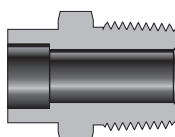




Instrumentation Weld Fittings

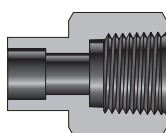
IWF Series

Tube Socket Weld Fittings



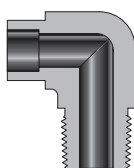
Male
Connectors

2-35



Female
Connectors

2-36



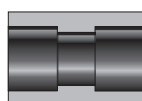
Male Elbows

2-36



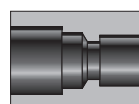
Female Elbows

2-36



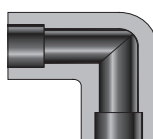
Unions

2-37



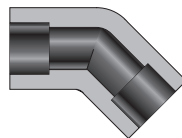
Reducing
Unions

2-37



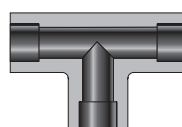
Union Elbows

2-38



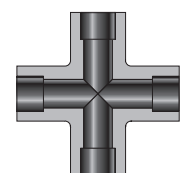
Union 45°
Elbows

2-38



Union Tees

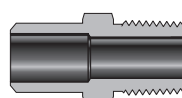
2-39



Union Crosses

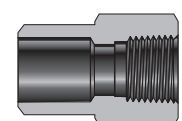
2-39

Tube Butt Weld Fittings



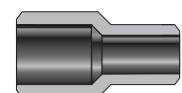
Male
Connectors

2-40



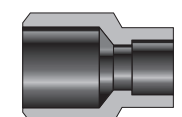
Female
Connectors

2-41



Reducing
Unions

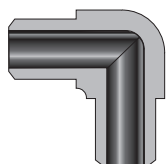
2-41



Tube Butt Weld
to Tube Socket
Weld

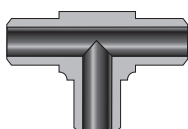
2-41

Contents



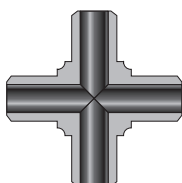
Union Elbows

2-42



Union Tees

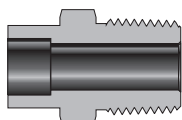
2-42



Union Crosses

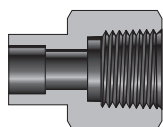
2-43

Pipe Socket Weld Fittings



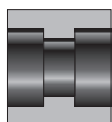
Male
Connectors

2-44



Female
Connectors

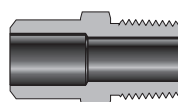
2-44



Unions

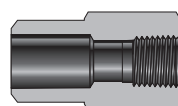
2-44

Pipe Butt Weld Fittings



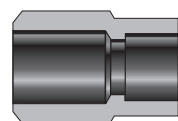
Male
Connectors

2-45



Female
Connectors

2-45



Pipe Butt Weld
to Tube Socket
Weld

2-45

Features

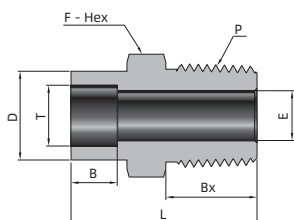
- ❖ Available in sizes from 1/8 to 2 in. and 6 mm to 38 mm
- ❖ Hikelok weld fittings materials include 316 316L stainless steel
- ❖ Quality machining of all ports ensures consistent welding
- ❖ For critical applications and high temperatures

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

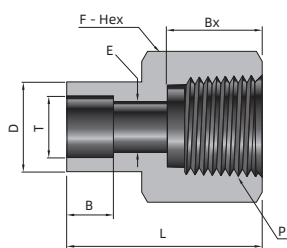
T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/4	1/4	FSW4-WMC-NPT4-	29.2	12.2	7.1	14.2	14.3	4.8	8000 (551)
3/8	1/4	FSW6-WMC-NPT4-	31.8	15.2	7.9	14.2	15.9	7.1	8000 (551)
3/8	3/8	FSW6-WMC-NPT6-	31.8	15.2	7.9	14.2	17.5	7.1	7800 (537)
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

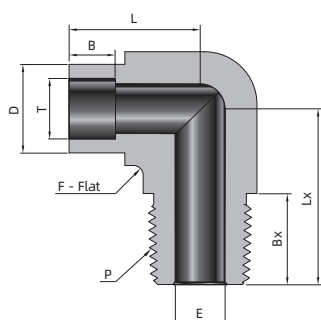
T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/8	1/8	FSW2-WFC-FNPT2-	21.1	7.4	2.5	10.4	14.3	2.3	6500 (447)
1/4	1/8	FSW4-WFC-FNPT2-	26.7	12.2	7.1	10.4	14.3	4.8	6500 (447)
1/4	1/4	FSW4-WFC-FNPT4-	30.0	12.2	7.1	15.0	19.1	4.8	6600 (454)
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

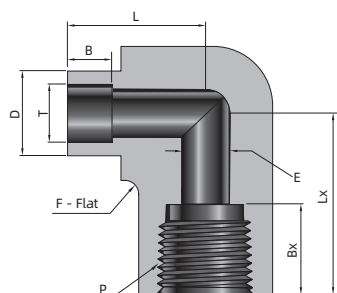


Fractional Tube

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

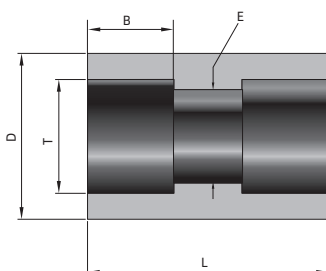


Fractional Tube

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



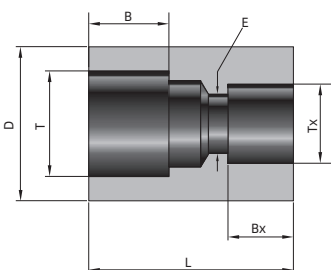
Fractional Tube

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)

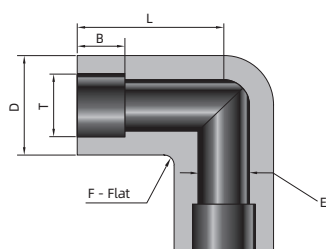
Metric Tube

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

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)

Union Elbows



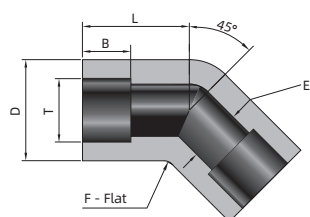
Fractional Tube

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



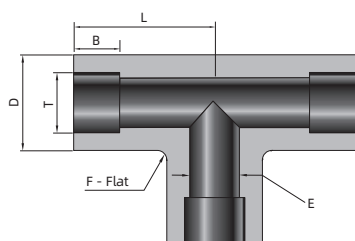
Fractional Tube

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



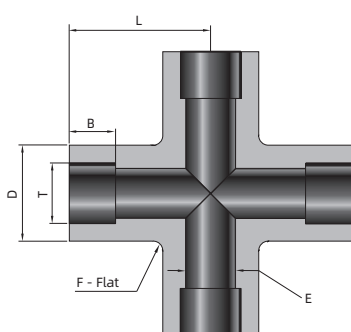
Fractional Tube

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

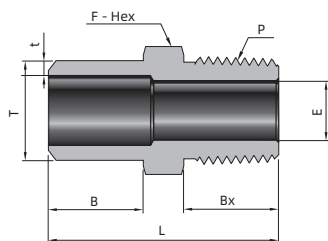
T-Tube Size (in.)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
1/8	FSW2-WUC-FSW2-FSW2-FSW2-	15.0	11.0	2.5	9.5	2.3	12600 (863)
1/4	FSW4-WUC-FSW4-FSW4-FSW4-	21.8	12.8	7.1	11.1	4.8	10700 (737)
3/8	FSW6-WUC-FSW6-FSW6-FSW6-	26.4	14.7	7.9	12.7	7.1	8100 (558)
1/2	FSW8-WUC-FSW8-FSW8-FSW8-	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

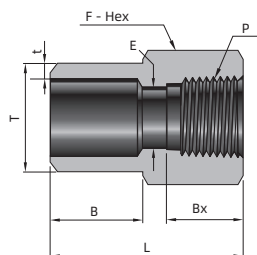
T-Tube O.D. (in.)	t-Wall Thick- ness (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
				L	B	Bx	F	E	
1/4	0.065	1/4	FBW4-WMC-NPT4-	29.7	9.7	14.2	14.3	7.1	8000 (551)
1/4	0.065	1/2	FBW4-WMC-NPT8-	36.8	9.7	19.1	22.2	11.9	7700 (530)
3/8	0.095	1/4	FBW6-WMC-NPT4-	29.7	9.7	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

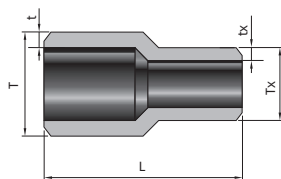
T-Tube O.D. (in.)	t-Wall Thick- ness (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
				L	B	Bx	F	E	
1/4	0.065	1/4	FBW4-WFC-FNPT4-	27.9	9.7	15.0	19.1	3.0	6600 (454)
1/4	0.065	3/8	FBW4-WFC-FNPT6-	29.5	9.7	15.0	22.2	3.0	5300 (365)
3/8	0.095	1/4	FBW6-WFC-FNPT4-	27.9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

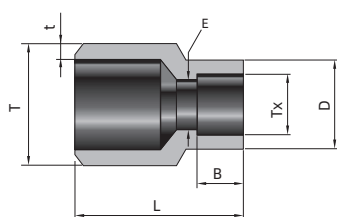
T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thick-ness (in.)	Basic Ordering Number	L (mm)	Working Pressure psig (bar)
3/8	0.095	1/4	0.065	FBW6-WU-FBW4-	38.1	9930 (685)
1/2	0.095	1/4	0.065	FBW8-WU-FBW4-	38.1	6780 (468)
1/2	0.095	3/8	0.095	FBW8-WU-FBW6-	38.1	6780 (468)
3/4	0.120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

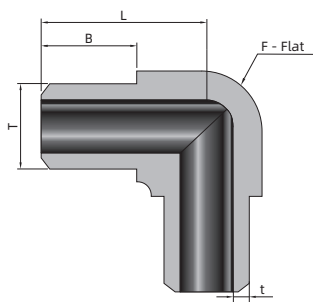
Tube Butt Weld to Tube Socket Weld



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



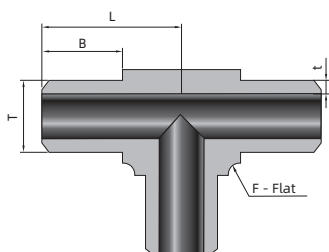
Fractional Tube

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



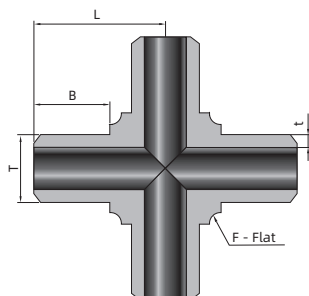
Fractional Tube

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

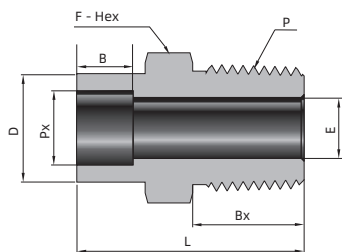
T-Tube O.D. (in.)	t-Wall Thick- ness (in.)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
			L	B	F	
1/4	0.065	FBW4-WUC-FBW4-FBW4-FBW4-	16.3	9.7	9.5	10320 (712)
3/8	0.095	FBW6-WUC-FBW6-FBW6-FBW6-	18.0	9.7	11.1	9930 (685)
1/2	0.095	FBW8-WUC-FBW8-FBW8-FBW8-	24.4	14.2	14.3	6780 (468)
3/4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

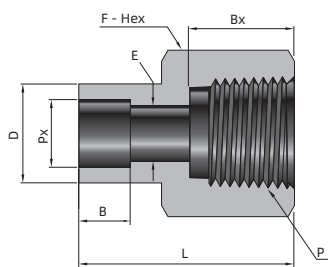
Pipe Socket Weld Fittings

Male Connectors



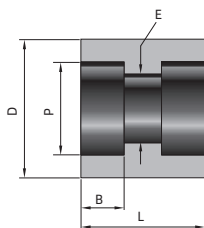
Pipe			NPT Thread						
Px-Pipe Size	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/4	1/4	PSW4-WMC-NPT4-	35.2	22.4	9.9	14.2	23.8	7.1	8000 (551)
1/4	1/2	PSW4-WMC-NPT8-	40.0	22.4	9.9	19.1	23.8	9.1	7700 (530)
3/8	3/8	PSW6-WMC-NPT6-	38.0	26.2	9.9	14.2	27.0	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 Number	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)

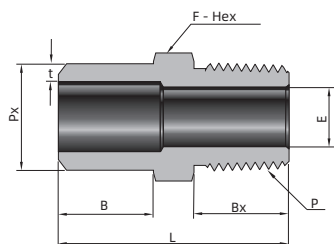
Unions



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)

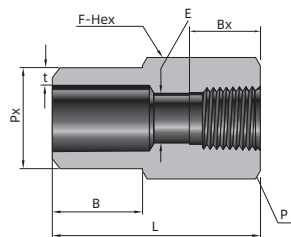
Pipe Butt Weld Fittings

Male Connectors



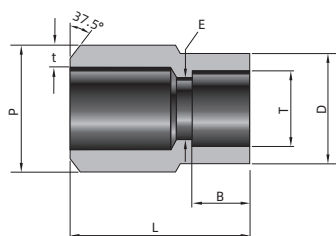
Pipe									NPT Thread
Px-Pipe Size	t-Wall Thickness (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
				L	B	Bx	F	E	
1/4	3.0	1/4	PBW4-WMC-NPT4-	34.3	14.2	14.2	14.3	7.1	8000 (551)
1/4	3.0	1/2	PBW4-WMC-NPT8-	41.3	14.2	19.1	22.2	7.7	7700 (537)
3/8	3.2	1/4	PBW6-WMC-NPT4-	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)

MBW6

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MBW6

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— MBW6 — 316

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 Port3	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 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 or M12 x 1.5	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		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			25 25 mm		25 25 mm		
	25 25 mm			27 M27 X 2		28 28 mm		
	27 M27 X 2			28 28 mm		28 28 mm		
	28 28 mm			30 30 mm or M30 x 2		38 38 mm		
	30 30 mm or M30 x 2			32 2 in. or 32 mm				
	32 2 in. or 32 mm							
	38 38 mm							

