

# Weld Fittings



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Male Connectors



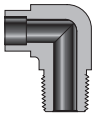
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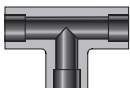
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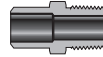
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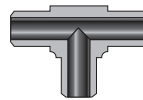
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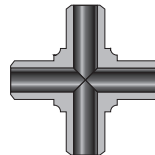
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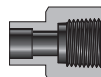
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# Contents

## Pipe Butt Weld Fittings

Male Connectors



Female Connectors



## Weld Adapters

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Pipe Butt Weld to Tube Socket Weld



## Pipe to Weld Fittings

Pipe to Tube Butt Weld



## Features

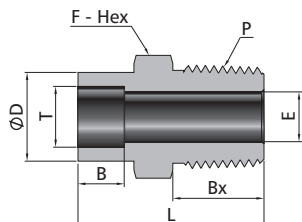
- ❖ Available in sizes from 1/8 to 2 in. and 6 mm to 38 mm
- ❖ CIR-LOK weld fittings materials include 316 316L stainless steel
- ❖ Quality machining of all ports ensures consistent welding
- ❖ For critical applications and high temperatures

## Materials Standards

Materials	Bar Stock	Forgings
316 316L stainless steel	ASTM A276 ASME SA479, EN 1.4401	ASTM A182 ASME SA182, EN 1.4401
Alloy 20	ASTM B473	ASTM B462
Alloy 400/ R-405	ASTM B164, ASME SB164	ASTM B564, ASME SB564
Alloy 600	ASTM B166, ASME SB166	ASTM B564, ASME SB564
Alloy 625	ASTM B446	ASTM B564, ASME SB564
Alloy 825	ASTM B425	ASTM B564, ASME SB564
Alloy C-276	ASTM B574	ASTM B564
Carbon steel	ASTM A108	—
Duplex 2507	ASTM A479	ASTM A182

## Tube Socket Weld Fittings

### Male Connectors



#### Fractional Tube

#### NPT Thread

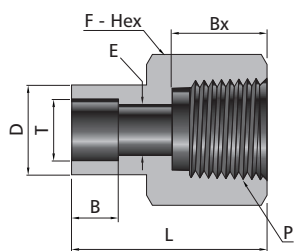
T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/4	1/4	FSW4-WMC-NPT4-	29.2	12.2	7.1	14.2	14.3	4.8	8000 (551)
3/8	1/4	FSW6-WMC-NPT4-	31.8	15.2	7.9	14.2	15.9	7.1	8000 (551)
3/8	3/8	FSW6-WMC-NPT6-	31.8	15.2	7.9	14.2	17.5	7.1	7800 (537)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

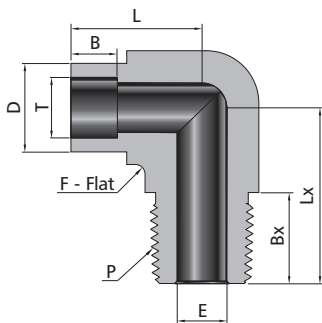
T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/8	1/8	FSW2-WFC-FNPT2-	21.1	7.4	2.5	10.4	14.3	2.3	6500 (447)
1/4	1/8	FSW4-WFC-FNPT2-	26.7	12.2	7.1	10.4	14.3	4.8	6500 (447)
1/4	1/4	FSW4-WFC-FNPT4-	30.0	12.2	7.1	15.0	19.1	4.8	6600 (454)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

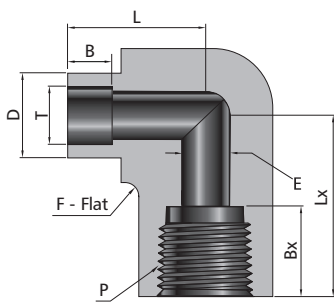


#### Fractional Tube

#### 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

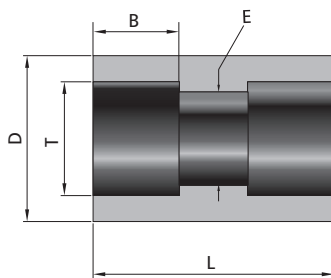


#### Fractional Tube

#### 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



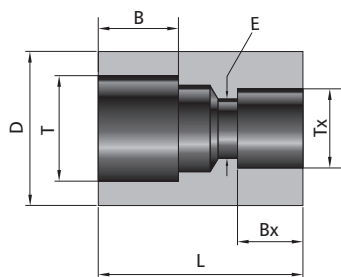
#### Fractional Tube

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)

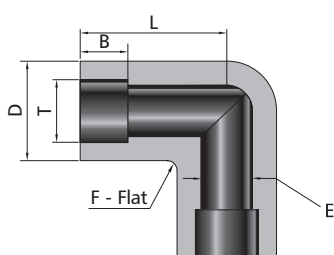
### Metric Tube

### 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



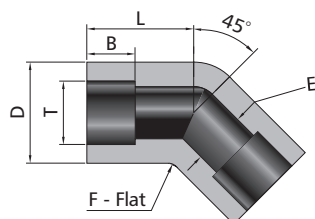
### Fractional Tube

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



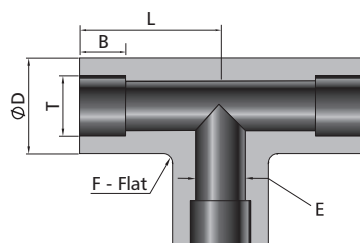
### Fractional Tube

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

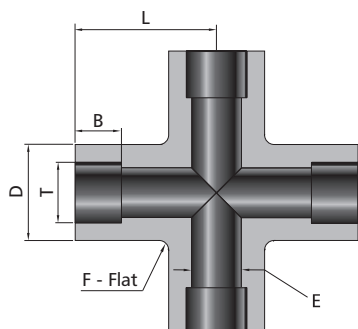
T-Tube Size (in.)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
1/8	FSW2-WUT-FSW2-FSW2-	15.0	12.8	2.5	9.5	2.3	12600 (868)
1/4	FSW4-WUT-FSW4-FSW4-	21.8	12.8	7.1	11.1	4.8	10700 (737)
3/8	FSW6-WUT-FSW6-FSW6-	26.4	14.7	7.9	12.7	7.1	8100 (558)
1/2	FSW8-WUT-FSW8-FSW8-	29.7	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

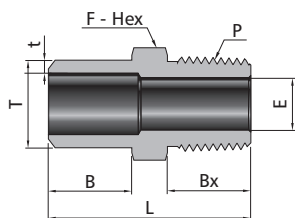
T-Tube Size (in.)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
1/8	FSW2-WUC-FSW2-FSW2-FSW2-	15.0	11.0	2.5	9.5	2.3	12600 (863)
1/4	FSW4-WUC-FSW4-FSW4-FSW4-	21.8	12.8	7.1	11.1	4.8	10700 (737)
3/8	FSW6-WUC-FSW6-FSW6-FSW6-	26.4	14.7	7.9	12.7	7.1	8100 (558)
1/2	FSW8-WUC-FSW8-FSW8-FSW8-	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-WC-MSW8-MSW8-MSW8-	18.5	14.7	7.9	12.7	5.9	9790 (675)
10	MSW10-WC-MSW10-MSW10-MSW10-	24.6	16.5	7.9	14.3	7.1	8100 (558)
12	MSW12-WC-MSW12-MSW12-MSW12-	29.7	20.2	9.7	17.5	9.5	6820 (470)
14	MSW14-WC-MSW14-MSW14-MSW14-	36.0	23.8	9.7	20.6	10.4	6930 (478)
16	MSW16-WC-MSW16-MSW16-MSW16-	36.0	23.8	10.0	20.6	12.7	6190 (426)
20	MSW20-WC-MSW20-MSW20-MSW20-	39.6	29.3	11.2	25.4	17.0	5510 (380)
22	MSW22-WC-MSW22-MSW22-MSW22-	41.3	31.2	13.5	27.0	19.0	6850 (472)
25	MSW25-WC-MSW25-MSW25-MSW25-	48.8	36.7	15.7	31.8	22.0	5450 (376)

## Tube Butt Weld Fittings

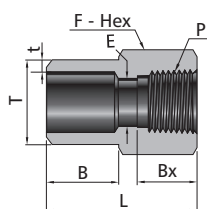
### Male Connectors



Fractional Tube				NPT Thread					Working Pressure psig (bar)
T-Tube O.D. (in.)	t-Wall Thickness (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					
				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					Working Pressure psig (bar)
T-Tube O.D. (mm)	t-Wall Thickness (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm					
				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	2.5	1/4	MBW14-WMC-NPT4-	34.3	14.2	14.2	15	7.1	6280 (433)
14	2.5	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	2.8	1/4	MBW16-WMC-NPT4-	35.6	14.2	14.2	18	7.1	6140 (423)
16	2.8	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

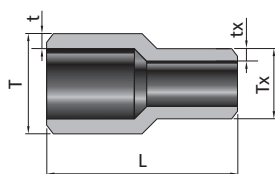
T-Tube O.D. (in.)	t-Wall Thickness (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
				L	B	Bx	F	E	
1/4	0.065	1/4	FBW4-WFC-FNPT4-	27.9	9.7	15.0	19.1	3.0	6600 (454)
1/4	0.065	3/8	FBW4-WFC-FNPT6-	29.5	9.7	15.0	22.2	3.0	5300 (365)
3/8	0.095	1/4	FBW6-WFC-FNPT4-	27.9	9.7	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	2.5	1/4	MBW14-WFC-FNPT4-	33.0	14.2	15.0	19	9.0	6280 (433)
14	2.5	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

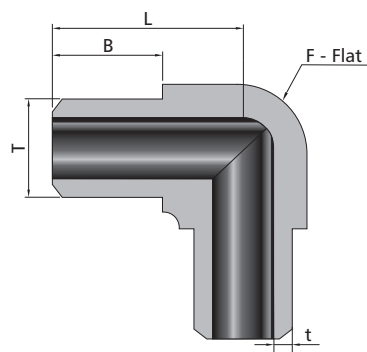
T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Basic Ordering Number	L (mm)	Working Pressure psig (bar)
3/8	0.095	1/4	0.065	FBW6-WU-FBW4-	38.1	9930 (685)
1/2	0.095	1/4	0.065	FBW8-WU-FBW4-	38.1	6780 (468)
1/2	0.095	3/8	0.095	FBW8-WU-FBW6-	38.1	6780 (468)
3/4	0.120	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	2.5	MBW20-WU-MBW14-	38.1	6470 (445)
22	3.0	14	2.5	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)

## Union Elbows



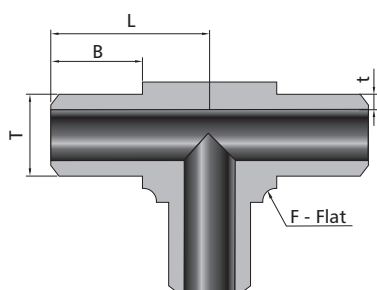
### Fractional Tube

T-Tube O.D. (in.)	t-Wall Thickness (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	2.5	MBW14-WUE-MBW14-	25.4	14.2	15.9	6280 (433)
16	2.8	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



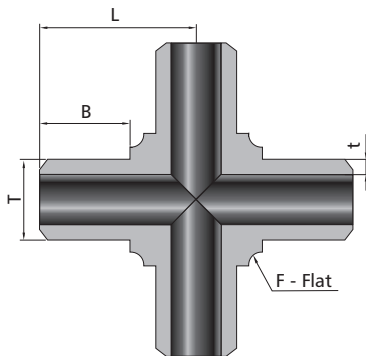
### Fractional Tube

T-Tube O.D. (in.)	t-Wall Thickness (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	2.5	MBW14-WUT-MBW14-MBW14-	25.4	14.2	15.9	6280 (433)
16	2.8	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

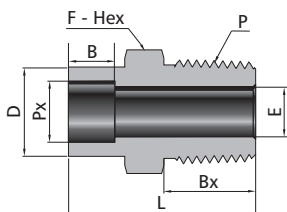
T-Tube O.D. (in.)	t-Wall Thickness (in.)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
			L	B	F	
1/4	0.065	FBW4-WUC-FBW4-FBW4-FBW4-	16.3	9.7	9.5	10320 (712)
3/8	0.095	FBW6-WUC-FBW6-FBW6-FBW6-	18.0	9.7	11.1	9930 (685)
1/2	0.095	FBW8-WUC-FBW8-FBW8-FBW8-	24.4	14.2	14.3	6780 (468)
3/4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

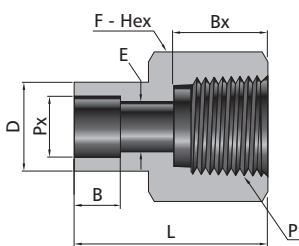
# Pipe Socket Weld Fittings

## Male Connectors



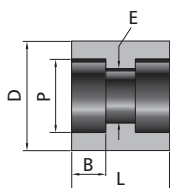
Pipe			NPT Thread						
Px-Pipe Size	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/4	1/4	PSW4-WMC-NPT4-	35.2	22.4	9.9	14.2	23.8	7.1	8000 (551)
1/4	1/2	PSW4-WMC-NPT8-	40.0	22.4	9.9	19.1	23.8	9.1	7700 (530)
3/8	3/8	PSW6-WMC-NPT6-	38.0	26.2	9.9	14.2	27.0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

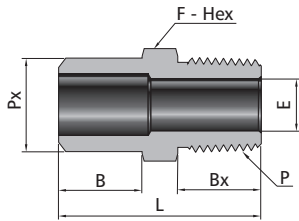
## Unions



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	9.1	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)	

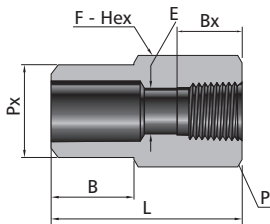
# Pipe Butt Weld Fittings

## Male Connectors



Pipe			NPT Thread					Working Pressure psig (bar)
Px-Sch80 Pipe Size	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	Bx	F	E	
1/4	1/4	PBW4-WMC-NPT4-	34.3	14.2	14.2	14.3	7.1	8000 (551)
1/4	1/2	PBW4-WMC-NPT8-	41.3	14.2	19.1	22.2	7.7	7700 (537)
3/8	1/4	PBW6-WMC-NPT4-	34.8	14.2	14.2	17.5	7.1	6650 (459)
3/8	1/2	PBW6-WMC-NPT8-	41.3	14.2	19.1	22.2	10.7	6650 (459)
1/2	1/4	PBW8-WMC-NPT4-	41.3	19.1	14.2	22.2	7.1	6190 (427)
1/2	1/2	PBW8-WMC-NPT8-	46.2	19.1	19.1	22.2	11.9	6190 (427)
3/4	1/4	PBW12-WMC-NPT4-	42.9	19.1	14.2	27.0	7.1	5040 (348)
3/4	1/2	PBW12-WMC-NPT8-	47.8	19.1	19.1	27.0	11.9	5040 (348)
1	1/4	PBW16-WMC-NPT4-	50.0	23.9	14.2	34.9	7.1	4640 (320)
1	1/2	PBW16-WMC-NPT8-	54.9	23.9	19.1	34.9	11.9	4640 (320)

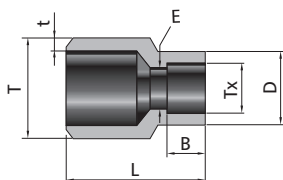
## Female Connectors



Pipe			NPT Thread					Working Pressure psig (bar)
Px-Sch80 Pipe Size	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	Bx	F	E	
1/4	1/2	PBW4-WFC-FNPT8-	38.9	14.2	19.8	27.0	7.6	4900 (337)
3/8	1/2	PBW6-WFC-FNPT8-	38.9	14.2	19.8	27.0	10.7	4900 (337)
1/2	1/4	PBW8-WFC-FNPT4-	37.3	19.1	15.0	22.2	10.4	7500 (516)
1/2	1/2	PBW8-WFC-FNPT8-	43.7	19.1	19.8	27.0	13.9	4900 (337)

## Weld Adapters

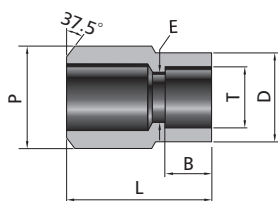
### Tube Butt Weld to Tube Socket Weld



#### Fractional Tube

T-Tube O.D. (in.)	t-Wall Thickness (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-WA-FSW2-	14.2	2.5	8.0	2.3	12600 (868)
3/8	0.095	1/4	FBW6-WA-FSW4-	19.1	7.1	12.2	4.8	8200 (564)
1/2	0.095	1/4	FBW8-WA-FSW4-	22.4	7.1	12.7	4.8	7500 (516)
1/2	0.095	3/8	FBW8-WA-FSW6-	22.4	7.9	15.2	8.3	7500 (516)
3/4	0.120	1/2	FBW12-WA-FSW8-	28.4	9.7	18.5	10.4	6300 (434)
1	0.134	1/2	FBW16-WA-FSW8-	35.1	9.7	18.5	10.4	5300 (365)
1	0.134	3/4	FBW16-WA-FSW12-	38.1	11.2	26.4	16.0	5300 (365)

### Pipe Butt Weld to Tube Socket Weld



#### Pipe

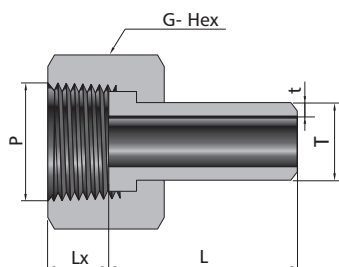
#### Fractional Tube

P-Sch80 Pipe Size	T-Tube Size (in.)	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)
			L	B	D	E	
1/4	1/4	PBW4-WA-FSW4-	22.4	7.1	12.2	4.8	10810 (744)
3/8	1/4	PBW6-WA-FSW4-	26.2	7.9	12.2	4.8	8500 (586)
3/8	3/8	PBW6-WA-FSW6-	26.2	7.9	15.2	7.1	8500 (586)
3/8	1/2	PBW6-WA-FSW8-	25.4	9.7	18.5	10.4	6930 (476)
1/2	1/4	PBW8-WA-FSW4-	28.4	7.1	12.2	4.8	8190 (563)
1/2	3/8	PBW8-WA-FSW6-	28.4	7.9	15.2	7.1	8190 (563)
1/2	1/2	PBW8-WA-FSW8-	30.2	9.7	18.5	10.4	6930 (476)
3/4	1/4	PBW12-WA-FSW4-	38.1	7.1	12.2	4.8	6930 (476)
3/4	3/8	PBW12-WA-FSW6-	38.1	7.9	15.2	7.1	6930 (476)
3/4	1/2	PBW12-WA-FSW8-	38.1	9.7	18.5	10.4	6930 (476)
3/4	3/4	PBW12-WA-FSW12-	38.1	11.2	26.4	16.0	6190 (483)
1	3/8	PBW16-WA-FSW6-	35.1	7.9	15.2	7.1	6300 (434)
1	1/2	PBW16-WA-FSW8-	39.6	11.2	18.5	10.4	6300 (434)



## Pipe to Weld Fittings

### Pipe to Tube Butt Weld



#### ISO Parallel Thread

#### Metric Tube

P-ISO Thread Size	T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
				L	G	Lx	
1/2	12	2.2	FBP8-PTW-MBW12-	30	27.0	9.2	6470 (446)
1/2	14	2.5	FBP8-PTW-MBW14-	30	27.0	9.2	6280 (433)
1/2	16	2.8	FBP8-PTW-MBW16-	34	27.0	9.2	6140 (423)

#### Metric Thread

#### Metric Tube

P-Metric Thread Size	T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
				L	G	Lx	
M12 x 1.5	6	1.8	FMS12-PTW-MBW6-	25	16	8	12660 (873)
M12 x 1.5	8	1.8	FMS12-PTW-MBW8-	30	16	9	8320 (574)
M14 x 1.5	8	1.8	FMS14-PTW-MBW8-	30	18	9	8320 (574)
M14 x 1.5	10	2.2	FMS14-PTW-MBW10-	30	18	9	8160 (563)
M16 x 1.5	8	1.8	FMS16-PTW-MBW8-	30	22	9	8320 (574)
M16 x 1.5	10	2.2	FMS16-PTW-MBW10-	30	22	9	8160 (563)
M16 x 1.5	12	2.2	FMS16-PUW-MBW12-	34	22	14	6470 (446)
M18 x 1.5	10	2.2	FMS18-PTW-MBW10-	34	22	10	8160 (563)
M18 x 1.5	12	2.2	FMS18-PTW-MBW12-	34	22	10	6470 (446)
M18 x 1.5	14	2.5	FMS18-PTW-MBW14-	34	22	10	6280 (433)
M20 x 1.5	10	2.2	FMS20-PTW-MBW10-	34	25	11	8160 (563)
M20 x 1.5	12	2.2	FMS20-PTW-MBW12-	34	25	11	6470 (446)
M20 x 1.5	14	2.5	FMS20-PTW-MBW14-	34	25	11	6280 (433)
M20 x 1.5	15	2.5	FMS20-PTW-MBW15-	34	25	11	6160 (425)
M20 x 1.5	16	2.8	FMS20-PTW-MBW16-	34	25	11	6140 (423)
M22 x 1.5	14	2.5	FMS22-PTW-MBW14-	34	27	11	6280 (433)
M22 x 1.5	16	2.8	FMS22-PTW-MBW16-	34	27	11	6140 (423)
M24 x 1.5	16	2.8	FMS24-PTW-MBW16-	34	30	11	6140 (423)
M24 x 1.5	18	2.8	FMS24-PTW-MBW18-	34	30	11	5670 (392)
M24 x 1.5	20	3.0	FMS24-PTW-MBW20-	34	30	11	5110 (352)
M27 x 2	14	2.5	FMS27-PTW-MBW14-	34	32	14	6280 (433)
M27 x 2	16	2.8	FMS27-PTW-MBW16-	34	32	14	6140 (423)
M27 x 2	18	2.8	FMS27-PTW-MBW18-	34	32	14	5670 (392)
M27 x 2	20	3.0	FMS27-PTW-MBW20-	40	32	14	5110 (352)
M27 x 2	22	3.0	FMS27-PTW-MBW22-	40	32	14	4620 (319)
M30 x 2	22	3.0	FMS30-PTW-MBW22-	40	35	18	4620 (319)
M30 x 2	25	3.5	FMS30-PTW-MBW25-	45	35	18	4730 (326)
M33 x 2	28	4.0	FMS33-PTW-MBW28-	45	41	18	5160 (356)
M36 x 2	30	4.0	FMS36-PTW-MBW30-	45	41	18	4760 (328)

## How to Order

**MBW6**

**WMC**

**NPT4**

**316**

Port 1 Type	Port 1 Size	Fitting Configuration	Port 2, Port 3 and Port 4	Material
<b>FSW</b> Fractional Tube Socket Weld	<b>2</b> 1/8 in.	<b>WMC</b> Male Connector	Same as port 1	<b>316</b> 316 S.S.
<b>FBW</b> Fractional Tube Butt Weld	<b>4</b> 1/4 in.	<b>WFC</b> Female Connector		<b>316L</b> 316L S.S.
<b>MSW</b> Metric Tube Socket Weld	<b>6</b> 3/8 in. or 6 mm	<b>WU</b> Union		<b>304</b> 304 S.S.
<b>MBW</b> Metric Tube Butt Weld	<b>8</b> 1/2 in. or 8 mm	<b>WUE</b> Union Elbow		<b>304L</b> 304L S.S.
<b>PBW</b> Pipe Butt Weld	<b>10</b> 5/8 in. or 10 mm	<b>WUT</b> Union Tee		
<b>PSW</b> Pipe Socket Weld	<b>12</b> 3/4 in. or 12 mm or M12 x 1.5	<b>WUC</b> Union Cross		
<b>FNPT</b> Female NPT	<b>14</b> 7/8 in. or 14 mm or M14 x 1.5	<b>WME</b> Male Elbow		
<b>NPT</b> Male NPT	<b>16</b> 1 in. or 16 mm or M16 x 1.5	<b>WFE</b> Female Elbow		
<b>NPTO</b> O-ring with Male NPT	<b>18</b> 18 mm or M18 x 1.5	<b>W45UE</b> 45° Union Elbow		
<b>FBT</b> Female BSPT	<b>20</b> 1 <sup>1</sup> / <sub>4</sub> in. or 20 mm or M20 x 1.5			
<b>MBT</b> Male BSPT	<b>22</b> 22 mm or M22 x 1.5			
<b>MBTO</b> O-ring with Male BSPT	<b>24</b> 1 <sup>1</sup> / <sub>2</sub> in. or M24 x 1.5			
<b>FBP</b> Female BSPP	<b>25</b> 25 mm			
<b>PMBP</b> Male BSPP (for BP)	<b>27</b> M27 X 2			
<b>MBS</b> Male BSPP (for BS)	<b>28</b> 28 mm			
<b>MBP</b> Male BSPP (for BG)	<b>30</b> 30 mm or M30 x 2			
<b>FMS</b> Female ISO	<b>32</b> 2 in. or 32 mm			
<b>MS</b> Male ISO (for BG)	<b>38</b> 38 mm			
<b>BPMS</b> Male ISO (for BP)				
<b>BSMS</b> Male ISO (for BS)				

