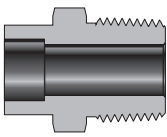




Instrumentation Weld Fittings

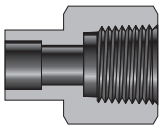
IWF Series

Tube Socket Weld Fittings



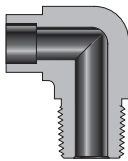
Male
Connectors

2-35



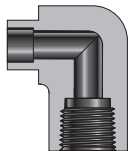
Female
Connectors

2-36



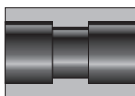
Male Elbows

2-36



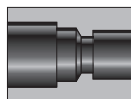
Female Elbows

2-36



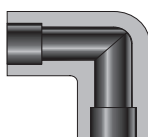
Unions

2-37



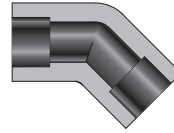
Reducing
Unions

2-37



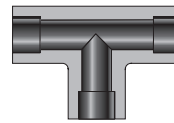
Union Elbows

2-38



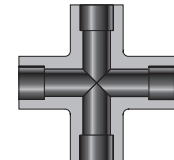
Union 45°
Elbows

2-38



Union Tees

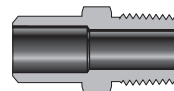
2-39



Union Crosses

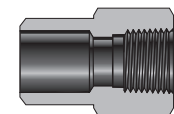
2-39

Tube Butt Weld Fittings



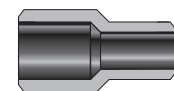
Male
Connectors

2-40



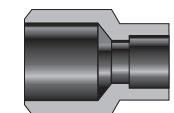
Female
Connectors

2-41



Reducing
Unions

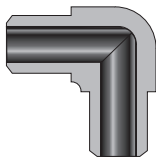
2-41



Tube Butt Weld
to Tube Socket
Weld

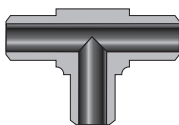
2-41

Contents



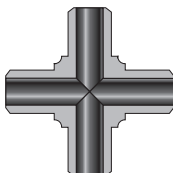
Union Elbows

2-42



Union Tees

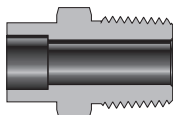
2-42



Union Crosses

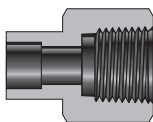
2-43

Pipe Socket Weld Fittings



Male
Connectors

2-44



Female
Connectors

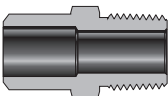
2-44



Unions

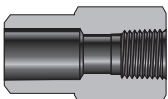
2-44

Pipe Butt Weld Fittings



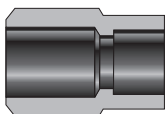
Male
Connectors

2-45



Female
Connectors

2-45



Pipe Butt Weld
to Tube Socket
Weld

2-45

Features

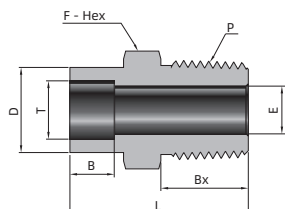
- ❖ Available in sizes from 1/8 to 2 in. and 6 mm to 38 mm
- ❖ CIR-LOK weld fittings materials include 316 316L stainless steel
- ❖ Quality machining of all ports ensures consistent welding
- ❖ For critical applications and high temperatures

Materials Standards

Material	Bar Stock	Forgings
316, 316L stainless steel	ASTM A276 ASME SA479, EN 1.4401	ASTM A182 ASME SA182, EN 1.4401

Tube Socket Weld Fittings

Male Connectors



Fractional Tube

NPT Thread

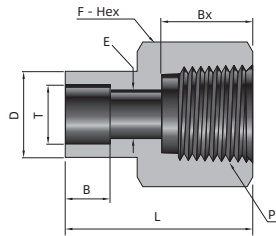
T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/4	1/4	FSW4-WMC-NPT4-	29.2	12.2	7.1	14.2	14.3	4.8	8000 (551)
3/8	1/4	FSW6-WMC-NPT4-	31.8	15.2	7.9	14.2	15.9	7.1	8000 (551)
3/8	3/8	FSW6-WMC-NPT6-	31.8	15.2	7.9	14.2	17.5	7.1	7800 (537)
3/8	1/2	FSW6-WMC-NPT8-	37.3	15.2	7.9	19.1	22.2	7.1	7700 (530)
1/2	1/4	FSW8-WMC-NPT4-	33.3	18.5	9.7	14.2	19.1	7.1	6600 (454)
1/2	3/8	FSW8-WMC-NPT6-	33.3	18.5	9.7	14.2	19.1	9.6	6600 (454)
1/2	1/2	FSW8-WMC-NPT8-	38.9	18.5	9.7	19.1	22.2	10.4	6600 (454)
3/4	3/4	FSW12-WMC-NPT12-	45.1	26.4	11.2	19.1	27.0	15.7	5900 (406)
1	1	FSW16-WMC-NPT16-	53.6	34.5	15.7	23.9	34.9	22.4	5300 (365)

Metric Tube

NPT Thread

T-Tube Size (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
6	1/4	MSW6-WMC-NPT4-	29.2	12.0	7.1	14.2	14	4.8	8000 (551)
12	1/2	MSW12-WMC-NPT8-	38.9	17.6	9.7	19.1	22	9.5	6820 (470)
14	1/4	MSW14-WMC-NPT4-	33.3	21.3	10.4	14.2	15	7.1	6930 (478)
14	3/8	MSW14-WMC-NPT6-	35.0	21.6	10.4	14.2	18	9.6	6930 (478)
14	1/2	MSW14-WMC-NPT8-	40.0	21.3	10.4	19.1	22	10.4	6930 (478)
16	1/4	MSW16-WMC-NPT4-	35.0	23.3	10.4	14.2	18	7.1	6190 (426)
16	1/2	MSW16-WMC-NPT8-	40.0	23.3	10.4	19.1	22	11.9	6190 (426)
18	1/4	MSW18-WMC-NPT4-	40.4	26.0	11.2	14.2	19	7.1	6050 (417)
28	3/4	MSW28-WMC-NPT12-	55.5	40.5	18.4	19.1	30	15.7	5040 (348)
38	1 1/4	MSW38-WMC-NPT20-	68.3	52.5	26.9	23.9	46	28.6	5000 (344)

Female Connectors



Fractional Tube

NPT Thread

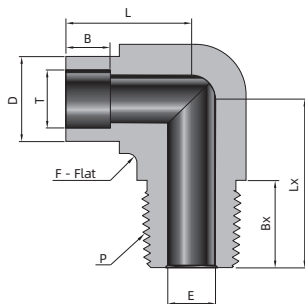
T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/8	1/8	FSW2-WFC-FNPT2-	21.1	7.4	2.5	10.4	14.3	2.3	6500 (447)
1/4	1/8	FSW4-WFC-FNPT2-	26.7	12.2	7.1	10.4	14.3	4.8	6500 (447)
1/4	1/4	FSW4-WFC-FNPT4-	30.0	12.2	7.1	15.0	19.1	4.8	6600 (454)
3/8	1/4	FSW6-WFC-FNPT4-	31.5	15.2	7.9	15.0	19.1	7.1	6600 (454)
1/2	3/8	FSW8-WFC-FNPT6-	34.5	18.5	9.7	15.0	22.2	10.4	5300 (365)
1/2	1/2	FSW8-WFC-FNPT8-	40.4	18.5	9.7	19.8	27.0	10.4	4900 (337)
3/4	3/4	FSW12-WFC-FNPT12-	43.9	26.4	11.2	20.6	33.3	16.0	4600 (316)
1	1	FSW16-WFC-FNPT16-	54.1	34.5	15.7	25.4	41.3	22.4	4400 (303)

Metric Tube

NPT Thread

T-Tube Size (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
8	1/4	MSW8-WFC-FNPT4-	27.0	13.7	7.5	15.0	19	4.8	6600 (454)
10	1/4	MSW10-WFC-FNPT4-	29.0	19.5	9.5	15.0	19	7.1	6600 (454)
14	1/4	MSW14-WFC-FNPT4-	32.0	22.1	10.4	15.0	22	9.5	6930 (478)
28	3/4	MSW28-WFC-FNPT12-	54.1	40.5	18.4	20.6	35	19.8	4600 (316)

Male Elbows

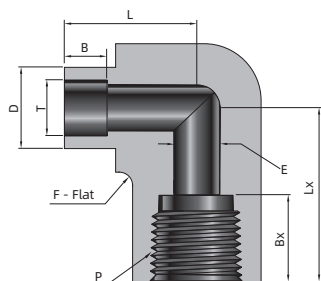


Fractional Tube

NPT Thread

T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm							Working Pressure psig (bar)
			L	Lx	D	B	Bx	F	E	
1/4	1/4	FSW4-WME-NPT4-	20.1	26.7	14.7	7.1	14.2	12.7	4.8	8000 (551)
3/8	1/4	FSW6-WME-NPT4-	26.4	26.7	14.7	7.9	14.2	12.7	7.1	8000 (551)
3/8	3/8	FSW6-WME-NPT6-	24.6	29.7	20.2	7.9	14.2	17.5	7.1	7800 (537)
3/8	1/2	FSW6-WME-NPT8-	25.9	36.8	23.8	7.9	19.1	20.6	7.1	7700 (530)
1/2	1/2	FSW8-WME-NPT8-	27.4	36.8	23.8	9.7	19.1	20.6	10.4	6600 (454)
3/4	3/4	FSW12-WME-NPT12-	38.9	39.6	26.4	11.2	19.1	27.0	15.7	5900 (406)

Female Elbows

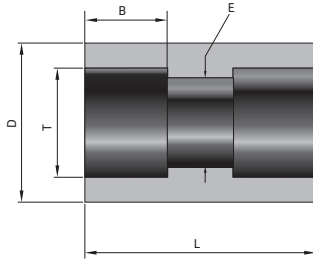


Fractional Tube

NPT Thread

T-Tube Size (In.)	P-NPT Size	Basic Ordering Number	Dimension, mm							Working Pressure psig (bar)
			L	Lx	D	B	Bx	F	E	
1/4	1/4	FSW4-WFE-FNPT4-	22.9	29.7	20.2	7.1	15.0	17.5	4.8	7400 (509)
3/8	1/4	FSW6-WFE-FNPT4-	25.1	29.7	20.2	7.9	15.0	17.5	7.1	7400 (509)
3/8	1/2	FSW6-WFE-FNPT8-	28.7	39.6	29.3	7.9	19.8	25.4	7.1	5700 (392)
1/2	1/2	FSW8-WFE-FNPT8-	30.2	39.6	29.3	9.7	19.8	25.4	10.4	5700 (392)

Unions



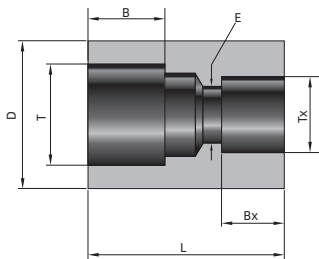
Fractional Tube

T-Tube Size (in.)	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)
		L	D	B	E	
1/4	FSW4-WU-FSW4-	19.1	12.2	7.1	4.8	10700 (737)
3/8	FSW6-WU-FSW6-	22.4	15.2	7.9	7.1	8100 (558)
1/2	FSW8-WU-FSW8-	26.9	18.5	9.7	10.4	6600 (454)
5/8	FSW10-WU-FSW10-	30.2	23.4	10.4	12.7	6200 (427)
3/4	FSW12-WU-FSW12-	33.3	26.4	11.2	16.0	5900 (406)
7/8	FSW14-WU-FSW14-	35.5	31.5	12.7	18.8	5730 (395)
1	FSW16-WU-FSW16-	36.6	34.5	15.7	22.4	5600 (385)

Metric Tube

T-Tube Size (mm)	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)
		L	D	B	E	
8	MSW8-WU-MSW8-	22.4	14.3	7.9	6.4	9790 (675)
10	MSW10-WU-MSW10-	23.6	16.5	7.9	7.4	8100 (558)
12	MSW12-WU-MSW12-	26.9	20.2	9.7	9.5	6820 (470)
14	MSW14-WU-MSW14-	28.0	23.8	10.0	10.4	6930 (478)
16	MSW16-WU-MSW16-	30.2	23.8	10.4	12.7	6190 (426)
20	MSW20-WU-MSW20-	28.0	27.0	11.2	17.0	5510 (380)

Reducing Unions



Fractional Tube

T-Tube Size (in.)	Tx-Tube Size (in.)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
			L	D	B	E	Bx	
3/8	1/4	FSW6-WU-FSW4-	22.4	15.2	7.9	4.8	7.1	8100 (558)
1/2	1/4	FSW8-WU-FSW4-	24.3	18.5	9.7	4.8	7.1	6600 (454)
1/2	3/8	FSW8-WU-FSW6-	26.1	18.5	9.7	7.1	7.9	6600 (454)
3/4	3/8	FSW12-WU-FSW6-	29.8	26.4	11.2	7.1	7.9	5900 (406)
3/4	1/2	FSW12-WU-FSW8-	31.6	26.4	11.2	10.4	9.7	5900 (406)
1	3/4	FSW16-WU-FSW12-	32.1	34.5	15.7	16.0	11.2	5600 (385)

Fractional Tube

Metric Tube

T-Tube Size (mm)	Tx-Tube Size (mm)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
			L	D	B	E	Bx	
14	10	MSW14-WU-MSW10-	26.0	20.0	10.4	7.4	7.9	6930 (478)
25	14	MSW25-WU-MSW14-	30.0	35.0	15.7	10.4	10.0	5450 (376)
25	22	MSW25-WU-MSW22-	35.8	34.5	15.7	19.0	13.5	5450 (376)

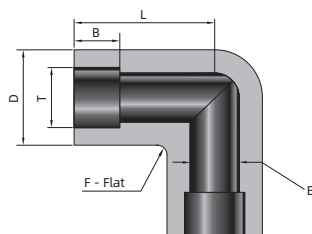
Metric Tube

Metric Tube

T-Tube Size (mm)	Tx-Tube Size (in.)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
			L	D	B	E	Bx	
20	3/4	MSW20-WU-FSW12-	28.0	27.0	11.2	15.7	11.2	5510 (380)
28	3/4	MSW28-WU-FSW12-	36.8	40.0	20.0	15.7	11.2	5040 (348)

Fractional Tube

Union Elbows



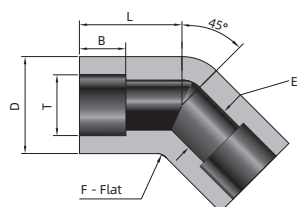
Fractional Tube

T-Tube Size (in.)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
1/8	FSW2-WUE-FSW2-	15.0	11.0	2.5	9.5	2.3	12600 (863)
1/4	FSW4-WUE-FSW4-	21.8	12.8	7.1	11.1	4.8	10700 (737)
3/8	FSW6-WUE-FSW6-	26.4	14.7	7.9	12.7	7.1	8100 (558)
1/2	FSW8-WUE-FSW8-	29.7	20.2	9.7	17.5	10.4	6600 (454)
5/8	FSW10-WUE-FSW10-	36.1	23.8	10.4	20.6	12.7	6200 (427)
3/4	FSW12-WUE-FSW12-	39.6	29.3	11.2	25.4	16.0	5900 (406)
1	FSW16-WUE-FSW16-	48.8	36.7	15.7	31.8	22.4	5600 (385)

Metric Tube

T-Tube Size (mm)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
10	MSW10-WUE-MSW10-	24.6	16.5	7.9	14.3	7.4	8100 (558)
12	MSW12-WUE-MSW12-	29.7	20.2	9.7	17.5	9.5	6820 (470)
14	MSW14-WUE-MSW14-	36.0	23.8	10.0	20.6	10.4	6930 (478)
16	MSW16-WUE-MSW16-	36.0	23.8	10.4	20.6	12.7	6190 (426)

Union 45° Elbows



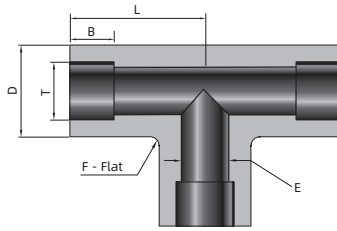
Fractional Tube

T-Tube Size (in.)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
1/4	FSW4-W45UE-FSW4-	15.0	14.7	7.1	12.7	4.8	10700 (737)
3/8	FSW6-W45UE-FSW6-	19.1	16.5	7.9	14.3	7.1	8100 (558)
1/2	FSW8-W45UE-FSW8-	21.3	20.2	9.7	17.5	10.4	6600 (454)
3/4	FSW12-W45UE-FSW12-	28.7	29.3	11.2	25.4	16.0	5900 (406)
1	FSW16-W45UE-FSW16-	31.8	36.7	15.7	31.8	22.4	5600 (385)

Metric Tube

T-Tube Size (mm)	Basic Ordering Number	Dimensions, mm					Working Pressure psig (bar)
		L	D	B	F	E	
8	MSW8-W45UE-MSW8-	17.3	14.7	7.9	12.7	6.4	9790 (675)
10	MSW10-W45UE-MSW10-	19.1	16.5	7.9	14.3	7.4	8100 (558)
12	MSW12-W45UE-MSW12-	21.3	20.2	9.7	17.5	9.5	6820 (470)
14	MSW14-W45UE-MSW14-	26.4	23.8	10.0	20.6	10.4	6930 (478)
16	MSW16-W45UE-MSW16-	26.4	23.8	10.4	20.6	12.7	6190 (426)
20	MSW20-W45UE-MSW20-	28.7	29.3	11.2	27.0	16.0	5510 (380)
22	MSW22-W45UE-MSW22-	29.7	31.2	13.5	31.8	19.0	6850 (472)
25	MSW25-W45UE-MSW25-	31.8	36.7	15.7	31.8	22.0	5450 (376)

Union Tees



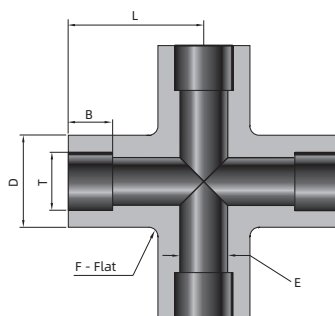
Fractional Tube

T-Tube Size (in.)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
1/8	FSW2-WUT-FSW2-FSW2-	15.0	12.8	2.5	9.5	2.3	12600 (868)
1/4	FSW4-WUT-FSW4-FSW4-	21.8	12.8	7.1	11.1	4.8	10700 (737)
3/8	FSW6-WUT-FSW6-FSW6-	26.4	14.7	7.9	12.7	7.1	8100 (558)
1/2	FSW8-WUT-FSW8-FSW8-	29.7	20.2	9.7	17.5	10.4	6600 (454)
5/8	FSW10-WUT-FSW10-FSW10-	36.1	23.8	10.4	20.6	12.7	6200 (428)
3/4	FSW12-WUT-FSW12-FSW12-	39.6	29.3	11.2	25.4	16.0	5900 (406)
1	FSW16-WUT-FSW16-FSW16-	48.8	36.7	15.7	31.8	22.4	5600 (385)

Metric Tube

T-Tube Size (mm)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
8	MSW8-WUT-MSW8-MSW8-	18.5	14.7	7.9	12.7	6.4	9790 (675)
10	MSW10-WUT-MSW10-MSW10-	24.6	16.5	7.9	14.3	7.4	8100 (558)
12	MSW12-WUT-MSW12-MSW12-	29.7	20.2	9.7	17.5	9.5	6820 (470)
14	MSW14-WUT-MSW14-MSW14-	36.0	23.8	10.0	20.6	10.4	6930 (478)
16	MSW16-WUT-MSW16-MSW16-	36.0	23.8	10.4	20.6	12.7	6190 (426)
20	MSW20-WUT-MSW20-MSW20-	39.6	29.3	11.2	25.4	17.0	5510 (380)
22	MSW22-WUT-MSW22-MSW22-	41.3	31.2	13.5	27.0	19.0	6850 (472)
25	MSW25-WUT-MSW25-MSW25-	48.8	36.7	15.7	31.8	22.0	5450 (376)

Union Crosses



Fractional Tube

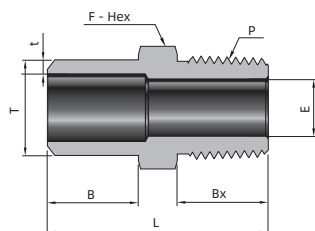
T-Tube Size (in.)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
1/8	FSW2-WUC-FSW2-FSW2-FSW2-	15.0	11.0	2.5	9.5	2.3	12600 (863)
1/4	FSW4-WUC-FSW4-FSW4-FSW4-	21.8	12.8	7.1	11.1	4.8	10700 (737)
3/8	FSW6-WUC-FSW6-FSW6-FSW6-	26.4	14.7	7.9	12.7	7.1	8100 (558)
1/2	FSW8-WUC-FSW8-FSW8-FSW8-	29.7	20.2	9.7	17.5	10.4	6600 (454)
5/8	FSW10-WUC-FSW10-FSW10-FSW10-	36.1	23.8	10.4	20.6	12.7	6200 (428)
3/4	FSW12-WUC-FSW12-FSW12-FSW12-	39.6	29.3	11.2	25.4	16.0	5900 (406)
1	FSW16-WUC-FSW16-FSW16-FSW16-	48.8	36.7	15.7	31.8	22.4	5600 (385)

Metric Tube

T-Tube Size (mm)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
8	MSW8-WUC-MSW8-MSW8-MSW8-	18.5	14.7	7.9	12.7	5.9	9790 (675)
10	MSW10-WUC-MSW10-MSW10-MSW10-	24.6	16.5	7.9	14.3	7.1	8100 (558)
12	MSW12-WUC-MSW12-MSW12-MSW12-	29.7	20.2	9.7	17.5	9.5	6820 (470)
14	MSW14-WUC-MSW14-MSW14-MSW14-	36.0	23.8	9.7	20.6	10.4	6930 (478)
16	MSW16-WUC-MSW16-MSW16-MSW16-	36.0	23.8	10.0	20.6	12.7	6190 (426)
20	MSW20-WUC-MSW20-MSW20-MSW20-	39.6	29.3	11.2	25.4	17.0	5510 (380)
22	MSW22-WUC-MSW22-MSW22-MSW22-	41.3	31.2	13.5	27.0	19.0	6850 (472)
25	MSW25-WUC-MSW25-MSW25-MSW25-	48.8	36.7	15.7	31.8	22.0	5450 (376)

Tube Butt Weld Fittings

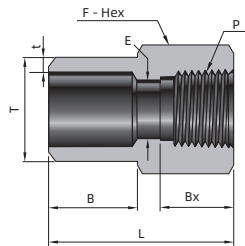
Male Connectors



Fractional Tube				NPT Thread					
T-Tube O.D. (in.)	t-Wall Thick- ness (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
				L	B	Bx	F	E	
1/4	0.065	1/4	FBW4-WMC-NPT4-	29.7	9.7	14.2	14.3	7.1	8000 (551)
1/4	0.065	1/2	FBW4-WMC-NPT8-	36.8	9.7	19.1	22.2	11.9	7700 (530)
3/8	0.095	1/4	FBW6-WMC-NPT4-	29.7	9.7	14.2	14.3	7.1	8000 (551)
3/8	0.095	1/2	FBW6-WMC-NPT8-	36.8	9.7	19.1	22.2	11.9	7700 (530)
1/2	0.095	1/4	FBW8-WMC-NPT4-	34.3	14.2	14.2	14.3	7.1	6780 (468)
1/2	0.095	1/2	FBW8-WMC-NPT8-	41.4	14.2	19.1	22.2	11.9	6780 (468)
5/8	0.109	1/4	FBW10-WMC-NPT4-	34.8	14.2	14.2	17.5	7.1	5760 (397)
5/8	0.109	1/2	FBW10-WMC-NPT8-	41.4	14.2	19.1	22.2	11.9	5760 (397)
3/4	0.120	1/4	FBW12-WMC-NPT4-	40.1	19.1	14.2	20.6	7.1	5530 (381)
3/4	0.120	1/2	FBW12-WMC-NPT8-	46.2	19.1	19.1	22.2	11.9	5530 (381)
1	0.134	1/4	FBW16-WMC-NPT4-	42.9	19.1	14.2	27.0	7.1	4480 (309)
1	0.134	1/2	FBW16-WMC-NPT8-	47.8	19.1	19.1	27.0	11.9	4480 (309)

Metric Tube				NPT Thread					
T-Tube O.D. (mm)	t-Wall Thickness (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
				L	B	Bx	F	E	
12	2.2	1/4	MBW12-WMC-NPT4-	34.3	14.2	14.2	14	7.1	6470 (446)
12	2.2	1/2	MBW12-WMC-NPT8-	41.1	14.2	19.1	22	11.9	6470 (446)
14	2.0	1/4	MBW14-WMC-NPT4-	34.3	14.2	14.2	15	7.1	6280 (433)
14	2.0	1/2	MBW14-WMC-NPT8-	41.4	14.2	19.1	22	11.9	6280 (433)
15	2.5	1/4	MBW15-WMC-NPT4-	34.8	14.2	14.2	16	7.1	5770 (398)
16	3.0	1/4	MBW16-WMC-NPT4-	35.6	14.2	14.2	18	7.1	6140 (423)
16	3.0	1/2	MBW16-WMC-NPT8-	41.1	14.2	19.1	22	11.9	6140 (423)
20	3.0	1/2	MBW20-WMC-NPT8-	46.2	19.1	19.1	22	11.9	5110 (352)
22	3.0	1/4	MBW22-WMC-NPT4-	41.2	19.1	14.2	24	7.1	4620 (319)
22	3.0	1/2	MBW22-WMC-NPT8-	46.1	19.1	19.1	24	11.9	4620 (319)
25	3.5	3/4	MBW25-WMC-NPT12-	47.8	19.1	19.1	27	15.7	4730 (326)
25	3.5	1	MBW25-WMC-NPT16-	54.9	19.1	23.9	35	22.4	4730 (326)
28	4.0	1/2	MBW28-WMC-NPT8-	54.2	21.4	19.1	30	11.9	4850 (335)

Female Connectors



Fractional Tube

NPT Thread

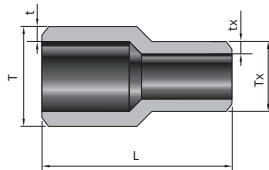
T-Tube O.D. (in.)	t-Wall Thick- ness (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
				L	B	Bx	F	E	
1/4	0.065	1/4	FBW4-WFC-FNPT4-	27.9	9.7	15.0	19.1	3.0	6600 (454)
1/4	0.065	3/8	FBW4-WFC-FNPT6-	29.5	9.7	15.0	22.2	3.0	5300 (365)
3/8	0.095	1/4	FBW6-WFC-FNPT4-	27.9	9.7	15.0	19.1	4.7	6600 (454)
3/8	0.095	3/8	FBW6-WFC-FNPT6-	29.5	9.7	15.0	22.2	4.7	5300 (365)
1/2	0.095	1/4	FBW8-WFC-FNPT4-	26.7	14.2	15.0	19.1	7.9	6600 (454)
1/2	0.095	3/8	FBW8-WFC-FNPT6-	34.0	14.2	15.0	22.2	7.9	5300 (365)
1/2	0.095	1/2	FBW8-WFC-FNPT8-	38.9	14.2	19.8	27.0	7.9	4900 (337)

Metric Tube

NPT Thread

T-Tube O.D. (mm)	t-Wall Thickness (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
				L	B	Bx	F	E	
14	2.0	1/4	MBW14-WFC-FNPT4-	33.0	14.2	15.0	19	9.0	6280 (433)
14	2.0	1/2	MBW14-WFC-FNPT8-	38.9	14.2	19.8	27	9.0	4900 (337)
20	3.0	1/2	MBW20-WFC-FNPT8-	43.7	19.1	19.8	27	14.0	4900 (337)
28	4.0	1/2	MBW28-WFC-FNPT8-	49.8	23.9	19.8	30	15.7	4850 (335)

Reducing Unions



Fractional Tube

Fractional Tube

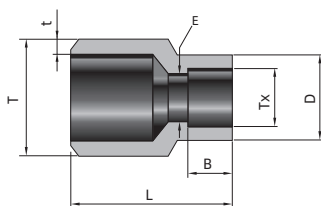
T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thick-ness (in.)	Basic Ordering Number	L (mm)	Working Pressure psig (bar)
3/8	0.095	1/4	0.065	FBW6-WU-FBW4-	38.1	9930 (685)
1/2	0.095	1/4	0.065	FBW8-WU-FBW4-	38.1	6780 (468)
1/2	0.095	3/8	0.095	FBW8-WU-FBW6-	38.1	6780 (468)
3/4	0.120	1/2	0.095	FBW12-WU-FBW8-	38.1	5530 (381)
1	0.134	3/4	0.120	FBW16-WU-FBW12-	38.1	4480 (309)

Metric Tube

Metric Tube

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Tx-Tube O.D. (mm)	tx-Wall Thickness (mm)	Basic Ordering Number	L (mm)	Working Pressure psig (bar)
20	3.0	14	2.0	MBW20-WU-MBW14-	38.1	6470 (445)
22	3.0	14	2.0	MBW22-WU-MBW14-	38.1	5780 (395)
22	3.0	18	2.8	MBW22-WU-MBW18-	38.1	5780 (395)
25	3.5	22	3.0	MBW25-WU-MBW22-	38.1	5780 (395)
38	5.0	25	3.5	MBW38-WU-MBW25-	38.1	5540 (380)

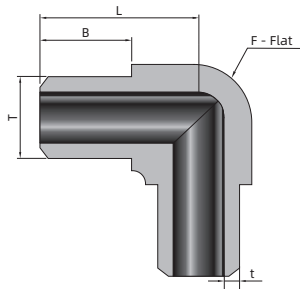
Tube Butt Weld to Tube Socket Weld



Fractional Tube

T-Tube O.D. (in.)	t-Wall Thick- ness (in.)	Tx-Tube Size (in.)	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)
				L	B	D	E	
1/4	0.083	1/8	FBW4-WU-FSW2-	14.2	2.5	8.0	2.3	12600 (868)
3/8	0.095	1/4	FBW6-WU-FSW4-	19.1	7.1	12.2	4.8	8200 (564)
1/2	0.095	1/4	FBW8-WU-FSW4-	22.4	7.1	12.7	4.8	7500 (516)
1/2	0.095	3/8	FBW8-WU-FSW6-	22.4	7.9	15.2	7.1	7500 (516)
3/4	0.120	1/2	FBW12-WU-FSW8-	28.4	9.7	18.5	10.4	6300 (434)
1	0.134	1/2	FBW16-WU-FSW8-	35.1	9.7	18.5	10.4	5300 (365)
1	0.134	3/4	FBW16-WU-FSW12-	38.1	11.2	26.4	16.0	5300 (365)

Union Elbows



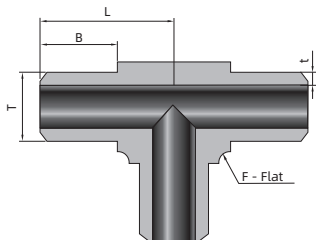
Fractional Tube

T-Tube O.D. (in.)	t-Wall Thick- ness (in.)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
			L	B	F	
1/4	0.065	FBW4-WUE-FBW4-	16.3	9.7	9.5	10320 (712)
3/8	0.095	FBW6-WUE-FBW6-	18.0	9.7	11.1	9930 (685)
1/2	0.095	FBW8-WUE-FBW8-	24.4	14.2	14.3	6780 (468)
3/4	0.120	FBW12-WUE-FBW12-	33.3	19.1	20.6	5530 (381)
1	0.134	FBW16-WUE-FBW16-	37.1	19.1	27.0	4480 (309)

Metric Tube

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
			L	B	F	
10	2.2	MBW10-WUE-MBW10-	18.0	9.7	11.1	8160 (563)
14	2.0	MBW14-WUE-MBW14-	25.4	14.2	15.9	6280 (433)
16	3.0	MBW16-WUE-MBW16-	26.2	14.2	17.5	6140 (423)
20	3.0	MBW20-WUE-MBW20-	33.3	19.1	20.6	5110 (352)
22	3.0	MBW22-WUE-MBW22-	35.3	19.1	23.8	4620 (319)
25	3.5	MBW25-WUE-MBW25-	37.1	19.1	27.0	4730 (326)

Union Tees



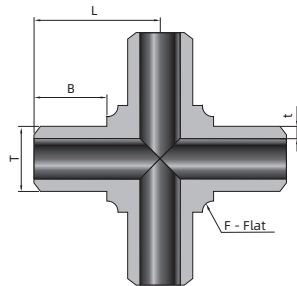
Fractional Tube

T-Tube O.D. (in.)	t-Wall Thick- ness (in.)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
			L	B	F	
1/4	0.065	FBW4-WUT-FBW4-FBW4-	16.3	9.7	9.5	10320 (712)
3/8	0.095	FBW6-WUT-FBW6-FBW6-	18.0	9.7	11.1	9930 (685)
1/2	0.095	FBW8-WUT-FBW8-FBW8-	24.4	14.2	14.3	6780 (468)
3/4	0.120	FBW12-WUT-FBW12-FBW12-	33.3	19.1	20.6	5530 (381)
1	0.134	FBW16-WUT-FBW16-FBW16-	37.1	19.1	27.0	4480 (309)

Metric Tube

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
			L	B	F	
6	1.8	MBW6-WUT-MBW6-MBW6-	16.3	9.7	9.5	12660 (873)
8	1.8	MBW8-WUT-MBW8-MBW8-	16.3	9.7	9.5	8320 (574)
10	2.2	MBW10-WUT-MBW10-MBW10-	18.0	9.7	11.1	8160 (563)
12	2.2	MBW12-WUT-MBW12-MBW12-	24.4	14.2	14.3	6470 (446)
14	2.0	MBW14-WUT-MBW14-MBW14-	25.4	14.2	15.9	6280 (433)
16	3.0	MBW16-WUT-MBW16-MBW16-	26.2	14.2	17.5	6140 (423)
20	3.0	MBW20-WUT-MBW20-MBW20-	33.3	19.1	20.6	5110 (352)
22	3.0	MBW22-WUT-MBW22-MBW22-	35.3	19.1	23.8	4620 (319)
25	3.5	MBW25-WUT-MBW25-MBW25-	37.1	19.1	27.0	4730 (326)
32	4.5	MBW32-WUT-MBW32-MBW32-	49.3	23.9	34.9	4730 (326)

Union Crosses



Fractional Tube

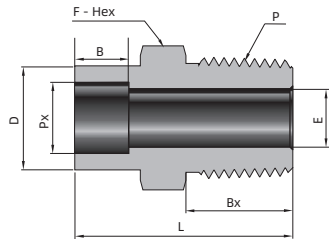
T-Tube O.D. (in.)	t-Wall Thick- ness (in.)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
			L	B	F	
1/4	0.065	FBW4-WUC-FBW4-FBW4-FBW4-	16.3	9.7	9.5	10320 (712)
3/8	0.095	FBW6-WUC-FBW6-FBW6-FBW6-	18.0	9.7	11.1	9930 (685)
1/2	0.095	FBW8-WUC-FBW8-FBW8-FBW8-	24.4	14.2	14.3	6780 (468)
3/4	0.120	FBW12-WUC-FBW12-FBW12-FBW12-	33.3	19.1	20.6	5530 (381)
1	0.134	FBW16-WUC-FBW16-FBW16-FBW16-	37.1	19.1	27.0	4480 (309)

Metric Tube

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
			L	B	F	
6	1.8	MBW6-WUC-MBW6-MBW6-MBW6-	16.3	9.7	9.5	12660 (873)
8	1.8	MBW8-WUC-MBW8-MBW8-MBW8-	16.3	9.7	9.5	8320 (574)
10	2.2	MBW10-WUC-MBW10-MBW10-MBW10-	18.0	9.7	11.1	8160 (563)

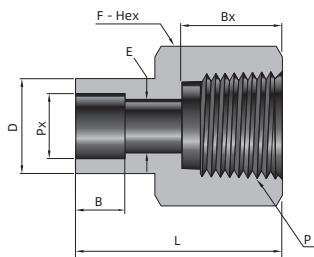
Pipe Socket Weld Fittings

Male Connectors



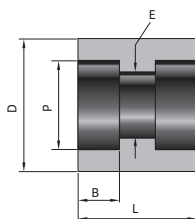
Pipe									NPT Thread
Px-Pipe Size	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/4	1/4	PSW4-WMC-NPT4-	35.2	22.4	9.9	14.2	23.8	7.1	8000 (551)
1/4	1/2	PSW4-WMC-NPT8-	40.0	22.4	9.9	19.1	23.8	9.1	7700 (530)
3/8	3/8	PSW6-WMC-NPT6-	38.0	26.2	9.9	14.2	27.0	9.7	7100 (489)
3/8	1/2	PSW6-WMC-NPT8-	42.9	26.2	9.9	19.1	27.0	11.9	7100 (489)
1/2	3/8	PSW8-WMC-NPT6-	40.3	31.8	9.9	14.2	33.3	9.7	6800 (468)
1/2	1/2	PSW8-WMC-NPT8-	45.2	31.8	9.9	19.1	33.3	11.9	6800 (468)
3/4	1/2	PSW12-WMC-NPT8-	54.3	37.3	13.0	19.1	38.1	11.9	5800 (399)
3/4	3/4	PSW12-WMC-NPT12-	54.3	37.3	13.0	19.1	38.1	15.7	5800 (399)
1	3/4	PSW16-WMC-NPT12-	55.8	47.2	13.0	19.1	47.6	15.7	6100 (420)
1	1	PSW16-WMC-NPT16-	60.6	47.2	13.0	23.9	47.6	22.4	5300 (365)

Female Connectors



Pipe									NPT Thread
Px-Pipe Size	P-NPT Size	Basic Ordering Numbe	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/4	1/4	PSW4-WFC-FNPT4-	33.5	22.4	9.9	15.0	23.8	9.1	8000 (551)
1/4	3/8	PSW4-WFC-FNPT6-	33.5	22.4	9.9	15.0	23.8	9.1	6790 (463)
3/8	3/8	PSW6-WFC-FNPT6-	34.1	26.2	9.9	15.0	27.0	12.4	7100 (489)
3/8	1/2	PSW6-WFC-FNPT8-	39.1	26.2	9.9	19.8	27.0	12.4	4900 (337)
1/2	1/2	PSW8-WFC-FNPT8-	40.0	31.8	9.9	19.8	33.3	15.7	6800 (468)
1/2	3/4	PSW8-WFC-FNPT12-	40.6	31.8	9.9	20.6	33.3	15.7	4600 (316)
3/4	3/4	PSW12-WFC-FNPT12-	53.2	37.3	13.0	20.6	38.1	20.8	5800 (399)
3/4	1	PSW12-WFC-FNPT16-	58.1	37.3	13.0	25.4	41.3	20.8	4400 (303)

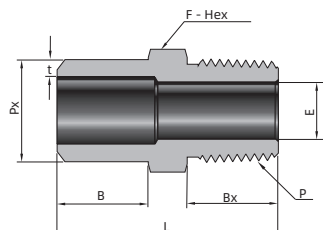
Unions



Pipe			Dimension, mm				Working Pressure psig (bar)
P-Pipe Size	Basic Ordering Number		L	D	B	E	
1/8	PSW2-WU-PSW2-		25.7	17.1	9.9	7.0	8230(568)
1/4	PSW4-WU-PSW4-		26.9	22.4	9.9	9.7	8000(551)
3/8	PSW6-WU-PSW6-		28.4	26.2	9.9	12.4	7100(489)
1/2	PSW8-WU-PSW8-		28.4	31.8	9.9	15.7	6800(468)
3/4	PSW12-WU-PSW12-		44.5	37.3	13.0	20.8	5800(399)
1	PSW16-WU-PSW16-		44.5	47.2	13.0	26.7	6100(420)

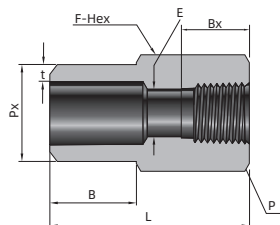
Pipe Butt Weld Fittings

Male Connectors



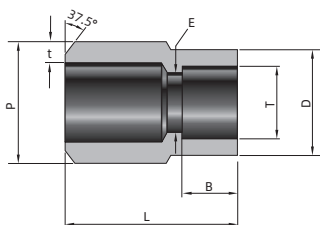
Pipe				NPT Thread					
Px-Pipe Size	t-Wall Thickness (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
				L	B	Bx	F	E	
1/4	3.0	1/4	PBW4-WMC-NPT4-	34.3	14.2	14.2	14.3	7.1	8000 (551)
1/4	3.0	1/2	PBW4-WMC-NPT8-	41.3	14.2	19.1	22.2	7.7	7700 (537)
3/8	3.2	1/4	PBW6-WMC-NPT4-	34.8	14.2	14.2	17.5	7.1	6650 (459)
3/8	3.2	1/2	PBW6-WMC-NPT8-	41.3	14.2	19.1	22.2	10.7	6650 (459)
1/2	3.7	1/4	PBW8-WMC-NPT4-	41.3	19.1	14.2	22.2	7.1	6190 (427)
1/2	3.7	1/2	PBW8-WMC-NPT8-	46.2	19.1	19.1	22.2	11.9	6190 (427)
3/4	3.9	1/4	PBW12-WMC-NPT4-	42.9	19.1	14.2	27.0	7.1	5040 (348)
3/4	3.9	1/2	PBW12-WMC-NPT8-	47.8	19.1	19.1	27.0	11.9	5040 (348)
1	4.5	1/4	PBW16-WMC-NPT4-	50.0	23.9	14.2	34.9	7.1	4640 (320)
1	4.5	1/2	PBW16-WMC-NPT8-	54.9	23.9	19.1	34.9	11.9	4640 (320)

Female Connectors



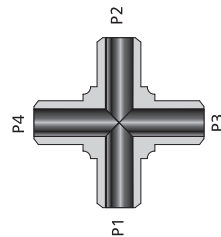
Pipe				NPT Thread					
Px-Pipe Size	t-Wall Thickness (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
				L	B	Bx	F	E	
1/4	3.0	1/2	PBW4-WFC-FNPT8-	38.9	14.2	19.8	27.0	7.6	4900 (337)
3/8	3.2	1/2	PBW6-WFC-FNPT8-	38.9	14.2	19.8	27.0	10.7	4900 (337)
1/2	3.7	1/4	PBW8-WFC-FNPT4-	37.3	19.1	15.0	22.2	10.4	7500 (516)
1/2	3.7	1/2	PBW8-WFC-FNPT8-	43.7	19.1	19.8	27.0	13.9	4900 (337)

Pipe Butt Weld to Tube Socket Weld



Pipe				Fractional Tube				
Px-Pipe Size	t-Wall Thickness (mm)	T-Tube Size (in.)	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)
				L	B	D	E	
1/4	3.0	1/4	PBW4-WU-FSW4-	22.4	7.1	12.2	4.8	10810 (744)
3/8	3.2	1/4	PBW6-WU-FSW4-	26.2	7.1	12.2	4.8	8500 (586)
3/8	3.2	3/8	PBW6-WU-FSW6-	26.2	7.9	15.2	7.1	8500 (586)
3/8	3.2	1/2	PBW6-WU-FSW8-	25.4	9.7	18.5	10.4	6930 (476)
1/2	3.7	1/4	PBW8-WU-FSW4-	28.4	7.1	12.2	4.8	8190 (563)
1/2	3.7	3/8	PBW8-WU-FSW6-	28.4	7.9	15.2	7.1	8190 (563)
1/2	3.7	1/2	PBW8-WU-FSW8-	30.2	9.7	18.5	10.4	6930 (476)
3/4	3.9	1/4	PBW12-WU-FSW4-	38.1	7.1	12.2	4.8	6930 (476)
3/4	3.9	3/8	PBW12-WU-FSW6-	38.1	7.9	15.2	7.1	6930 (476)
3/4	3.9	1/2	PBW12-WU-FSW8-	38.1	9.7	18.5	10.4	6930 (476)
3/4	3.9	3/4	PBW12-WU-FSW12-	38.1	11.2	26.4	16.0	6190 (483)
1	4.5	3/8	PBW16-WU-FSW6-	35.1	7.9	15.2	7.1	6300 (434)
1	4.5	1/2	PBW16-WU-FSW8-	39.6	9.7	18.5	10.4	6300 (434)

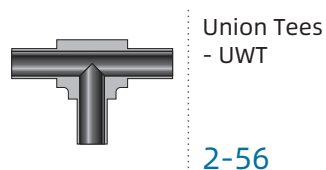
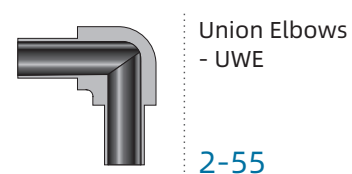
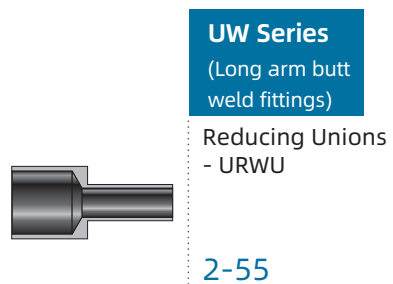
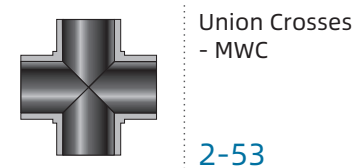
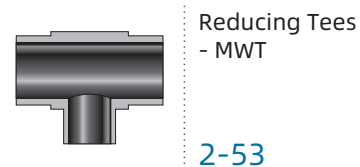
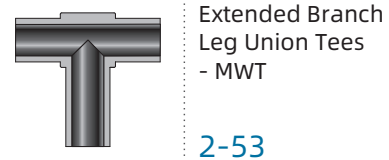
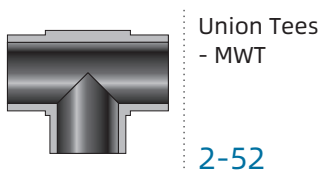
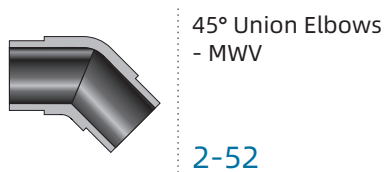
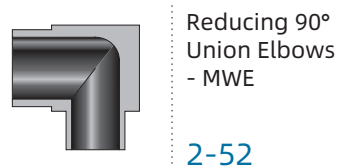
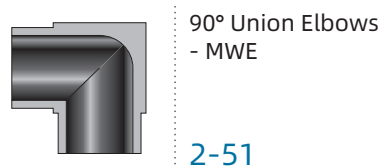
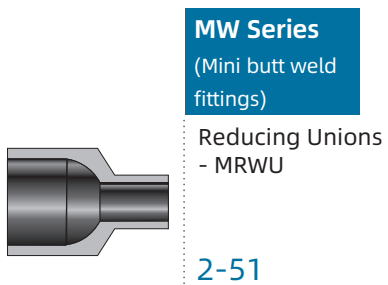
Port 1 Type	Port 1 Size	Fitting Configuration	Port 2 Type	Port 2 Size	Port 3 Type	Port 3 Size	Port 4	Material
FSW Fractional Tube Socket Weld	2 1/8 in.	WMC Male Connector	FSW Fractional Tube Socket Weld	2 1/8 in.	FSW Fractional Tube Socket Weld	2 1/8 in.	Same as Port 3	316 316 S.S. 316L 316L S.S. 304 304 S.S. 304L 304L S.S.
FBW Fractional Tube Butt Weld	4 1/4 in.	WFC Female Connector	FBW Fractional Tube Butt Weld	4 1/4 in.	FBW Fractional Tube Butt Weld	4 1/4 in.		
MSW Metric Tube Socket Weld	6 3/8 in. or 6 mm	WU Union	MSW Metric Tube Socket Weld	6 3/8 in. or 6 mm	MSW Metric Tube Socket Weld	6 3/8 in. or 6 mm		
MBW Metric Tube Butt Weld	8 1/2 in. or 8 mm	WUE Union Elbow	MBW Metric Tube Butt Weld	8 1/2 in. or 8 mm	MBW Metric Tube Butt Weld	8 1/2 in. or 8 mm		
PBW Pipe Butt Weld	10 5/8 in. or 10 mm	WUT Union Tee	PBW Pipe Butt Weld	10 5/8 in. or 10 mm	PBW Pipe Butt Weld	10 5/8 in. or 10 mm		
PSW Pipe Socket Weld	12 3/4 in. or 12 mm	WUC Union Cross	PSW Pipe Socket Weld	12 3/4 in. or 12 mm	PSW Pipe Socket Weld	12 3/4 in. or 12 mm		
FBP Female BSPP	14 7/8 in. or 14 mm or M14 x 1.5	WME Male Elbow	FNPT Female NPT	14 7/8 in. or 14 mm	PSW Pipe Socket Weld	14 7/8 in. or 14 mm		
FMS Female Metric	16 1 in. or 16 mm or M16 x 1.5	WFE Female Elbow	NPT Male NPT	16 1 in. or 16 mm	PSW Pipe Socket Weld	16 1 in. or 16 mm		
	18 18 mm or M18 x 1.5	W45UE 45° Union Elbow		18 18 mm		18 18 mm		
	20 1 1/4 in. or 20 mm or M20 x 1.5	PTW Pipe to Weld Fittings		20 1 1/4 in. or 20 mm		20 20 mm		
	22 22 mm or M22 x 1.5			22 22 mm		22 22 mm		
	24 1 1/2 in. or M24 x 1.5			24 1 1/2 in. or M24 x 1.5		24 24 mm		
	25 25 mm			25 25 mm		25 25 mm		
	27 M27 X 2			27 27 mm		27 27 mm		
	28 28 mm			28 28 mm		28 28 mm		
	30 30 mm or M30 x 2			30 30 mm		30 30 mm		
	32 2 in. or 32 mm			32 32 mm		32 32 mm		
	38 38 mm			38 38 mm		38 38 mm		





Ultrahigh-Purity Weld Fittings

MW, UW and AW Series

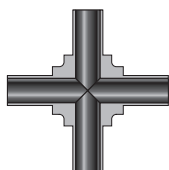


Contents



Reducing Tees
- UWT

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Union Crosses
- UWC

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Weld Rings
- UWR

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AW Series (Automatic tube butt weld fittings)



Locator Unions
- ALWU

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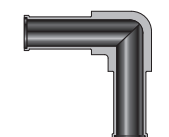
Unions
- AWU

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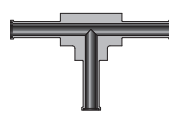
Reducing Unions
- AWU

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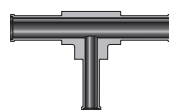
90° Union Elbows
- AWE

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Union Tees
- AWT

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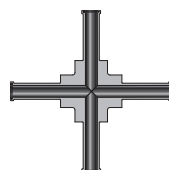
Reducing Tees
- AWT

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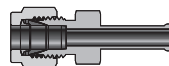
Manifold Tees
- AMWT

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Union Crosses
- AWC

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Weld Connectors
- WC

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Features

- ❖ 316, 316L, 316L VAR and 316L VIM-VAR (Vacuum Induction Melting/Vacuum Arc Remelting) stainless steel materials
- ❖ Each fitting is stamped with size, material and heat code

Standard Materials of Construction

Material	Bar Stock	Forging	Designator
316 S.S.	ASTM A479 / A276	ASTM A182/A314	316
316L S.S.			316L
316L VAR S.S.	ASTM A479 / A276 SEMI F20	—	316LV
316L VIM-VAR S.S.			316LVV

Pressure-Temperature Ratings

Material	316 316L Bar Stock	316L Forgings
Specification	ASTM A276 A479	ASTM A182
Temperature °F (°C)	Factor	
-20 (-28) to 100 (37)	1.00	1.00
200 (93)	0.86	0.71
300 (93)	0.78	0.63
400 (121)	0.71	0.57
500 (148)	0.66	0.53
600 (176)	0.63	0.50
650 (176)	0.62	0.49
700 (204)	0.60	0.48
750 (232)	0.60	0.47
800 (148)	0.59	0.46
850 (176)	0.58	0.45
900 (204)	0.57	—
950 (232)	0.57	—
1000 (232)	0.56	—

- ❖ Catalog working pressures shown are for temperatures from -20°F to 100°F (-28°C to 37°C). Pressure derating factors for applications at temperatures greater than 100°F (37°C) were determined from this pressure code and are listed in the table left

Wetted Surface Finish, Cleaning and Packaging

- ❖ Wetted Surface Finish
Standard surface finish is a roughness average of 10 µin. (0.25 µm) Ra
- ❖ Ultrahigh-purity Process Specification
CP-03 ultrahigh-purity cleaning and packaging, Wetted surfaces are finished to 5 µin. (0.13 µm) Ra
Example: **FBW4-MWE-FBW4-316L**

Ordering Information

- ❖ To order CIR-LOK butt weld fittings, add the material designator to the ordering number

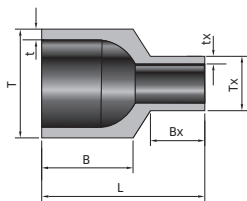
Mini butt weld fittings

MW Series

Features

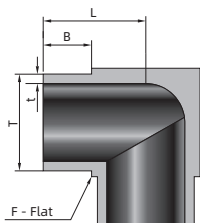
- ❖ Sizes range from 1/8" to 1/2" and 6 mm to 12 mm
- ❖ Radius junction design with elbows provides smooth flow path
- ❖ Compact design allows close component spacing
- ❖ Square, sharp, burrfree tube weld ends enhance alignment, maintain tube wall uniformity, and promoteweld repeatability.

Reducing Unions



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
					L	B	Bx	
1/4	0.035	1/8	0.028	FBW4-MRWU-FBW2-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	5100 (351)
3/8	0.035	1/4	0.035	FBW6-MRWU-FBW4-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	3300 (227)
1/2	0.049	1/4	0.035	FBW8-MRWU-FBW4-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	3700 (254)
1/2	0.049	3/8	0.035	FBW8-MRWU-FBW6-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	3300 (227)

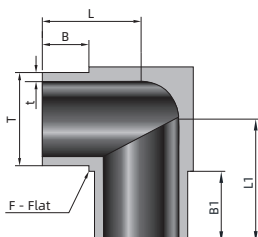
90°Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/8	0.028	FBW2-MWE-FBW2-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	8500 (585)
1/4	0.035	FBW4-MWE-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWE-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWE-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)

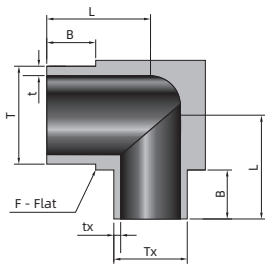
T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-MWE-MBW6-	10.4 (0.41)	6.4 (0.25)	7.9 (5/16)	420 (6095)
8	1.0	MBW8-MWE-MBW8-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-MWE-MBW10-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	MBW12-MWE-MBW12-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)

Extended Leg 90°Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			B	B1	F	L	L1	
1/4	0.035	FBW4-MWE-FBW4-4161-	0.25 (6.4)	0.45 (11.4)	5/16 (7.9)	0.41 (10.4)	0.61 (15.5)	5100 (351)
1/4	0.035	FBW4-MWE-FBW4-4166-	0.25 (6.4)	0.50 (12.7)	5/16 (7.9)	0.41 (10.4)	0.66 (16.8)	5100 (351)
1/4	0.035	FBW4-MWE-FBW4-6161-	0.45 (11.4)	0.45 (11.4)	5/16 (7.9)	0.61 (15.5)	0.61 (15.5)	5100 (351)
1/4	0.035	FBW4-MWE-FBW4-6666-	0.50 (12.7)	0.50 (12.7)	5/16 (7.9)	0.66 (16.8)	0.66 (16.8)	5100 (351)

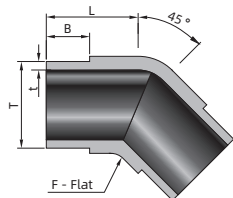
Reducing 90° Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
					L	B	F	
3/8	0.035	1/4	0.035	FBW6-MWE-FBW4-	0.47 (11.9)	0.25 (6.4)	7/16 (7.9)	3300 (227)
1/2	0.049	1/4	0.035	FBW8-MWE-FBW4-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)
1/2	0.049	3/8	0.035	FBW8-MWE-FBW6-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3300 (227)

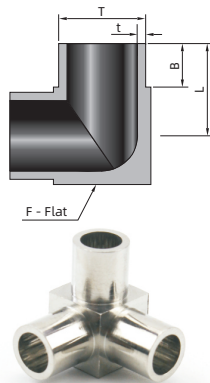
T-Tube O.D. (mm)	t-Wall Thickness (mm)	Tx-Tube O.D. (mm)	tx-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
					L	B	F	
8	1.0	6	1.0	MBW8-MWE-MBW6-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	310 (4499)
10	1.0	6	1.0	MBW10-MWE-MBW6-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	6	1.0	MBW12-MWE-MBW6-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)
12	1.0	8	1.0	MBW12-MWE-MBW8-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)

45° Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-MWV-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWV-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWV-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)

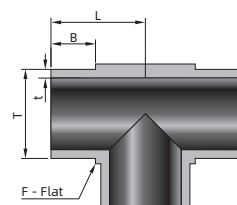
Tribows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-MWTB-FBW4-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWTB-FBW6-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWTB-FBW8-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-MWTB-MBW6-MBW6-	10.4 (0.41)	6.4 (0.25)	7.9 (5/16)	420 (6095)

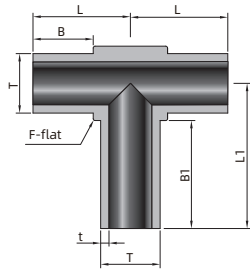
Union Tees



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working pressure psig (bar)
			L	B	F	
1/8	0.028	FBW2-MWT-FBW2-FBW2-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	8500 (585)
1/4	0.035	FBW4-MWT-FBW4-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWT-FBW6-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWT-FBW8-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)

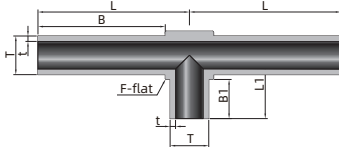
T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working pressure bar (psig)
			L	B	F	
6	1.0	MBW6-MWT-MBW6-MBW6-	10.4 (0.41)	6.4 (0.25)	7.9 (5/16)	420 (6095)
8	1.0	MBW8-MWT-MBW8-MBW8-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-MWT-MBW10-MBW10-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	MBW12-MWT-MBW12-MBW12-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)

Extended Branch Leg Union Tees



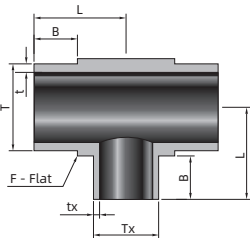
T-Tube O.D. (in.)	Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)					Working pressure psig (bar)
			L	L1	B	B1	F	
1/4	0.035	FBW4-MWT-FBW4-FBW4-4161-	0.41(10.4)	0.61(15.5)	0.25(6.4)	0.45(11.4)	5/16(7.9)	5100 (351)

Extended Run Leg Union Tees



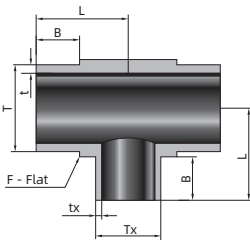
T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)					Working pressure psig (bar)
			L	L1	B	B1	F	
1/4	0.035	FBW4-MWT-FBW4-FBW4-9841-	0.98(24.9)	0.41(10.4)	0.83(21.1)	0.25(6.4)	5/16(7.9)	5100 (351)

Reducing Tees



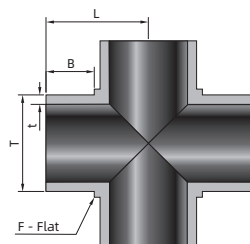
T-Tube O.D. (in.)	T-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
					L	B	F	
3/8	0.035	1/4	0.035	FBW6-MWT-FBW6-FBW4-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	1/4	0.035	FBW8-MWT-FBW8-FBW4-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)
1/2	0.049	3/8	0.035	FBW8-MWT-FBW8-FBW6-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3300 (227)

Reducing Tees



T-Tube O.D. (mm)	T-Wall Thickness (mm)	Tx-Tube O.D. (mm)	tx-Wall Thickness (mm.)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
					L	B	F	
10	1.0	6	1.0	MBW10-MWT-MBW10-MBW6-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	6	1.0	MBW12-MWT-MBW12-MBW6-	0.53 (13.5)	6.4 (0.25)	14.3 (9/16)	200 (2902)
12	1.0	8	1.0	MBW12-MWT-MBW12-MBW8-	0.53 (13.5)	6.4 (0.25)	14.3 (9/16)	200 (2902)

Union Crosses



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/8	0.028	FBW2-MWC-FBW2-FBW2-FBW2-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	8500 (585)
1/4	0.035	FBW4-MWC-FBW4-FBW4-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWC-FBW6-FBW6-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWC-FBW8-FBW8-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-MWC-MBW6-MBW6-MBW6-	10.4 (0.41)	6.4 (0.25)	7.9 (5/16)	420 (6095)
8	1.0	MBW8-MWC-MBW8-MBW8-MBW8-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-MWC-MBW10-MBW10-MBW10-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	MBW12-MWC-MBW12-MBW12-MBW12-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)

How to Order

FBW4

— MWC

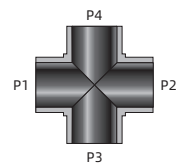
— FBW4

— FBW4

— FBW4

— 316

Port 1 Type	Port 1 Size	Configuration Designator	Port2	Port3	Port4	Material
FBW Fractional Tube Butt Weld	2 1/8 in.	MRWU Reducing Unions	Same as Port 1	Same as Port 1	Same as Port 1	316 316 S.S.
MBW Metric Tube Butt Weld	4 1/4 in.	MWE 90° Union Elbows				316L 316L S.S.
	6 3/8 in. or 6 mm	MWV 45° Union Elbows				316LV 316L VAR S.S.
	8 1/2 in. or 8 mm	MWTB Tribows				316LVV 316L VIM-VAR S.S.
	10 10 mm	MWT Union Tees				
	12 12 mm	MWC Union Crosses				



Long Arm Butt Weld Fittings

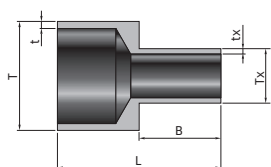
UW Series

Features

- ❖ Sizes range from 1/4" to 1" and 6 mm to 18 mm
- ❖ Radius junction design with elbows provides smooth flow path
- ❖ Precisely finished diameter matches tube diameter



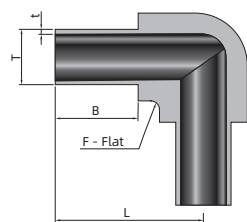
Reducing Unions



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)		Working Pressure psig (bar)
					L	B	
3/8	0.035	1/4	0.035	FBW6-URWU-FBW4-	1.50 (38.1)	0.75 (19.1)	3300 (227)
1/2	0.049	1/4	0.035	FBW8-URWU-FBW4-	1.50 (38.1)	0.75 (19.1)	3700 (254)
1/2	0.049	3/8	0.035	FBW8-URWU-FBW6-	1.50 (38.1)	0.75 (19.1)	3300 (227)
3/4	0.049	1/2	0.049	FBW12-URWU-FBW8-	1.50 (38.1)	0.75 (19.1)	2400 (165)
1	0.065	1/2	0.049	FBW16-URWU-FBW8-	1.50 (38.1)	0.75 (19.1)	2400 (165)
1	0.065	3/4	0.049	FBW16-URWU-FBW12-	1.50 (38.1)	0.75 (19.1)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Tx-Tube O.D. (mm)	tx-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)		Working Pressure bar (psig)
					L	B	
10	1.0	6	1.0	MBW10-URWU-MBW6-	38.1 (1.50)	19.1 (0.75)	240 (3483)
10	1.0	8	1.0	MBW10-URWU-MBW8-	38.1 (1.50)	19.1 (0.75)	240 (3483)
12	1.0	6	1.0	MBW12-URWU-MBW6-	38.1 (1.50)	19.1 (0.75)	200 (2902)
12	1.0	8	1.0	MBW12-URWU-MBW8-	38.1 (1.50)	19.1 (0.75)	200 (2902)
12	1.0	10	1.0	MBW12-URWU-MBW10-	38.1 (1.50)	19.1 (0.75)	200 (2902)
18	1.5	6	1.5	MBW18-URWU-MBW6-	38.1 (1.50)	19.1 (0.75)	200 (2902)
18	1.5	12	1.5	MBW18-URWU-MBW12-	38.1 (1.50)	19.1 (0.75)	200 (2902)

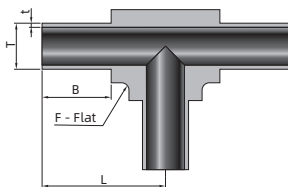
Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-UWE-FBW4-	1.23 (31.2)	0.75 (19.1)	7/16 (11.1)	5100 (351)
3/8	0.035	FBW6-UWE-FBW6-	1.20 (30.5)	0.75 (19.1)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-UWE-FBW8-	1.34 (34.0)	0.75 (19.1)	11/16 (17.5)	3700 (254)
3/4	0.049	FBW12-UWE-FBW12-	1.46 (37.1)	0.75 (19.1)	15/16 (23.8)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-UWE-MBW6-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	420 (6095)
8	1.0	MBW8-UWE-MBW8-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-UWE-MBW10-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	240 (3483)
12	1.0	MBW12-UWE-MBW12-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	200 (2902)
18	1.5	MBW18-UWE-MBW18-	37.6 (1.48)	19.1 (0.75)	23.8 (15/16)	200 (2902)

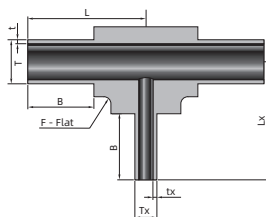
Union Tees



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-UWT-FBW4-FBW4-	1.23 (31.2)	0.75 (19.1)	7/16 (11.1)	5100 (351)
3/8	0.035	FBW6-UWT-FBW6-FBW6-	1.20 (30.5)	0.75 (19.1)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-UWT-FBW8-FBW8-	1.34 (34.0)	0.75 (19.1)	11/16 (17.5)	3700 (254)
3/4	0.049	FBW12-UWT-FBW12-FBW12-	1.46 (37.1)	0.75 (19.1)	15/16 (23.8)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-UWT-MBW6-MBW6-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	420 (6095)
8	1.0	MBW8-UWT-MBW8-MBW8-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-UWT-MBW10-MBW10-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	240 (3483)
12	1.0	MBW12-UWT-MBW12-MBW12-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	200 (2902)
18	1.5	MBW18-UWT-MBW18-MBW18-	37.6 (1.48)	19.1 (0.75)	23.8 (15/16)	200 (2902)

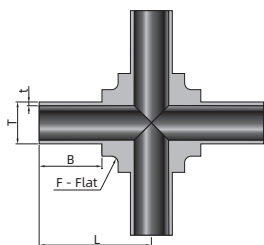
Reducing Tees



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)				Working Pressure psig (bar)
					L	Lx	B	F	
3/8	0.035	1/4	0.035	FBW6-UWT-FBW6-FBW4-	1.20(30.5)	1.23(31.2)	0.75(19.1)	7/16(11.1)	3300(227)
1/2	0.049	1/4	0.035	FBW8-UWT-FBW8-FBW4-	1.34(34.0)	1.34(34.0)	0.75(19.1)	11/16(17.5)	3700(254)
1/2	0.049	3/8	0.035	FBW8-UWT-FBW8-FBW6-	1.34(34.0)	1.35(34.3)	0.75(19.1)	11/16(17.5)	3700(254)
3/4	0.049	1/4	0.035	FBW12-UWT-FBW12-FBW4-	1.46(37.1)	1.48(37.6)	0.75(19.1)	15/16(23.8)	2400(165)
3/4	0.049	3/8	0.035	FBW12-UWT-FBW12-FBW6-	1.46(37.1)	1.35(34.3)	0.75(19.1)	15/16(23.8)	2400(165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Tx-Tube O.D. (mm)	tx-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)				Working Pressure bar (psig)
					L	Lx	B	F	
8	1.0	6	1.0	MBW8-UWT-MBW8-MBW6-	31.3(1.23)	31.3(1.23)	19.1(0.75)	11.1(7/16)	310(4499)
10	1.0	6	1.0	MBW10-UWT-MBW10-MBW6-	34.0(1.34)	34.0(1.34)	19.1(0.75)	17.5(11/16)	240(3483)
10	1.0	8	1.0	MBW10-UWT-MBW10-MBW8-	34.0(1.34)	34.0(1.34)	19.1(0.75)	17.5(11/16)	240(3483)
12	1.0	6	1.0	MBW12-UWT-MBW12-MBW6-	34.0(1.34)	34.0(1.34)	19.1(0.75)	17.5(11/16)	200(2902)
12	1.0	8	1.0	MBW12-UWT-MBW12-MBW8-	34.0(1.34)	34.0(1.34)	19.1(0.75)	17.5(11/16)	200(2902)

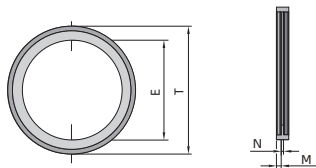
Union Crosses



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-UWC-FBW4-FBW4-FBW4-	1.23 (31.2)	0.75 (19.1)	7/16 (11.1)	5100 (351)
3/8	0.035	FBW6-UWC-FBW6-FBW6-FBW6-	1.20 (30.5)	0.75 (19.1)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-UWC-FBW8-FBW8-FBW8-	1.34 (34.0)	0.75 (19.1)	11/16 (17.5)	3700 (254)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	B	F	
6	1.0	MBW6-UWC-MBW6-MBW6-MBW6-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	420 (6095)
8	1.0	MBW8-UWC-MBW8-MBW8-MBW8-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-UWC-MBW10-MBW10-MBW10-	34.0 (1.34)	19.1 (0.75)	15.9 (5/8)	240 (3483)
12	1.0	MBW12-UWC-MBW12-MBW12-MBW12-	34.0 (1.34)	19.1 (0.75)	15.9 (5/8)	200 (2902)

Weld Rings

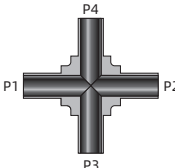


T-Tube O.D. (in.)	Ordering Number	Dimension, in. (mm)			
		E	M	N	T
1/4	UWR-4-	0.20 (5.1)	0.02 (0.51)	0.01 (0.25)	0.28 (7.1)
3/8	UWR-6-	0.32 (8.1)	0.02 (0.51)	0.01 (0.25)	0.41 (10.4)
1/2	UWR-8-	0.42 (10.7)	0.02 (0.51)	0.01 (0.25)	0.54 (13.7)

Ordering Information

Add the material designator as a postfix to the basic ordering number to complete the ordering number.
Example: **UWR-4-316**

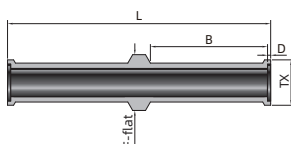
How to Order

FBW6		UWC		FBW6	FBW6	FBW6	316	
Port 1 Type		Port 1 Size	Configuration Designator		Port2	Port3	Port4	Material
FBW	Fractional Tube Butt Weld	4 1/4 in.	URWU	Reducing Unions	Same as Port 1	Same as Port 1	Same as Port 1	316 316 S.S.
		6 3/8 in. or 6 mm						316L 316L S.S.
MBW	Metric Tube Butt Weld	8 1/2 in. or 8 mm	UWE	Union Elbows				316LV 316L VAR S.S.
		10 10 mm						316LUV 316L VIM-VAR S.S.
		12 1/2 in. or 12 mm	UWT	Union Tees				316LVV 316L VIM-VAR S.S.
		16 1 in.						
		18 18 mm						
			UWC	Union Crosses				

Automatic Tube Butt Weld Fittings

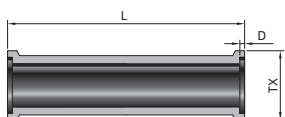
AW Series

Locator Unions



T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	B	D	F	TX	
1/4	0.035	AFBW4-ALWU-AFBW4-	1.69 (42.9)	0.75 (19.1)	0.02 (0.51)	0.36 (9.1)	0.29 (7.4)	5100 (351)
3/8	0.035	AFBW6-ALWU-AFBW6-	1.71 (43.4)	0.75 (19.1)	0.03 (0.76)	0.42 (10.7)	0.41 (10.4)	3300 (227)
1/2	0.049	AFBW8-ALWU-AFBW8-	1.73 (43.9)	0.75 (19.1)	0.04 (1.0)	0.60 (15.2)	0.55 (14.0)	3700 (254)

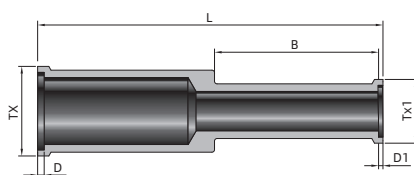
Unions



T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)			Working Pressure psig (bar)
			L	D	TX	
1/4	0.035	AFBW4-AWU-AFBW4-	1.00 (25.4)	0.02 (0.5)	0.29 (7.4)	5100 (351)
3/8	0.035	AFBW6-AWU-AFBW6-	1.00 (25.4)	0.03 (0.8)	0.41 (10.4)	3300 (227)
1/2	0.049	AFBW8-AWU-AFBW8-	1.00 (25.4)	0.04 (1.0)	0.55 (14.0)	3700 (254)
3/4	0.049	AFBW12-AWU-AFBW12-	1.00 (25.4)	0.04 (1.0)	0.80 (20.3)	2400 (165)
1	0.065	AFBW16-AWU-AFBW16-	1.25 (31.8)	0.04 (1.0)	1.06 (26.9)	2400 (165)

T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, mm (in.)			Working Pressure bar (psig)
			L	D	TX	
6	1	AMBW6-AWU-AMBW6-	31.8 (1.25)	0.5 (0.02)	6.9 (0.27)	420 (6095)
8	1	AMBW8-AWU-AMBW8-	31.8 (1.25)	0.8 (0.03)	8.9 (0.35)	310 (4499)
10	1	AMBW10-AWU-AMBW10-	31.8 (1.25)	0.8 (0.03)	10.9 (0.43)	240 (3483)
12	1	AMBW12-AWU-AMBW12-	31.8 (1.25)	1.0 (0.04)	13.2 (0.52)	200 (2902)
18	1.5	AMBW18-AWU-AMBW18-	31.8 (1.25)	1.0 (0.04)	19.3 (0.76)	200 (2902)

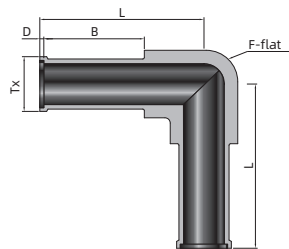
Reducing Unions



T-Tube O.D. (in.)	Wall (in.)	T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)
					L	B	D	D1	TX	TX1	
3/8	0.035	1/4	0.035	AFBW6-AWU-AFBW4-	1.58 (40.1)	0.75 (19.1)	0.03 (0.8)	0.02 (0.5)	0.41 (10.4)	0.29 (7.4)	3300 (227)
1/2	0.049	1/4	0.035	AFBW8-AWU-AFBW4-	1.58 (40.1)	0.75 (19.1)	0.04 (1.0)	0.02 (0.5)	0.55 (14.0)	0.29 (7.4)	3700 (254)
1/2	0.049	3/8	0.035	AFBW8-AWU-AFBW6-	1.58 (40.1)	0.75 (19.1)	0.04 (1.0)	0.03 (0.8)	0.55 (14.0)	0.41 (10.4)	3300 (227)
3/4	0.049	1/2	0.049	AFBW12-AWU-AFBW8-	1.62 (41.1)	0.75 (19.1)	0.04 (1.0)	0.04 (1.0)	0.80 (20.3)	0.55 (14.0)	2400 (165)

T-Tube O.D. (mm)	Wall (mm)	T-Tube O.D. (mm)	Wall (mm)	Ordering Number	Dimension, mm (in.)						Working Pressure bar (psig)
					L	B	D	D1	TX	TX1	
8	1	6	1	AMBW6-AWU-AMBW6-	39.9 (1.57)	19.1 (0.75)	0.8 (0.03)	0.5 (0.02)	8.9 (0.35)	6.8 (0.27)	310 (4499)
12	1	6	1	AMBW12-AWU-AMBW6-	40.1 (1.58)	19.1 (0.75)	1.0 (0.04)	0.5 (0.02)	13.2 (0.52)	6.8 (0.27)	200 (2902)
12	1	8	1	AMBW12-AWU-AMBW8-	40.4 (1.59)	19.1 (0.75)	1.0 (0.04)	0.8 (0.03)	13.2 (0.52)	8.9 (0.35)	200 (2902)

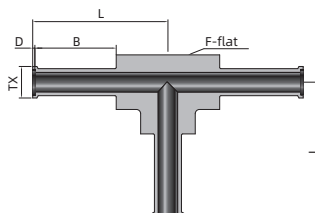
90° Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	B	D	F	TX	
1/4	0.035	AFBW4-AWUE-AFBW4-	1.25 (31.8)	0.75 (19.1)	0.02 (0.5)	7/16 (11.1)	0.29 (7.4)	5100 (351)
3/8	0.035	AFBW6-AWUE-AFBW6-	1.23 (31.2)	0.75 (19.1)	0.03 (0.8)	7/16 (11.1)	0.41 (10.4)	3300 (227)
1/2	0.049	AFBW8-AWUE-AFBW8-	1.38 (35.1)	0.75 (19.1)	0.04 (1.0)	11/16 (17.5)	0.55 (14.0)	3700 (254)
3/4	0.049	AFBW12-AWUE-AFBW12-	1.50 (38.1)	0.75 (19.1)	0.04 (1.0)	15/16 (23.8)	0.80 (20.3)	2400 (165)
1	0.065	AFBW16-AWUE-AFBW16-	1.89 (48.0)	0.96 (24.4)	0.04 (1.0)	1 1/4 (31.8)	1.06 (26.9)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)					Working Pressure bar (psig)
			L	B	D	F	TX	
6	1	AMBW6-AWUE-AMBW6-	31.8 (1.25)	19.1 (0.75)	0.5 (0.02)	11.1 (7/16)	6.9 (0.27)	351 (5100)
8	1	AMBW8-AWUE-AMBW8-	32.0 (1.26)	19.1 (0.75)	0.8 (0.03)	11.1 (7/16)	8.9 (0.35)	227 (3300)
10	1	AMBW10-AWUE-AMBW10-	34.8 (1.37)	19.1 (0.75)	0.8 (0.03)	17.5 (11/16)	10.9 (0.43)	254 (3700)
12	1	AMBW12-AWUE-AMBW12-	35.1 (1.38)	19.1 (0.75)	1.0 (0.04)	17.5 (11/16)	13.2 (0.52)	199 (2888)
18	1.5	AMBW18-AWUE-AMBW18-	38.6 (1.52)	19.1 (0.75)	1.0 (0.04)	23.8 (15/16)	19.3 (0.76)	206 (2989)

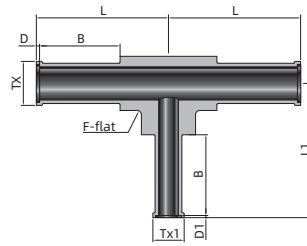
Union Tees



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	B	D	F	TX	
1/4	0.035	AFBW4-AWT-AFBW4-AFBW4-	1.25 (31.8)	0.75 (19.1)	0.02 (0.5)	7/16 (11.1)	0.29 (7.4)	5100 (351)
3/8	0.035	AFBW6-AWT-AFBW6-AFBW6-	1.23 (31.2)	0.75 (19.1)	0.03 (0.8)	7/16 (11.1)	0.41 (10.4)	3300 (227)
1/2	0.049	AFBW8-AWT-AFBW8-AFBW8-	1.38 (35.1)	0.75 (19.1)	0.04 (1.0)	11/16 (17.5)	0.55 (14.0)	3500 (241)
3/4	0.049	AFBW12-AWT-AFBW12-AFBW12-	1.50 (38.1)	0.75 (19.1)	0.04 (1.0)	15/16 (23.8)	0.80 (20.3)	2400 (165)
1	0.065	AFBW16-AWT-AFBW16-AFBW16-	1.89 (48.0)	0.96 (24.4)	0.04 (1.0)	1 1/4 (31.8)	1.06 (26.9)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Ordering Number	Dimension, mm (in.)					Working Pressure bar (psig)
			L	B	D	F	TX	
6	1	AMBW6-AWT-AMBW6-AMBW6-	31.8 (1.25)	19.1 (0.75)	0.5 (0.02)	11.1 (7/16)	6.9 (0.27)	454 (6589)
8	1	AMBW8-AWT-AMBW8-AMBW8-	32.0 (1.26)	19.1 (0.75)	0.8 (0.03)	11.1 (7/16)	8.9 (0.35)	323 (4687)
10	1	AMBW10-AWT-AMBW10-AMBW10-	34.8 (1.37)	19.1 (0.75)	0.8 (0.03)	17.5 (11/16)	10.9 (0.43)	254 (3686)
12	1	AMBW12-AWT-AMBW12-AMBW12-	35.1 (1.38)	19.1 (0.75)	1.0 (0.04)	17.5 (11/16)	13.2 (0.52)	206 (2989)
18	1.5	AMBW18-AWT-AMBW18-AMBW18-	38.6 (1.52)	19.1 (0.75)	1.0 (0.04)	23.8 (15/16)	19.3 (0.76)	206 (2989)

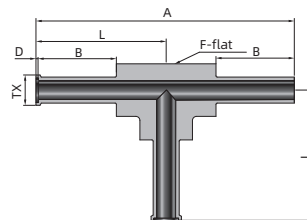
Reducing Tees



T-Tube O.D. (in.)	Wall (in.)	T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)								Working Pressure psig (bar)
					L	L1	B	D	D1	Tx	Tx1	F	
3/8	0.035	1/4	0.035	AFBW6-AWT-AFBW6-AFBW4-	1.23(31.2)	1.25(31.8)	0.75(19.1)	0.03(0.8)	0.02(0.5)	0.41(10.4)	0.29(7.4)	7/16(11.1)	3300(227)
1/2	0.049	1/4	0.035	AFBW8-AWT-AFBW8-AFBW4-	1.38(35.1)	1.38(35.1)	0.75(19.1)	0.04(1.0)	0.02(0.5)	0.55(14.0)	0.29(7.4)	11/16(17.5)	3700(254)
1/2	0.049	3/8	0.035	AFBW8-AWT-AFBW8-AFBW6-	1.38(35.1)	1.37(34.8)	0.75(19.1)	0.04(1.0)	0.03(0.8)	0.55(14.0)	0.41(10.4)	11/16(17.5)	3300(227)
3/4	0.049	3/8	0.035	AFBW12-AWT-AFBW12-AFBW6-	1.50(38.1)	1.50(38.1)	0.75(19.1)	0.04(1.0)	0.03(0.8)	0.80(20.3)	0.41(10.4)	15/16(23.8)	2400(165)
3/4	0.049	1/2	0.049	AFBW12-AWT-AFBW12-AFBW8-	1.50(38.1)	1.50(38.1)	0.75(19.1)	0.04(1.0)	0.04(1.0)	0.80(20.3)	0.55(14.0)	15/16(23.8)	2400(165)

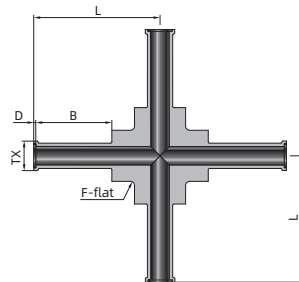
T-Tube O.D. (mm)	Wall (mm)	T-Tube O.D. (mm)	Wall (mm)	Ordering Number	Dimension, mm (in.)								Working Pressure bar (psig)
					L	L1	B	D	D1	Tx	Tx1	F	
12	1	6	1	AMBW12-AWT-AMBW12-AMBW6-	35.1(1.38)	34.5(1.36)	19.1(0.75)	0.5(0.02)	0.5(0.02)	13.2(0.52)	6.9(0.27)	17.5(11/16)	200(2902)

Manifold Tees



T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)						Working Pressure psig (bar)
			A	L	B	D	F	TX	
1/4	0.035	AFBW4-AMWT-FBW4-AFBW4-	2.48 (63.0)	1.25 (31.8)	0.75 (19.1)	0.02 (0.5)	7/16 (11.1)	0.29 (7.4)	5100 (351)
3/8	0.035	AFBW6-AMWT-FBW6-AFBW6-	2.43 (61.7)	1.23 (31.2)	0.75 (19.1)	0.03 (0.8)	11/16 (17.5)	0.41 (10.4)	3300 (227)
1/2	0.049	AFBW8-AMWT-FBW8-AFBW8-	2.72 (69.1)	1.38 (35.1)	0.75 (19.1)	0.04 (1.0)	11/16 (17.5)	0.55 (14.0)	3700 (254)

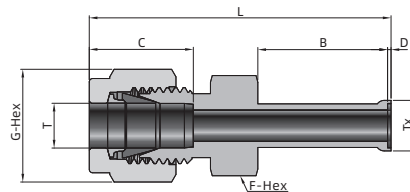
Union Crosses



T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)					Working Pressure psig (bar)
			L	B	D	F	TX	
1/4	0.035	AFBW4-AWC-AFBW4-AFBW4-AFBW4-	1.25 (31.8)	0.75 (19.1)	0.02 (0.5)	7/16 (11.1)	0.29 (7.4)	5100 (351)
3/8	0.035	AFBW6-AWC-AFBW6-AFBW6-AFBW6-	1.23 (31.2)	0.75 (19.1)	0.03 (0.8)	7/16 (11.1)	0.41 (10.4)	3300 (227)
1/2	0.049	AFBW8-AWC-AFBW8-AFBW8-AFBW8-	1.35 (34.3)	0.75 (19.1)	0.04 (1.0)	5/8 (17.5)	0.55 (14.0)	3700 (254)

T-Tube O.D. (mm)	Wall (mm)	Ordering Number	Dimension, mm (in.)					Working Pressure bar (psig)
			L	B	D	F	TX	
6	1	AMBW6-AWC-AMBW6-AMBW6-AMBW6-	31.8 (1.25)	19.1 (0.75)	0.5 (0.02)	11.1 (7/16)	6.9 (0.27)	420(6095)
8	1	AMBW8-AWC-AMBW8-AMBW8-AMBW8-	31.8 (1.25)	19.1 (0.75)	0.8 (0.03)	11.1 (7/16)	8.9 (0.35)	310(4499)

Weld Connectors



T-Tube O.D. (in.)	T-Tube O.D. (in.)	Wall (in.)	Ordering Number	Dimension, in. (mm)							Working Pressure psig (bar)
				L	B	C	D	TX	G	F	
1/4	1/4	0.035	F4-WC-AFBW4-	1.74 (44.2)	0.75 (19.1)	0.60 (15.2)	0.02 (0.51)	0.29 (7.4)	9/16 (14.3)	1/2 (12.7)	5100 (351)
3/8	3/8	0.035	F6-WC-AFBW6-	1.84 (46.7)	0.75 (19.1)	0.66 (16.8)	0.03 (0.76)	0.41 (10.4)	11/16 (17.5)	5/8 (15.9)	3300 (227)
1/2	1/2	0.049	F8-WC-AFBW8-	1.99 (50.5)	0.75 (19.1)	0.90 (22.9)	0.04 (1.0)	0.55 (14.0)	7/8 (22.2)	13/16 (20.6)	3700 (254)

How to Order

AFBW4 — AWC — AFBW4 — AFBW4 — AFBW4 — 316

Port 1 Type	Port 1 Size	Configuration Designator	Port 2 Type	Port 2 Size	Port 3	Port 4	Material
AFBW Automatic Fractional Tube Butt Weld AMBW Automatic Metric Tube Butt Weld F Fractional Ferrule	4 1/4 in.	ALWU Locator Unions	AFBW Automatic Fractional Tube Butt Weld AMBW Automatic Metric Tube Butt Weld	4 1/4 in.	Same as Port 2	Same as Port 3	316 316 S.S.
	6 3/8 in. or 6 mm	AWU Unions		6 3/8 in. or 6 mm			316L 316L S.S.
	8 1/2 in. or 8 mm	AWUE 90° Union Elbows		8 1/2 in. or 8 mm			316LV 316L VAR S.S.
	10 10 mm	AWT Union Tees		10 10 mm			316LVV 316L VIM-VAR S.S.
	12 3/4 in. or 12 mm	AMWT Manifold Tees		12 3/4 in. or 12 mm			
	16 1 in.	AWC Union Crosses		16 1 in.			
	18 18 mm	WC Weld Connectors		18 18 mm			

