CRU-B1-20M-160		1	62.9	2.48	40.4	1.59	35
CRU-S3-25M-160		1	65.1	2.56	40.1	1.58	35
CRU-B1-25M-160	25	1	65.1	2.56	40.1	1.58	35

TUBE TO TUBE

Reducing Union

Tube to Tube
(includes body, nuts and ferrules)



No.	Tube O.D.		A		B		W(Hex)
	T	Tx	mm	in	mm	in	mm
RU-S3-03M-02M	3	2	35.3	1.39	22.1	0.87	12
RU-B1-03M-02M		2	35.3	1.39	22.1	0.87	12
RU-S3-06M-02M		2	38.6	1.52	24.6	0.97	14
RU-B1-06M-02M	6	2	38.6	1.52	24.6	0.97	14
RU-S3-06M-03M		3	38.6	1.52	24.6	0.97	14
RU-B1-06M-03M		3	38.6	1.52	24.6	0.97	14
RU-S3-06M-04M	6	4	39.5	1.56	25.4	1.00	14
RU-B1-06M-04M		4	39.5	1.56	25.4	1.00	14
RU-S3-08M-06M		6	42.3	1.67	27.4	1.08	16
RU-B1-08M-06M	8	6	42.3	1.67	27.4	1.08	16
RU-S3-10M-06M		6	44.5	1.75	29.6	1.17	17
RU-B1-10M-06M		6	44.5	1.75	29.6	1.17	17
RU-S3-10M-08M	10	8	45.0	1.77	30.2	1.19	17
RU-B1-10M-08M		8	45.0	1.77	30.2	1.19	17
RU-S3-12M-06M		6	47.1	1.85	29.6	1.17	21
RU-B1-12M-06M	12	6	47.1	1.85	29.6	1.17	21
RU-S3-12M-08M		8	47.7	1.88	30.0	1.18	21
RU-B1-12M-08M		8	47.7	1.88	30.0	1.18	21
RU-S3-12M-10M	12	10	48.7	1.92	31.0	1.22	21
RU-B1-12M-10M		10	48.7	1.92	31.0	1.22	21
RU-S3-16M-10M		10	49.5	1.95	31.9	1.26	24
RU-B1-16M-10M	16	10	49.5	1.95	31.9	1.26	24
RU-S3-16M-12M		12	52.0	2.05	31.9	1.26	24
RU-B1-16M-12M		12	52.0	2.05	31.9	1.26	24
RU-S3-18M-12M	18	12	53.5	2.11	33.3	1.31	27
RU-B1-18M-12M		12	53.5	2.11	33.3	1.31	27
RU-S3-25M-18M		18	61.0	2.40	38.6	1.52	35
RU-B1-25M-18M	25	18	61.0	2.40	38.6	1.52	35
RU-S3-25M-20M		20	62.3	2.45	40.0	1.57	35
RU-B1-25M-20M		20	62.3	2.45	40.0	1.57	35

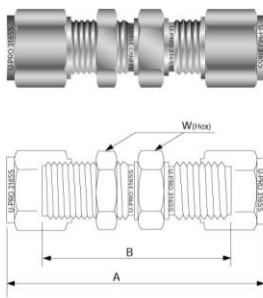
S3 : Stainless Steel

B1 : Brass

Dimensions for reference only,
Subject to change

Bulkhead Union

Tube to Tube
(includes body, nut,
locknut and ferrules)



TUBE TO TUBE

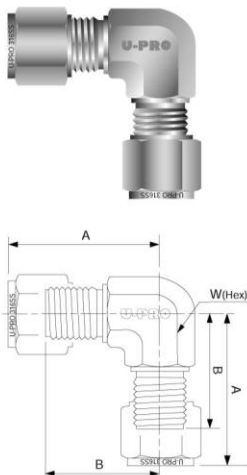
No.	Tube O.D.	A		B		W(Hex)	Bulkhead Hole Drill Size	Max. Bulkhead Thickness
		mm	in	mm	in			
BU-S3-03M-03M	3	51.3	2.02	38.1	1.50	14	8.3	12.7
BU-B1-03M-03M								
BU-S3-04M-04M	4	53.6	2.11	40.4	1.59	14	9.9	12.7
BU-B1-04M-04M								
BU-S3-06M-06M	6	57.8	2.28	42.9	1.69	17	11.5	10.2
BU-B1-06M-06M								
BU-S3-08M-08M	8	61.0	2.40	46.0	1.81	17	13.1	11.2
BU-B1-08M-08M								
BU-S3-10M-10M	10	63.7	2.51	48.5	1.91	21	16.2	11.2
BU-B1-10M-10M								
BU-S3-12M-12M	12	71.2	2.80	50.8	2.00	24	19.5	12.7
BU-B1-12M-12M								
BU-S3-14M-14M	14	72.4	2.85	52.4	2.06	27	22.5	12.7
BU-B1-14M-14M								
BU-S3-15M-15M	15	72.4	2.85	52.4	2.06	27	22.8	12.7
BU-B1-15M-15M								
BU-S3-16M-16M	16	72.4	2.85	52.4	2.06	27	22.8	12.7
BU-B1-16M-16M								
BU-S3-18M-18M	18	78.6	3.09	58.7	2.31	30	26.0	16.8
BU-B1-18M-18M								
BU-S3-20M-20M	20	84.5	3.33	64.3	2.53	35	29.0	19.0
BU-B1-20M-20M								
BU-S3-25M-25M	25	96.0	3.78	71.5	2.81	40	33.7	19.0
BU-B1-25M-25M								

Schedule

No.	Pipe SCH.	A		B		W(Hex)	Bulkhead Hole Drill Size	Max. Bulkhead Thickness
		mm	in	mm	in			
BU-S3-10.5-10.5	1/8B	67.3	2.65	49.0	1.93	19	16.2	14.5
BU-B1-10.5-10.5								
BU-S3-13.8-13.8	1/4B	74.9	2.95	55.1	2.17	26	22.7	17.0
BU-B1-13.8-13.8								
BU-S3-17.3-17.3	3/8B	81.0	3.19	58.9	2.32	30	26.0	17.0
BU-B1-17.3-17.3								
BU-S3-21.7-21.7	1/2B	82.3	3.24	59.9	2.36	35	29.2	17.0
BU-B1-21.7-21.7								

Union Elbow

Tube to Tube
(includes body, nuts
and ferrules)



No.	Tube O.D.	A		B		W(Hex)
		mm	in	mm	in	
UE-S3-03M-03M	3	22.3	0.88	15.7	0.62	3/8
UE-B1-03M-03M						
UE-S3-04M-04M	4	25.4	1.00	18.8	0.74	1/2
UE-B1-04M-04M						
UE-S3-06M-06M	6	26.9	1.06	19.6	0.77	1/2
UE-B1-06M-06M						
UE-S3-08M-08M	8	28.8	1.13	21.3	0.84	9/16
UE-B1-08M-08M						
UE-S3-10M-10M	10	31.5	1.24	23.9	0.94	11/16
UE-B1-10M-10M						
UE-S3-12M-12M	12	36.0	1.42	25.9	1.02	13/16
UE-B1-12M-12M						
UE-S3-14M-14M	14	38.0	1.50	27.9	1.10	15/16
UE-B1-14M-14M						
UE-S3-15M-15M	15	38.9	1.53	27.9	1.10	15/16
UE-B1-15M-15M						
UE-S3-16M-16M	16	38.0	1.50	27.9	1.10	15/16
UE-B1-16M-16M						
UE-S3-18M-18M	18	39.8	1.57	29.8	1.17	1 3/8
UE-B1-18M-18M						
UE-S3-20M-20M	20	44.5	1.75	34.5	1.36	1 3/8
UE-B1-20M-20M						
UE-S3-22M-22M	22	44.5	1.75	34.5	1.36	1 3/8
UE-B1-22M-22M						
UE-S3-25M-25M	25	49.2	1.94	36.9	1.45	1 3/8
UE-B1-25M-25M						

Schedule

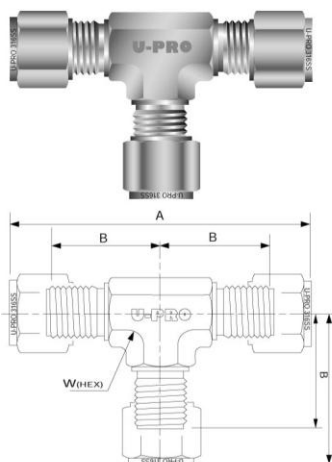
No.	Pipe SCH.	A		B		W(Hex)
		mm	in	mm	in	
UE-S3-10.5-10.5	1/8B	32.3	1.27	23.1	0.91	13/16
UE-B1-10.5-10.5						
UE-S3-13.8-13.8	1/4B	39.1	1.54	29.0	1.14	15/16
UE-B1-13.8-13.8						
UE-S3-17.3-17.3	3/8B	40.9	1.61	30.0	1.18	1 3/8
UE-B1-17.3-17.3						
UE-S3-21.7-21.7	1/2B	43.2	1.70	32.0	1.26	1 3/8
UE-B1-21.7-21.7						

S3 : Stainless Steel
B1 : Brass

Dimensions for reference only,
Subject to change

Union Tee

Tube to Tube
(includes body, nuts and ferrules)



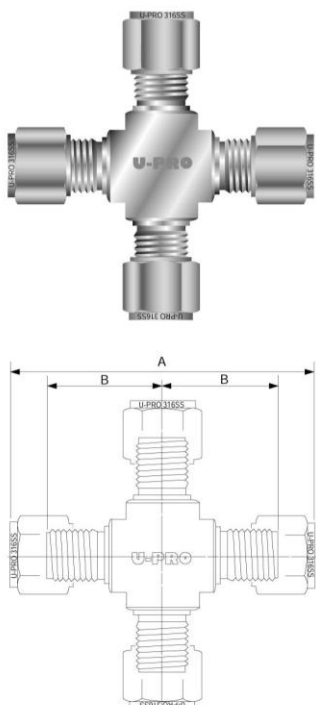
No.	Tube O.D.	A		B		C		W(HEX) in
		mm	in	mm	in	mm	in	
UT-S3-02M	2	44.7	1.76	15.7	0.62	22.3	0.88	$\frac{3}{8}$
UT-B1-02M								
UT-S3-03M	3	44.7	1.76	15.7	0.62	22.3	0.88	$\frac{3}{8}$
UT-B1-03M								
UT-S3-04M	4	50.8	2.00	18.8	0.74	25.4	1.00	$\frac{1}{2}$
UT-B1-04M								
UT-S3-06M	6	53.9	2.12	19.6	0.77	27.0	1.06	$\frac{1}{2}$
UT-B1-06M								
UT-S3-08M	8	59.7	2.35	21.3	0.84	29.9	1.18	$\frac{5}{8}$
UT-B1-08M								
UT-S3-10M	10	63.0	2.48	23.9	0.94	31.5	1.24	$\frac{11}{16}$
UT-B1-10M								
UT-S3-12M	12	72.0	2.83	25.9	1.02	36.0	1.42	$\frac{13}{16}$
UT-B1-12M								
UT-S3-14M	14	77.6	3.06	27.9	1.10	38.8	1.53	1
UT-B1-14M								
UT-S3-15M	15	77.6	3.06	27.9	1.10	38.8	1.53	1
UT-B1-15M								
UT-S3-16M	16	77.6	3.06	27.9	1.10	38.8	1.53	1
UT-B1-16M								
UT-S3-18M	18	79.5	3.13	29.8	1.17	38.8	1.53	$1\frac{1}{16}$
UT-B1-18M								
UT-S3-20M	20	89.3	3.52	34.5	1.36	44.6	1.76	$1\frac{3}{8}$
UT-B1-20M								
UT-S3-22M	22	89.3	3.52	34.5	1.36	44.6	1.76	$1\frac{3}{8}$
UT-B1-22M								
UT-S3-25M	25	98.3	3.87	36.9	1.45	49.1	1.93	$1\frac{3}{8}$
UT-B1-25M								

Schedule

No.	Pipe SCH.	A		B		C		W(HEX) in
		mm	in	mm	in	mm	in	
UT-S3-10.5	$\frac{1}{8}B$	64.5	2.54	23.1	0.91	32.3	1.27	$\frac{11}{16}$
UT-B1-10.5								
UT-S3-13.8	$\frac{1}{4}B$	78.0	3.07	29.0	1.14	39.0	1.54	1
UT-B1-13.8								
UT-S3-17.3	$\frac{3}{8}B$	82.0	3.23	29.8	1.17	41.1	1.62	$1\frac{1}{16}$
UT-B1-17.3								
UT-S3-21.7	$\frac{1}{2}B$	86.4	3.40	32.0	1.26	44.6	43.2	$1\frac{3}{8}$
UT-B1-21.7								

Union Cross

Tube to Tube
(includes body, nuts and ferrules)



No.	Tube O.D.	A		B	
		mm	in	mm	in
UC-S3-03M	3	44.7	1.76	15.7	0.62
UC-B1-03M					
UC-S3-06M	6	53.9	2.12	19.6	0.77
UC-B1-06M					
UC-S3-08M	8	59.7	2.35	22.4	0.88
UC-B1-08M					
UC-S3-10M	10	67.0	2.64	25.9	1.02
UC-B1-10M					
UC-S3-12M	12	72.0	2.83	25.9	1.02
UC-B1-12M					
UC-S3-16M	16	74.0	2.91	26.9	1.06
UC-B1-16M					
UC-S3-18M	18	76.6	3.02	28.2	1.11
UC-B1-18M					
UC-S3-20M	20	89.3	3.52	34.5	1.36
UC-B1-20M					
UC-S3-25M	25	98.3	3.87	36.9	1.45
UC-B1-25M					

S3 : Stainless Steel

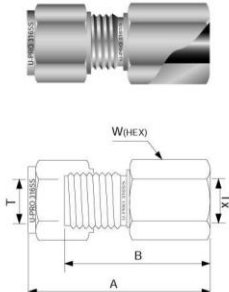
B1 : Brass

Dimensions for reference only,
Subject to change

TUBE TO TUBE

Socket weld pipe Connector

Tube to Socket weld pipe
(includes body, nut and
ferrules)

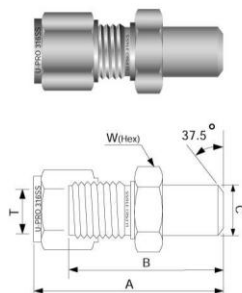


No.	Tube O.D.	Socket weld pipe O.D.	A		B		W(HEX)
	T	Tx	mm	in	mm	in	mm
SWC-S3-03M-20	3	1/8	28.5	1.12	22.1	0.87	14
SWC-B1-03M-20		1/8	28.5	1.12	22.1	0.87	14
SWC-S3-03M-40	3	1/4	33.5	1.32	26.9	1.06	19
SWC-B1-03M-40		1/4	33.5	1.32	26.9	1.06	19
SWC-S3-04M-20	4	1/8	29.7	1.17	23.1	0.91	14
SWC-B1-04M-20		1/8	29.7	1.17	23.1	0.91	14
SWC-S3-06M-20	6	1/8	31.2	1.23	23.9	0.94	14
SWC-B1-06M-20		1/8	31.2	1.23	23.9	0.94	14
SWC-S3-06M-40	6	1/4	35.7	1.41	28.4	1.12	19
SWC-B1-06M-40		1/4	35.7	1.41	28.4	1.12	19
SWC-S3-06M-60	6	3/8	37.5	1.48	30.2	1.19	22
SWC-B1-06M-60		3/8	37.5	1.48	30.2	1.19	22
SWC-S3-06M-80	6	1/2	42.1	1.66	35.1	1.38	27
SWC-B1-06M-80		1/2	42.1	1.66	35.1	1.38	27
SWC-S3-08M-20	8	1/8	32.2	1.27	24.6	0.97	16
SWC-B1-08M-20		1/8	32.2	1.27	24.6	0.97	16
SWC-S3-08M-40	8	1/4	37.0	1.46	29.5	1.16	19
SWC-B1-08M-40		1/4	37.0	1.46	29.5	1.16	19
SWC-S3-08M-60	8	3/8	38.5	1.52	31.0	1.22	22
SWC-B1-08M-60		3/8	38.5	1.52	31.0	1.22	22
SWC-S3-08M-80	8	1/2	43.3	1.70	35.9	1.41	27
SWC-B1-08M-80		1/2	43.3	1.70	35.9	1.41	27
SWC-S3-10M-40	10	1/4	37.8	1.49	30.2	1.19	19
SWC-B1-10M-40		1/4	37.8	1.49	30.2	1.19	19
SWC-S3-10M-60	10	3/8	39.5	1.56	31.9	1.26	22
SWC-B1-10M-60		3/8	39.5	1.56	31.9	1.26	22
SWC-S3-10M-80	10	1/2	44.2	1.74	36.6	1.44	27
SWC-B1-10M-80		1/2	44.2	1.74	36.6	1.44	27
SWC-S3-12M-40	12	1/4	40.3	1.59	30.2	1.19	21
SWC-B1-12M-40		1/4	40.3	1.59	30.2	1.19	21
SWC-S3-12M-60	12	3/8	41.9	1.65	31.9	1.26	21
SWC-B1-12M-60		3/8	41.9	1.65	31.9	1.26	21
SWC-S3-12M-80	12	1/2	46.7	1.84	36.6	1.44	27
SWC-B1-12M-80		1/2	46.7	1.84	36.6	1.44	27
SWC-S3-15M-80	15	1/2	46.7	1.84	36.6	1.44	27
SWC-B1-15M-80		1/2	46.7	1.84	36.6	1.44	27
SWC-S3-16M-80	16	1/2	46.9	1.85	36.6	1.44	27
SWC-B1-16M-80		1/2	46.9	1.85	36.6	1.44	27
SWC-S3-20M-80	20	1/2	47.9	1.89	37.8	1.49	30
SWC-B1-20M-80		1/2	47.9	1.89	37.8	1.49	30
SWC-S3-20M-120	20	3/4	49.7	1.96	39.6	1.56	35
SWC-B1-20M-120		3/4	49.7	1.96	39.6	1.56	35
SWC-S3-22M-120	22	3/4	49.7	1.96	39.6	1.56	35
SWC-B1-22M-120		3/4	49.7	1.96	39.6	1.56	35
SWC-S3-22M-160	22	1	57.9	2.28	47.8	1.88	40
SWC-B1-22M-160		1	57.9	2.28	47.8	1.88	40
SWC-S3-25M-120	25	3/4	53.5	2.11	41.1	1.62	35
SWC-B1-25M-120		3/4	53.5	2.11	41.1	1.62	35
SWC-S3-25M-160	25	1	63.0	2.48	50.0	1.97	40
SWC-B1-25M-160		1	63.0	2.48	50.0	1.97	40

TUBE TO WELD
SYSTEM

Butt-Weld Connector

Tube to Pipe Butt-Weld
(includes body, nut and
ferrules)



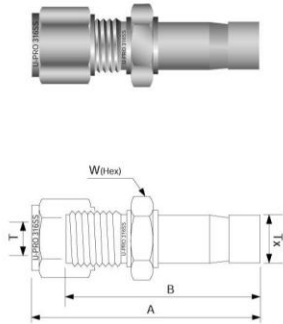
No.	Tube O.D.	Male Pipe Weld	A		B		C		W(HEX)
	T		mm	in	mm	in	mm	in	mm
BWC-S3-03M-20	3	1/8	30.5	1.20	23.9	0.94	10.3	0.41	12
BWC-B1-03M-20		1/8	30.5	1.20	23.9	0.94	10.3	0.41	12
BWC-S3-04M-20	4	1/8	31.2	1.23	24.6	0.97	10.3	0.41	12
BWC-B1-04M-20		1/8	31.2	1.23	24.6	0.97	10.3	0.41	12
BWC-S3-06M-20	6	1/8	32.8	1.29	25.4	1.00	10.3	0.41	14
BWC-B1-06M-20		1/8	32.8	1.29	25.4	1.00	10.3	0.41	14
BWC-S3-06M-40	6	1/4	37.9	1.49	30.5	1.20	13.7	0.54	14
BWC-B1-06M-40		1/4	37.9	1.49	30.5	1.20	13.7	0.54	14
BWC-S3-08M-20	8	1/8	34.2	1.35	26.7	1.05	10.3	0.41	16
BWC-B1-08M-20		1/8	34.2	1.35	26.7	1.05	10.3	0.41	16
BWC-S3-08M-40	8	1/4	38.7	1.52	31.2	1.23	13.7	0.54	16
BWC-B1-08M-40		1/4	38.7	1.52	31.2	1.23	13.7	0.54	16
BWC-S3-08M-80	8	1/2	45.6	1.80	38.1	1.50	21.3	0.84	21
BWC-B1-08M-80		1/2	45.6	1.80	38.1	1.50	21.3	0.84	21
BWC-S3-10M-40	10	1/4	40.9	1.61	33.3	1.31	13.7	0.54	17
BWC-B1-10M-40		1/4	40.9	1.61	33.3	1.31	13.7	0.54	17
BWC-S3-10M-60	10	3/8	40.9	1.61	33.3	1.31	17.1	0.67	17
BWC-B1-10M-60		3/8	40.9	1.61	33.3	1.31	17.1	0.67	17
BWC-S3-10M-80	10	1/2	46.5	1.83	38.9	1.53	21.3	0.84	21
BWC-B1-10M-80		1/2	46.5	1.83	38.9	1.53	21.3	0.84	21
BWC-S3-12M-40	12	1/4	43.4	1.71	33.3	1.31	13.7	0.54	21
BWC-B1-12M-40		1/4	43.4	1.71	33.3	1.31	13.7	0.54	21
BWC-S3-12M-60	12	3/8	43.4	1.71	33.3	1.31	17.1	0.67	21
BWC-B1-12M-60		3/8	43.4	1.71	33.3	1.31	17.1	0.67	21
BWC-S3-12M-80	12	1/2	49.0	1.93	38.9	1.53	21.3	0.84	21
BWC-B1-12M-80		1/2	49.0	1.93	38.9	1.53	21.3	0.84	21
BWC-S3-14M-60	14	3/8	44.1	1.74	34.0	1.34	17.1	0.67	24
BWC-B1-14M-60		3/8	44.1	1.74	34.0	1.34	17.1	0.67	24
BWC-S3-15M-80	15	1/2	49.0	1.93	38.9	1.53	21.3	0.84	24
BWC-B1-15M-80		1/2	49.0	1.93	38.9	1.53	21.3	0.84	24
BWC-S3-16M-80	16	1/2	49.0	1.93	38.9	1.53	21.3	0.84	24
BWC-B1-16M-80		1/2	49.0	1.93	38.9	1.53	21.3	0.84	24
BWC-S3-18M-80	18	1/2	50.5	1.99	40.4	1.59	21.3	0.84	27
BWC-B1-18M-80		1/2	50.5	1.99	40.4	1.59	21.3	0.84	27

S3 : Stainless Steel
B1 : Brass

Dimensions for reference only,
Subject to change

Reducer

Tube to Port
(includes body, nut and
ferrules)



No.	Tube O.D.		A		B		W(Hex)
	T	Tx	mm	in	mm	in	mm
RD-S3-02M-03M	2	3	33.5	1.32	26.9	1.06	12
RD-B1-02M-03M							
RD-S3-03M-04M	3	4	35.0	1.38	28.4	1.12	12
RD-B1-03M-04M							
RD-S3-03M-06M	3	6	36.1	1.42	29.5	1.16	12
RD-B1-03M-06M							
RD-S3-03M-10M	3	10	38.4	1.51	31.8	1.25	14
RD-B1-03M-10M							
RD-S3-04M-06M	4	6	37.1	1.46	30.5	1.20	14
RD-B1-04M-06M							
RD-S3-06M-03M	6	3	36.9	1.45	29.5	1.16	14
RD-B1-06M-03M							
RD-S3-06M-08M	6	8	39.9	1.57	32.5	1.28	14
RD-B1-06M-08M							
RD-S3-06M-10M	6	10	40.7	1.60	33.3	1.31	14
RD-B1-06M-10M							
RD-S3-06M-12M	6	12	46.2	1.82	38.9	1.53	14
RD-B1-06M-12M							
RD-S3-06M-18M	6	18	49.5	1.95	42.2	1.66	22
RD-B1-06M-18M							
RD-S3-08M-06M	8	6	40.3	1.59	32.8	1.29	14
RD-B1-08M-06M							
RD-S3-08M-10M	8	10	42.0	1.65	34.5	1.36	14
RD-B1-08M-10M							
RD-S3-08M-12M	8	12	47.6	1.87	40.1	1.58	14
RD-B1-08M-12M							
RD-S3-10M-06M	10	6	42.4	1.67	34.8	1.37	17
RD-B1-10M-06M							
RD-S3-10M-08M	10	8	43.5	1.71	35.8	1.41	17
RD-B1-10M-08M							
RD-S3-10M-12M	10	12	49.9	1.96	42.2	1.66	17
RD-B1-10M-12M							
RD-S3-10M-15M	10	15	51.2	2.02	43.7	1.72	17
RD-B1-10M-15M							
RD-S3-10M-18M	10	18	51.2	2.02	43.7	1.72	21
RD-B1-10M-18M							
RD-S3-12M-06M	12	6	44.9	1.77	34.8	1.37	21
RD-B1-12M-06M							
RD-S3-12M-08M	12	8	45.9	1.81	35.8	1.41	21
RD-B1-12M-08M							
RD-S3-12M-10M	12	10	46.7	1.84	36.6	1.44	21
RD-B1-12M-10M							
RD-S3-12M-16M	12	16	53.9	2.12	43.7	1.72	21
RD-B1-12M-16M							
RD-S3-12M-18M	12	18	53.9	2.12	43.7	1.72	21
RD-B1-12M-18M							
RD-S3-12M-20M	12	20	56.1	2.21	46.0	1.81	21
RD-B1-12M-20M							
RD-S3-12M-22M	12	22	56.1	2.21	46.0	1.81	24
RD-B1-12M-22M							
RD-S3-12M-25M	12	25	62.4	2.46	52.3	2.06	27
RD-B1-12M-25M							
RD-S3-16M-12M	16	12	53.0	2.09	42.9	1.69	24
RD-B1-16M-12M							
RD-S3-18M-12M	18	12	54.6	2.15	44.5	1.75	27
RD-B1-18M-12M							
RD-S3-18M-16M	18	16	56.4	2.22	46.0	1.81	27
RD-B1-18M-16M							
RD-S3-18M-20M	18	20	57.6	2.27	47.5	1.87	27
RD-B1-18M-20M							
RD-S3-18M-22M	18	22	57.6	2.27	47.5	1.87	27
RD-B1-18M-22M							
RD-S3-18M-25M	18	25	62.4	2.46	52.3	2.06	27
RD-B1-18M-25M							
RD-S3-20M-16M	20	16	57.9	2.28	47.8	1.88	30
RD-B1-20M-16M							
RD-S3-20M-18M	20	18	57.9	2.28	47.8	1.88	30
RD-B1-20M-18M							
RD-S3-20M-22M	20	22	59.4	2.34	49.3	1.94	30
RD-B1-20M-22M							
RD-S3-20M-25M	20	25	64.2	2.53	54.1	2.13	30
RD-B1-20M-25M							
RD-S3-22M-18M	22	18	57.9	2.28	47.8	1.88	30
RD-B1-22M-18M							
RD-S3-22M-20M	22	20	59.4	2.34	49.3	1.94	30
RD-B1-22M-20M							
RD-S3-22M-25M	22	25	64.2	2.53	54.1	2.13	30
RD-B1-22M-25M							
RD-S3-25M-18M	25	18	63.1	2.48	50.8	2.00	35
RD-B1-25M-18M							
RD-S3-25M-20M	25	20	64.6	2.54	52.3	2.06	35
RD-B1-25M-20M							

S3 : Stainless Steel

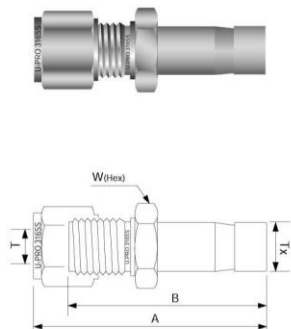
B1 : Brass

Dimensions for reference only,
Subject to change

PORT
CONNECTORS

Reducer

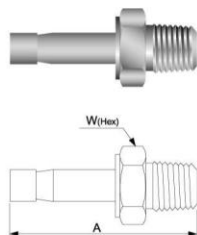
Metric Tube to Imperial Port
(includes body, nut and ferrules)



No.	Tube O.D.		A		B		W(Hex)
	T(mm)	Tx(in)	mm	in	mm	in	mm
RD-S3-02M-20	2	1/8	33.5	1.32	26.9	1.06	12
RD-B1-02M-20	2	1/8	33.5	1.32	26.9	1.06	12
RD-S3-03M-20	3	1/8	33.5	1.32	26.9	1.06	12
RD-B1-03M-20	3	1/8	33.5	1.32	26.9	1.06	12
RD-S3-03M-40	3	1/4	36.1	1.42	29.5	1.16	12
RD-B1-03M-40	3	1/4	36.1	1.42	29.5	1.16	12
RD-S3-04M-40	4	1/4	37.1	1.46	30.5	1.20	12
RD-B1-04M-40	4	1/4	37.1	1.46	30.5	1.20	12
RD-S3-06M-20	6	1/8	36.9	1.45	29.5	1.16	14
RD-B1-06M-20	6	1/8	36.9	1.45	29.5	1.16	14
RD-S3-06M-40	6	1/4	39.2	1.54	31.8	1.25	14
RD-B1-06M-40	6	1/4	39.2	1.54	31.8	1.25	14
RD-S3-06M-50	6	5/16	39.9	1.57	32.5	1.28	14
RD-B1-06M-50	6	5/16	39.9	1.57	32.5	1.28	14
RD-S3-06M-60	6	3/8	40.7	1.60	33.3	1.31	14
RD-B1-06M-60	6	3/8	40.7	1.60	33.3	1.31	14
RD-S3-06M-80	6	1/2	46.3	1.82	38.9	1.53	14
RD-B1-06M-80	6	1/2	46.3	1.82	38.9	1.53	14
RD-S3-08M-60	8	3/8	42.0	1.65	34.5	1.36	16
RD-B1-08M-60	8	3/8	42.0	1.65	34.5	1.36	16
RD-S3-08M-80	8	1/2	47.6	1.87	40.1	1.58	16
RD-B1-08M-80	8	1/2	47.6	1.87	40.1	1.58	16
RD-S3-10M-60	10	3/8	44.2	1.74	36.6	1.44	17
RD-B1-10M-60	10	3/8	44.2	1.74	36.6	1.44	17
RD-S3-10M-80	10	1/2	49.8	1.96	42.2	1.66	17
RD-B1-10M-80	10	1/2	49.8	1.96	42.2	1.66	17
RD-S3-12M-80	12	1/2	52.3	2.06	42.2	1.66	21
RD-B1-12M-80	12	1/2	52.3	2.06	42.2	1.66	21
RD-S3-12M-120	12	3/4	53.8	2.12	43.7	1.72	22
RD-B1-12M-120	12	3/4	53.8	2.12	43.7	1.72	22
RD-S3-18M-120	18	3/4	56.1	2.21	46.0	1.81	27
RD-B1-18M-120	18	3/4	56.1	2.21	46.0	1.81	27
RD-S3-18M-160	18	1	62.4	2.46	52.3	2.06	27
RD-B1-18M-160	18	1	62.4	2.46	52.3	2.06	27
RD-S3-25M-160	25	1	69.5	2.74	57.2	2.25	35
RD-B1-25M-160	25	1	69.5	2.74	57.2	2.25	35

Male Adapter

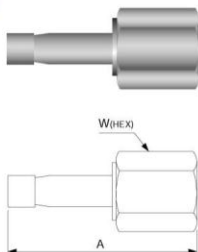
Port to Male NPT (P.T.)



No.	Tube O.D.	Pipe Thread	A		W(Hex)
			mm	in	mm
MA-S3-06M-20	6	1/8	32.8	1.29	12
MA-B1-06M-20	6	1/8	32.8	1.29	12
MA-S3-06M-40	6	1/4	38.1	1.50	14
MA-B1-06M-40	6	1/4	38.1	1.50	14
MA-S3-08M-40	8	1/4	39.1	1.54	14
MA-B1-08M-40	8	1/4	39.1	1.54	14
MA-S3-10M-40	10	1/4	39.9	1.57	14
MA-B1-10M-40	10	1/4	39.9	1.57	14
MA-S3-10M-60	10	3/8	40.5	1.59	17
MA-B1-10M-60	10	3/8	40.5	1.59	17
MA-S3-10M-80	10	1/2	46.2	1.82	21
MA-B1-10M-80	10	1/2	46.2	1.82	21
MA-S3-12M-40	12	1/4	46.5	1.83	21
MA-B1-12M-40	12	1/4	46.5	1.83	21
MA-S3-12M-80	12	1/2	52.0	2.05	21
MA-B1-12M-80	12	1/2	52.0	2.05	21
MA-S3-28M-160	28	1	74.7	2.94	35
MA-B1-28M-160	28	1	74.7	2.94	35

Female Adapter

Port to Female NPT



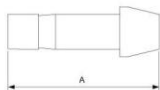
No.	Tube O.D.	Pipe Thread	A		W(Hex)
			mm	in	mm
FA-S3-06M-20	6	1/8	32.5	1.28	14
FA-B1-06M-20	6	1/8	32.5	1.28	14
FA-S3-06M-40	6	1/4	37.1	1.46	19
FA-B1-06M-40	6	1/4	37.1	1.46	19
FA-S3-08M-40	8	1/4	37.6	1.48	19
FA-B1-08M-40	8	1/4	37.6	1.48	19
FA-S3-10M-40	10	1/4	38.1	1.50	19
FA-B1-10M-40	10	1/4	38.1	1.50	19
FA-S3-10M-60	10	3/8	40.1	1.58	22
FA-B1-10M-60	10	3/8	40.1	1.58	22
FA-S3-10M-80	10	1/2	46.5	1.83	27
FA-B1-10M-80	10	1/2	46.5	1.83	27
FA-S3-12M-40	12	1/4	43.7	1.72	19
FA-B1-12M-40	12	1/4	43.7	1.72	19
FA-S3-12M-80	12	1/2	52.3	2.06	27
FA-B1-12M-80	12	1/2	52.3	2.06	27

S3 : Stainless Steel
B1 : Brass

Dimensions for reference only,
Subject to change

Port Connector

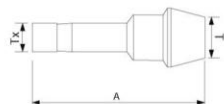
Tube to Port



No.	Tube O.D.	A	
		mm	in
PC-S3-03M-03M	3	22.2	0.87
PC-B1-03M-03M			
PC-S3-06M-06M	6	24.6	0.97
PC-B1-06M-06M			
PC-S3-08M-08M	8	25.9	1.02
PC-B1-08M-08M			
PC-S3-10M-10M	10	26.1	1.03
PC-B1-10M-10M			
PC-S3-12M-12M	12	35.8	1.41
PC-B1-12M-12M			
PC-S3-15M-15M	15	37.4	1.47
PC-B1-15M-15M			
PC-S3-16M-16M	16	37.4	1.47
PC-B1-16M-16M			
PC-S3-18M-18M	18	37.4	1.47
PC-B1-18M-18M			
PC-S3-20M-20M	20	38.9	1.53
PC-B1-20M-20M			
PC-S3-25M-25M	25	48.0	1.89
PC-B1-25M-25M			

Reducing Port Connector

Tube to Port

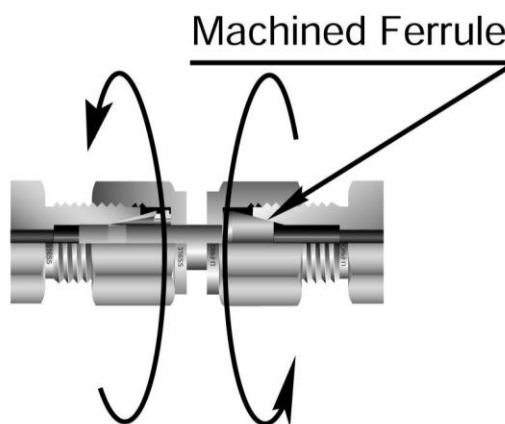


No.	Tube O.D.	Reduced Tube O.D.	A	
			mm	in
RPC-S3-06M-03M	6	3	22.6	0.89
RPC-B1-06M-03M				
RPC-S3-08M-06M	8	6	24.7	0.97
RPC-B1-08M-06M				
RPC-S3-10M-06M	10	6	25.0	0.98
RPC-B1-10M-06M				
RPC-S3-10M-08M	10	8	26.0	1.02
RPC-B1-10M-08M				
RPC-S3-12M-06M	12	6	29.1	1.15
RPC-B1-12M-06M				
RPC-S3-12M-08M	12	8	29.8	1.17
RPC-B1-12M-08M				
RPC-S3-12M-10M	12	10	30.4	1.20
RPC-B1-12M-10M				
RPC-S3-16M-12M	16	12	36.2	1.43
RPC-B1-16M-12M				

Port Assemble Instructions

For Closed-Connect
two Ports

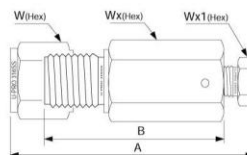
Tighten nut finger tight. Then
tighten nut with wrench an
additional 1/4 turns indicated
below



VENT PLUG END

Vent Plug End Tube

Tube to Vent Plug
(includes body, nut ferrules
and vent plug)



No.	Pipe Thread	A		B		W(Hex)	Wx(Hex)	Wx1(Hex)
		mm	in	mm	in	mm	mm	mm
VP-S3-06M	6	57.4	2.26	40.1	1.58	17	14	17
VP-B1-06M								
VP-S3-08M	8	57.9	2.28	40.4	1.59	17	14	17
VP-B1-08M								
VP-S3-10M	10	69.6	2.74	51.6	2.03	19	14	19
VP-B1-10M								
VP-S3-12M	12	72.9	2.87	52.3	2.06	21	14	21
VP-B1-12M								

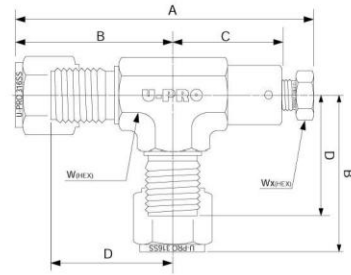
S3 : Stainless Steel

B1 : Brass

Dimensions for reference only.
Subject to change

Vent Plug Run Tee

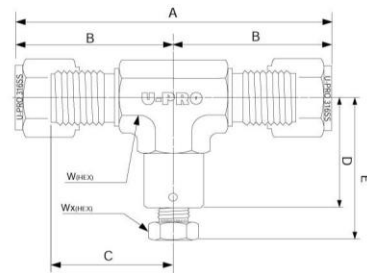
Tube to Vent Plug
(includes body, nuts and ferrules and vent plug)



No.	Tube O.D.	A		B		C		D		W(HeX)	Wx(HeX)
		mm	in	mm	in	mm	in	mm	in	in	mm
VRT-S3-10M	10	71.6	2.82	30.7	1.21	22.4	0.88	23.9	0.94	13/8	14
VRT-B1-10M											
VRT-S3-12M	12	81.0	3.19	39.6	1.56	28.7	1.13	29.7	1.17	13/16	14
VRT-B1-12M											

Vent Plug Branch Tee

Tube to Vent Plug
(includes body, nuts and ferrules and vent plug)

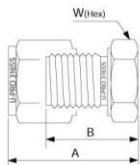
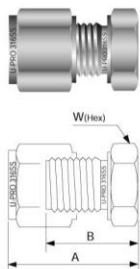


No.	Tube O.D.	A		B		C		D		E		W(HeX)	Wx(HeX)
		mm	in	mm	in	mm	in	mm	in	mm	in	in	mm
VBT-S3-10M	10	66.5	2.62	33.3	1.31	25.9	1.02	22.4	0.88	32.5	1.28	13/16	14
VBT-B1-10M													
VBT-S3-12M	12	77.7	3.06	38.9	1.53	28.7	1.13	28.4	1.12	41.1	1.62	13/16	14
VBT-B1-12M													

COMPONENTS

Tube Cap

(includes nut and ferrules)



No.	Tube O.D.	A		B		W(HeX)
		mm	in	mm	in	
TC-S3-02M	2	20.1	0.79	13.5	0.53	12
TC-B1-02M						
TC-S3-03M	3	20.1	0.79	13.5	0.53	12
TC-B1-03M						
TC-S3-04M	4	21.3	0.84	14.7	0.58	12
TC-B1-04M						
TC-S3-06M	6	23.1	0.91	15.7	0.62	14
TC-B1-06M						
TC-S3-08M	8	24.5	0.96	17.0	0.67	16
TC-B1-08M						
TC-S3-10M	10	26.6	1.05	19.0	0.75	17
TC-B1-10M						
TC-S3-12M	12	29.1	1.15	19.0	0.75	21
TC-B1-12M						
TC-S3-14M	14	29.9	1.18	19.8	0.78	24
TC-B1-14M						
TC-S3-15M	15	29.9	1.18	19.8	0.78	24
TC-B1-15M						
TC-S3-16M	16	29.9	1.18	19.8	0.78	24
TC-B1-16M						
TC-S3-18M	18	31.4	1.24	21.3	0.84	27
TC-B1-18M						
TC-S3-20M	20	34.0	1.34	23.9	0.94	30
TC-B1-20M						
TC-S3-22M	22	34.0	1.34	23.9	0.94	30
TC-B1-22M						
TC-S3-25M	25	38.5	1.52	26.2	1.03	35
TC-B1-25M						

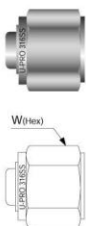
Schedule

No.	Pipe SCH.	A		B		W(HeX)
		mm	in	mm	in	
TC-S3-10.5	1/8B	28.2	1.11	19.1	0.75	17
TC-B1-10.5						
TC-S3-13.8	1/4B	30.0	1.18	20.1	0.79	23
TC-B1-13.8						
TC-S3-17.3	3/8B	34.0	1.34	23.1	0.91	27
TC-B1-17.3						
TC-S3-21.7	1/2B	35.3	1.39	24.1	0.95	30
TC-B1-21.7						

S3 : Stainless Steel
B1 : Brass
Dimensions for reference only,
Subject to change

Plugs unused port of Fittings

Tube Plug



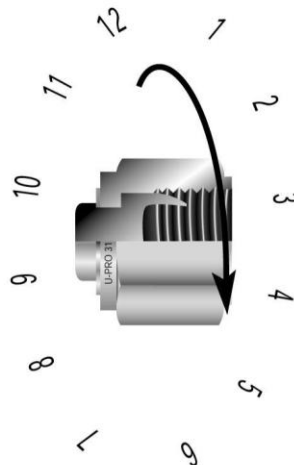
No.	Tube O.D.	W(Hex) mm
TP-S3-02M	2	12
TP-B1-02M		
TP-S3-03M	3	12
TP-B1-03M		
TP-S3-04M	4	12
TP-B1-04M		
TP-S3-06M	6	14
TP-B1-06M		
TP-S3-08M	8	16
TP-B1-08M		
TP-S3-10M	10	19
TP-B1-10M		
TP-S3-12M	12	22
TP-B1-12M		
TP-S3-14M	14	25
TP-B1-14M		
TP-S3-15M	15	25
TP-B1-15M		
TP-S3-16M	16	25
TP-B1-16M		
TP-S3-18M	18	30
TP-B1-18M		
TP-S3-20M	20	32
TP-B1-20M		
TP-S3-22M	22	32
TP-B1-22M		
TP-S3-25M	25	38
TP-B1-25M		

Schedule

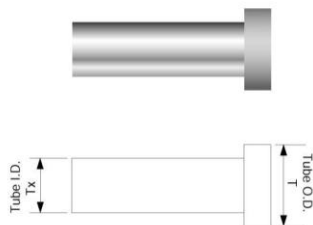
No.	Pipe SCH.	W(Hex) mm
TP-S3-10.5	1/8B	19
TP-B1-10.5		
TP-S3-13.8	1/4B	26
TP-B1-13.8		
TP-S3-17.3	3/8B	30
TP-B1-17.3		
TP-S3-21.7	1/2B	35
TP-B1-21.7		

HOW TO ASSEMBLE

Wrench tighten only 1/4 turn from
finger tight position

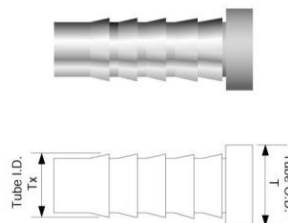


INSERT



No.	Tube O.D.	Tube I.D.
INSERT-S3-06M-04M	6	4
INSERT-B1-06M-04M		
INSERT-S3-08M-06M	8	6
INSERT-B1-08M-06M		
INSERT-S3-10M-08M	10	8
INSERT-B1-10M-08M		
INSERT-S3-12M-08M	12	8
INSERT-B1-12M-08M		
INSERT-S3-12M-10M	12	10
INSERT-B1-12M-10M		

BARB INSERT

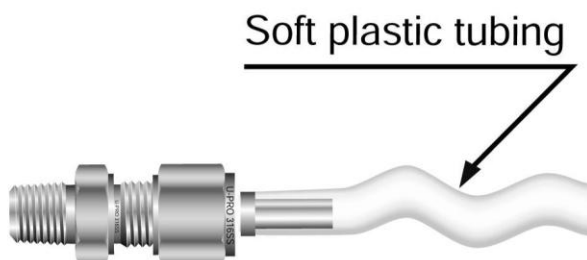


No.	Tube O.D.	Tube I.D.
BINS-S3-06M-04M	6	4
BINS-B1-06M-04M		
BINS-S3-08M-06M	8	6
BINS-B1-08M-06M		
BINS-S3-10M-08M	10	8
BINS-B1-10M-08M		
BINS-S3-12M-08M	12	8
BINS-B1-12M-08M		
BINS-S3-12M-10M	12	10
BINS-B1-12M-10M		

U-PRO tube fittings may be used with various types of plastic tube material without any special preparation. Use tube inserts to support soft types of tubing, such as plasticized PVC or TYGON tubing, prior to insertion into a **U-PRO** end. In table, T is soft plastic tubing outside diameter. Tx is soft plastic tubing inside diameter.

Usage Instructions

1. Fully insert Tube Insert into plastic tubing, where appropriate.
2. If using standard nut, follow standard **U-PRO** Tube fittings assembly instructions, (hand-tighten, then tighten 1/4 turns with wrench.)



S3 : Stainless Steel
B1 : Brass

Dimensions for reference only.
Subject to change

Tube Nut



No.	Tube O.D.	A		W(Hex) mm
		mm	in	
TN-S3-02M	2	11.9	0.47	12
TN-B1-02M				
TN-S3-03M				
TN-B1-03M	3	11.9	0.47	12
TN-S3-04M				
TN-B1-04M				
TN-S3-06M	6	12.7	0.50	14
TN-B1-06M				
TN-S3-08M				
TN-B1-08M	8	13.5	0.53	16
TN-S3-10M				
TN-B1-10M				
TN-S3-12M	10	15.1	0.59	19
TN-B1-12M				
TN-S3-14M				
TN-B1-14M	14	17.4	0.69	25
TN-S3-15M				
TN-B1-15M				
TN-S3-16M	16	17.4	0.69	25
TN-B1-16M				
TN-S3-18M				
TN-B1-18M	18	17.4	0.69	30
TN-S3-20M				
TN-B1-20M				
TN-S3-22M	22	17.4	0.69	32
TN-B1-22M				
TN-S3-25M				
TN-B1-25M	25	20.6	0.81	38

Schedule

No.	Pipe SCH.	A		W(Hex) mm
		mm	in	
TN-S3-10.5	1/8B	16.0	0.63	19
TN-B1-10.5				
TN-S3-13.8	1/4B	17.5	0.69	26
TN-B1-13.8				
TN-S3-17.3	3/8B	19.0	0.75	30
TN-B1-17.3				
TN-S3-21.7	1/2B	19.0	0.75	35
TN-B1-21.7				

Front Ferrule



No.	Tube O.D.
FFE-S3-02M	2
FFE-B1-02M	
FFE-S3-03M	3
FFE-B1-03M	
FFE-S3-04M	4
FFE-B1-04M	
FFE-S3-06M	6
FFE-B1-06M	
FFE-S3-08M	8
FFE-B1-08M	
FFE-S3-10M	10
FFE-B1-10M	
FFE-S3-12M	12
FFE-B1-12M	
FFE-S3-14M	14
FFE-B1-14M	
FFE-S3-15M	15
FFE-B1-15M	
FFE-S3-16M	16
FFE-B1-16M	
FFE-S3-18M	18
FFE-B1-18M	
FFE-S3-20M	20
FFE-B1-20M	
FFE-S3-22M	22
FFE-B1-22M	
FFE-S3-25M	25
FFE-B1-25M	

Schedule

No.	Pipe SCH.
FFE-S3-10.5	1/8B
FFE-B1-10.5	
FFE-S3-13.8	1/4B
FFE-B1-13.8	
FFE-S3-17.3	3/8B
FFE-B1-17.3	
FFE-S3-21.7	1/2B
FFE-B1-21.7	

Bulkhead Locknut



No.	Tube O.D.	W(Hex) mm
BLN-S3-03M	3	14
BLN-B1-03M		
BLN-S3-04M	4	14
BLN-B1-04M		
BLN-S3-06M	6	16
BLN-B1-06M		
BLN-S3-08M	8	17
BLN-B1-08M		
BLN-S3-10M	10	21
BLN-B1-10M		
BLN-S3-12M	12	24
BLN-B1-12M		
BLN-S3-15M	15	27
BLN-B1-15M		
BLN-S3-16M	16	27
BLN-B1-16M		
BLN-S3-18M	18	30
BLN-B1-18M		
BLN-S3-20M	20	35
BLN-B1-20M		
BLN-S3-25M	25	40
BLN-B1-25M		

Back Ferrule



No.	Tube O.D.
BFE-S3-02M	2
BFE-B1-02M	
BFE-S3-03M	3
BFE-B1-03M	
BFE-S3-04M	4
BFE-B1-04M	
BFE-S3-06M	6
BFE-B1-06M	
BFE-S3-08M	8
BFE-B1-08M	
BFE-S3-10M	10
BFE-B1-10M	
BFE-S3-12M	12
BFE-B1-12M	
BFE-S3-14M	14
BFE-B1-14M	
BFE-S3-15M	15
BFE-B1-15M	
BFE-S3-16M	16
BFE-B1-16M	
BFE-S3-18M	18
BFE-B1-18M	
BFE-S3-20M	20
BFE-B1-20M	
BFE-S3-22M	22
BFE-B1-22M	
BFE-S3-25M	25
BFE-B1-25M	

Schedule

No.	Pipe SCH.
BFE-S3-10.5	1/8B
BFE-B1-10.5	
BFE-S3-13.8	1/4B
BFE-B1-13.8	
BFE-S3-17.3	3/8B
BFE-B1-17.3	
BFE-S3-21.7	1/2B
BFE-B1-21.7	



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