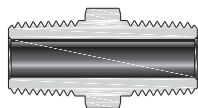




# Instrumentation Pipe Fittings

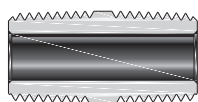
IPF Series

# Contents



Hex Nipples

2-5



Close Nipples

2-6



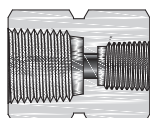
Special Pipe Nipples

2-7



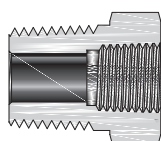
Hex Long Nipples

2-8



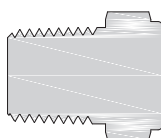
Hex Couplings

2-9



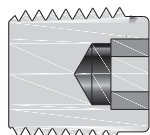
Reducing Bushings

2-10



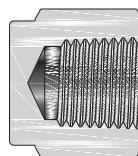
Pipe Plugs

2-12



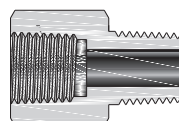
Hollow Hex Plugs

2-13



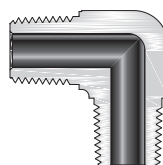
Pipe Caps

2-14



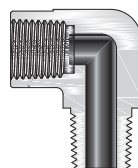
Adapters

2-15



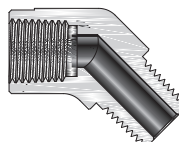
Male Elbows

2-17



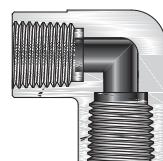
Street Elbows

2-18



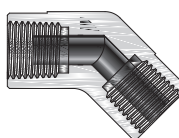
45° Street Elbows

2-20



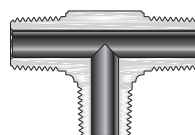
Female Elbows

2-22



45° Female Elbows

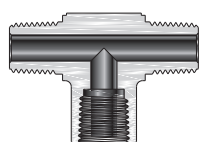
2-23



Male Tees

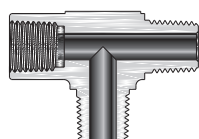
2-24

# Contents



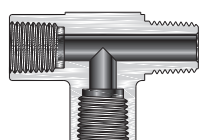
Female Branch Tees

2-25



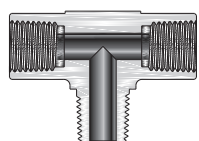
Female Run Tees

2-25



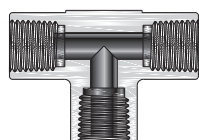
Male Street Tees

2-26



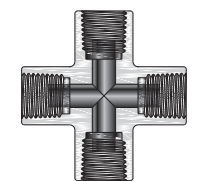
Male Branch Tees

2-26



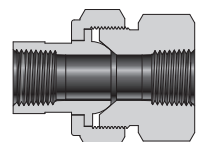
Female Tees

2-27



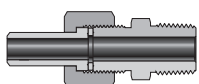
Female Crosses

2-27



Union Ball Joints (UBJ)

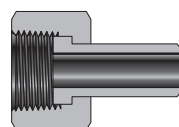
2-28



Male Pipe to  
Tube Butt Weld (UGJ)

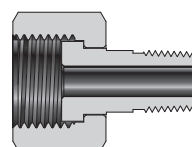
2-28

## Pipe to Weld Fittings



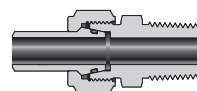
Pipe to Tube  
Butt Weld (PTW)

2-29



Thread to Pipe Unions (TPU)

2-30



Male Pipe to  
Tube Butt Weld (UOJ)

2-30

## Features

- ❖ Available in sizes from 1/16 to 2 in. and 6 mm to 30 mm
- ❖ CIR-LOK pipe Fittings materials include stainless steel, alloy 400/R-405, brass, and carbon steel
- ❖ CIR-LOK provide NPT, ISO/BSP, SAE and ISO threads configurations
- ❖ Burrfree smooth thread provide optimum sealing and minimize galling

## Materials Standards

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

## Thread Specifications

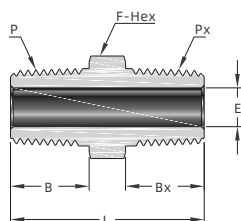
Thread Type(End Connection)	Reference Specification
NPT	ASME B1.20.1, SAE AS71051
ISO/BSP(parallel) (Based on DIN 3852) (CIR-LOK PPT,BP,and BS fittings)	ISO 228, JIS B0202
ISO/BSP(tapered ) (Based on DIN 3852) (CIR-LOK BT fittings)	ISO 7, BS EN 10226-1, JIS B0203
ISO/BSP(gauge ) (Based on EN 837-1 and 837-3) (CIR-LOK BG)	ISO 228
Unified (SAE) (CIR-LOK SA fittings)	ASME B1.1

## Working Temperature Rating

Material	Working Temperature Rating °F(°C)
316 stainless steel	-65 (-53) to 1000 (537)
Brass	-20 (-28) to 400 (204)
Carbon steel	-65 (-53) to 375 (190)
BS gaskets (FKM)	-5 (-15) to 400 (204)
BG BP gaskets (copper)	-325 (-198) to 400 (204)
SAE O-ring (FKM)	-20 (-28) to 400 (204)

- ❖ System temperatures may be limited by the thread sealant or, when applicable, the gasket or O-ring material.

## Hex Nipples



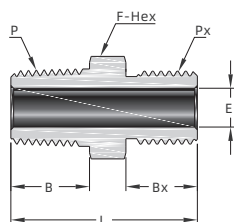
### Male NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/16	1/16	NPT1-THN-NPT1-	25.6	7.9	9.7	9.7	3.0	11000 (757)	5500 (378)
1/8	1/16	NPT2-THN-NPT1-	25.6	11.1	9.7	9.7	3.0	11000 (757)	5500 (378)
1/8	1/8	NPT2-THN-NPT2-	25.6	11.1	9.7	9.7	4.8	10000 (689)	5000 (344)
1/4	1/16	NPT4-THN-NPT1-	31.0	14.3	14.2	9.7	3.0	11000 (757)	5500 (378)
1/4	1/8	NPT4-THN-NPT2-	31.0	14.3	14.2	9.7	4.8	10000 (689)	5000 (344)
1/4	1/4	NPT4-THN-NPT4-	35.6	14.3	14.2	14.2	7.1	8000 (551)	4000 (275)
3/8	1/16	NPT6-THN-NPT1-	31.8	17.5	14.2	9.7	3.0	11000 (757)	5500 (378)
3/8	1/8	NPT6-THN-NPT2-	31.8	17.5	14.2	9.7	4.8	10000 (689)	5000 (344)
3/8	1/4	NPT6-THN-NPT4-	36.3	17.5	14.2	14.2	7.1	8000 (551)	4000 (275)
3/8	3/8	NPT6-THN-NPT6-	36.3	17.5	14.2	14.2	9.6	7800 (537)	3900 (268)
1/2	1/8	NPT8-THN-NPT2-	37.3	22.2	19.1	9.7	4.8	7700 (530)	3800 (261)
1/2	1/4	NPT8-THN-NPT4-	41.9	22.2	19.1	14.2	7.1	8000 (551)	4000 (275)
1/2	3/8	NPT8-THN-NPT6-	41.9	22.2	19.1	14.2	9.6	7800 (537)	3900 (268)
1/2	1/2	NPT8-THN-NPT8-	46.7	22.2	19.1	19.1	11.9	7700 (530)	3800 (261)
3/4	1/8	NPT12-THN-NPT2-	40.4	27.0	19.1	9.7	4.8	10000 (689)	5000 (344)
3/4	1/4	NPT12-THN-NPT4-	41.9	27.0	19.1	14.2	7.1	8000 (551)	4000 (275)
3/4	3/8	NPT12-THN-NPT6-	45.2	27.0	19.1	14.2	9.6	7800 (537)	3900 (268)
3/4	1/2	NPT12-THN-NPT8-	46.7	27.0	19.1	19.1	11.9	7700 (530)	3800 (261)
3/4	3/4	NPT12-THN-NPT12-	46.7	27.0	19.1	19.1	15.7	7300 (502)	3600 (248)
1	1/8	NPT16-THN-NPT2-	45.2	34.9	23.9	9.7	4.8	10000 (689)	5000 (344)
1	1/4	NPT16-THN-NPT4-	49.3	34.9	23.9	14.2	7.1	5300 (365)	2600 (179)
1	3/8	NPT16-THN-NPT6-	50.0	34.9	23.9	14.2	9.6	7800 (537)	3900 (268)
1	1/2	NPT16-THN-NPT8-	54.1	34.9	23.9	19.1	11.9	7700 (530)	3800 (261)
1	3/4	NPT16-THN-NPT12-	54.1	34.9	23.9	19.1	15.7	7300 (502)	3600 (248)
1	1	NPT16-THN-NPT16-	58.9	34.9	23.9	23.9	22.4	5300 (365)	2600 (179)
1 1/4	1	NPT20-THN-NPT16-	62.2	44.5	23.9	23.9	22.4	5300 (365)	2600 (179)
1 1/4	1 1/4	NPT20-THN-NPT20-	62.9	44.5	23.9	23.9	28.6	6000 (410)	3000 (200)
1 1/2	1 1/2	NPT24-THN-NPT24-	66.3	50.8	26.2	26.2	34.0	5000 (344)	2500 (172)
2	2	NPT32-THN-NPT32-	77.7	69.9	26.2	26.2	45.0	3900 (268)	1900 (130)
<b>Heavy-Wall Male NPT Threads</b>									
1/4	1/4	NPT4-THN1-NPT4-	35.6	14.3	14.2	14.2	5.8	10000 (689)	—
1/2	1/4	NPT8-THN1-NPT4-	41.9	22.2	19.1	14.2	5.8	10000 (689)	—
1/2	1/2	NPT8-THN1-NPT8-	46.7	22.2	19.1	19.1	9.9	10000 (689)	—

### Male ISO Tapered Threads

P-BSPT Size	Px-BSPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/8	MBT2-THN-MBT2-	25.6	11.1	9.7	9.7	4.8	10000 (689)	5000 (344)
1/4	1/4	MBT4-THN-MBT4-	35.6	14.3	14.2	14.2	7.1	8000 (551)	4000 (275)
3/8	3/8	MBT6-THN-MBT6-	36.3	17.5	14.2	14.2	9.6	7800 (537)	3900 (268)
1/2	1/2	MBT8-THN-MBT8-	46.7	22.2	19.1	19.1	11.9	7700 (530)	3800 (261)
3/4	3/4	MBT12-THN-MBT12-	46.7	27.0	19.1	19.1	15.7	7300 (502)	3600 (248)
1	1	MBT16-THN-MBT16-	58.9	34.9	23.9	23.9	22.4	5300 (365)	2600 (179)

## Hex Nipples



### Male NPT Threads

P-NPT Size	Px-Metric Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar) 316 SS, Steel
			L	F	B	Bx	E	
1/8	M20 x 1.5	NPT2-THN-MS20-	32.7	22.2	9.7	16	5.0	7700 (530)
1/4	M8 x 1	NPT4-THN-MS8-	29.0	14.3	14.2	9	3.2	8000 (551)
1/4	M14 x 1.5	NPT4-THN-MS14-	34.2	15.9	14.2	13	7.0	8000 (551)
1/4	M16 x 1.5	NPT4-THN-MS16-	35.2	17.5	14.2	14	7.1	7800 (537)
1/4	M20 x 1.5	NPT4-THN-MS20-	37.2	22.2	14.2	16	7.1	7700 (530)
3/8	M14 x 1.5	NPT6-THN-MS14-	34.2	17.5	14.2	13	7.0	7800 (537)
3/8	M20 x 1.5	NPT6-THN-MS20-	37.2	22.2	14.2	16	9.5	7700 (530)
3/8	M24 x 1.5	NPT6-THN-MS24-	38.2	27	14.2	17	9.5	7400 (509)
1/2	M14 x 1.5	NPT8-THN-MS14-	39.1	22.2	19.1	13	7.2	7700 (530)
1/2	M20 x 1.5	NPT8-THN-MS20-	42.0	22.2	19.1	16	10.0	7700 (530)
1/2	M24 x 1.5	NPT8-THN-MS24-	43.5	27	19.1	17	11.9	7400 (509)
3/4	M20 x 1.5	NPT12-THN-MS20-	42.1	27	19.1	16	10.8	7300 (502)
3/4	M27 x 2	NPT12-THN-MS27-	46.7	31.8	19.1	18	15.8	6100 (420)
1	M30 x 2	NPT16-THN-MS30-	55.0	34.9	23.9	20	19.4	6100 (420)

### Male Metric Threads

### Male ISO Tapered Threads

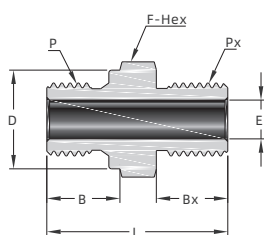
P-BSPT Size	Px-Metric Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar) 316 SS, Steel
			L	F	B	Bx	E	
1/8	M20 x 1.5	MBT2-THN-MS20-	32.7	22.2	9.7	16	5.0	7700 (530)
1/4	M12 x 1.5	MBT4-THN-MS12-	33.4	14.3	14.2	15	6.0	8000 (551)
1/4	M20 x 1.5	MBT4-THN-MS20-	37.2	22.2	14.2	16	7.0	7700 (530)
3/8	M20 x 1.5	MBT6-THN-MS20-	37.2	22.2	14.2	16	9.5	7700 (530)
1/2	M20 x 1.5	MBT8-THN-MS20-	42.0	22.2	19.1	16	10.0	7700 (530)

### Male Metric Threads

### Male ISO Parallel Threads

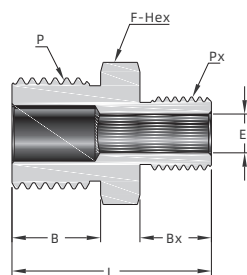
P-BS Size	Px-Metric Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar) 316 SS, Steel	
			L	F	B	Bx	E		D
1/8	M20 x 1.5	MBS2-THN-MS20-	32.6	22.2	7.1	16	4.0	13.7	7700 (530)
1/4	M18 x 1.5	MBS4-THN-MS18-	34.2	20.6	11.2	15	5.9	18.0	7800 (537)
1/4	M20 x 1.5	MBS4-THN-MS20-	37.2	22.2	11.2	16	5.9	18.0	7700 (530)
3/8	M20 x 1.5	MBS6-THN-MS20-	37.2	22.2	11.2	16	7.9	21.6	7700 (530)
1/2	M20 x 1.5	MBS8-THN-MS20-	40.2	27	14.0	16	11.9	25.9	7700 (530)

### Male Metric Threads

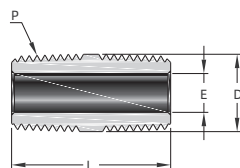


### Male Metric Threads

P-Metric Size	Px-Metric Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar) 316 SS, Steel
			L	F	B	Bx	E	
M20 x 1.5	M10 x 1	MS20-THN-MS10-	34	22.2	16	11	4.7	10000 (689)
M20 x 1.5	M12 x 1.5	MS20-THN-MS12-	35	22.2	16	12	6.0	9000 (620)
M20 x 1.5	M14 x 1.5	MS20-THN-MS14-	36	22.2	16	13	7.2	8000 (551)
M20 x 1.5	M16 x 1.5	MS20-THN-MS16-	37	22.2	16	14	8.4	7800 (537)
M20 x 1.5	M20 x 1.5	MS20-THN-MS20-	39	22.2	16	16	10.8	7700 (530)
M27 x 2	M27 x 2	MS27-THN-MS27-	44.5	30.0	18	18	16.1	7300 (502)



## Close Nipples



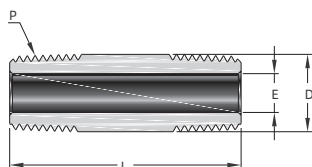
### Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
		L	D	E	316 SS, Steel	Brass
1/16	NPT1-TCN-NPT1-	19.1	7.9	3.0	11000 (757)	5500 (378)
1/8	NPT2-TCN-NPT2-	19.1	10.3	4.8	10000 (689)	5000 (344)
1/4	NPT4-TCN-NPT4-	28.4	13.7	7.1	8000 (551)	4000 (275)
3/8	NPT6-TCN-NPT6-	28.4	17.1	9.6	7800 (537)	3900 (268)
1/2	NPT8-TCN-NPT8-	38.1	21.3	11.9	7700 (530)	3800 (261)
3/4	NPT12-TCN-NPT12-	38.1	26.7	15.7	7300 (502)	3600 (248)
1	NPT16-TCN-NPT16-	47.8	33.4	22.4	5300 (365)	2600 (179)

### Male ISO Tapered Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
		L	D	E	316 SS, Steel	Brass
1/16	MBT1-TCN-MBT1-	19.1	7.9	3.0	11000 (757)	5500 (378)
1/8	MBT2-TCN-MBT2-	19.1	10.3	4.8	10000 (689)	5000 (344)
1/4	MBT4-TCN-MBT4-	28.4	13.7	7.1	8000 (551)	4000 (275)
3/8	MBT6-TCN-MBT6-	28.4	17.1	9.6	7800 (537)	3900 (268)
1/2	MBT8-TCN-MBT8-	38.1	21.3	11.9	7700 (530)	3800 (261)
3/4	MBT12-TCN-MBT12-	38.1	26.7	15.7	7300 (502)	3600 (248)
1	MBT16-TCN-MBT16-	47.8	33.4	22.4	5300 (365)	2600 (179)

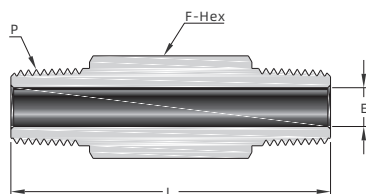
## Special Pipe Nipples



### Male NPT Threads

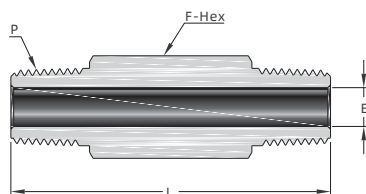
P-NPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
		L	D	E	316 SS, Steel	Brass
1/8	NPT2-TPN-NPT2-38.1-	38.1	10.3	4.8	10000 (689)	5000 (344)
1/8	NPT2-TPN-NPT2-50.8-	50.8	10.3	4.8	10000 (689)	5000 (344)
1/8	NPT2-TPN-NPT2-63.5-	63.5	10.3	4.8	10000 (689)	5000 (344)
1/8	NPT2-TPN-NPT2-76.2-	76.2	10.3	4.8	10000 (689)	5000 (344)
1/4	NPT4-TPN-NPT4-38.1-	38.1	13.7	7.1	8000 (551)	4000 (275)
1/4	NPT4-TPN-NPT4-50.8-	50.8	13.7	7.1	8000 (551)	4000 (275)
1/4	NPT4-TPN-NPT4-63.5-	63.5	13.7	7.1	8000 (551)	4000 (275)
1/4	NPT4-TPN-NPT4-76.2-	76.2	13.7	7.1	8000 (551)	4000 (275)
1/4	NPT4-TPN-NPT4-101.6-	101.6	13.7	7.1	8000 (551)	4000 (275)
3/8	NPT6-TPN-NPT6-38.1-	38.1	17.1	9.6	7800 (537)	3900 (268)
3/8	NPT6-TPN-NPT6-50.8-	50.8	17.1	9.6	7800 (537)	3900 (268)
3/8	NPT6-TPN-NPT6-63.5-	63.5	17.1	9.6	7800 (537)	3900 (268)
3/8	NPT6-TPN-NPT6-76.2-	76.2	17.1	9.6	7800 (537)	3900 (268)
3/8	NPT6-TPN-NPT6-101.6-	101.6	17.1	9.6	7800 (537)	3900 (268)
1/2	NPT8-TPN-NPT8-50.8-	50.8	21.3	11.9	7700 (530)	3800 (261)
1/2	NPT8-TPN-NPT8-76.2-	76.2	21.3	11.9	7700 (530)	3800 (261)
1/2	NPT8-TPN-NPT8-101.6-	101.6	21.3	11.9	7700 (530)	3800 (261)
1/2	NPT8-TPN-NPT8-152.4-	152.4	21.3	11.9	7700 (530)	3800 (261)
3/4	NPT12-TPN-NPT12-50.8-	50.8	26.7	15.7	7300 (502)	3600 (248)
3/4	NPT12-TPN-NPT12-76.2-	76.2	26.7	15.7	7300 (502)	3600 (248)
3/4	NPT12-TPN-NPT12-101.6-	101.6	26.7	15.7	7300 (502)	3600 (248)
1	NPT16-TPN-NPT16-76.2-	76.2	33.4	22.4	5300 (365)	2600 (179)
1	NPT16-TPN-NPT16-101.6-	101.6	33.4	22.4	5300 (365)	2600 (179)

## Hex Long Nipples



### Male NPT Threads

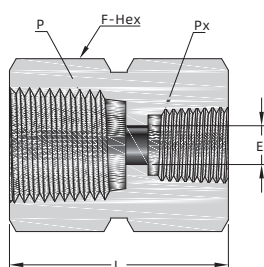
P-NPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
		L	F	E	316 SS, Steel	Brass
1/8	NPT2-TLN-NPT2-38.1-	38.1	11.1	4.8	10000 (689)	5000 (344)
1/8	NPT2-TLN-NPT2-50.8-	50.8	11.1	4.8	10000 (689)	5000 (344)
1/8	NPT2-TLN-NPT2-63.5-	63.5	11.1	4.8	10000 (689)	5000 (344)
1/8	NPT2-TLN-NPT2-76.2-	76.2	11.1	4.8	10000 (689)	5000 (344)
1/4	NPT4-TLN-NPT4-38.1-	38.1	14.3	7.1	8000 (551)	4000 (275)
1/4	NPT4-TLN-NPT4-50.8-	50.8	14.3	7.1	8000 (551)	4000 (275)
1/4	NPT4-TLN-NPT4-63.5-	63.5	14.3	7.1	8000 (551)	4000 (275)
1/4	NPT4-TLN-NPT4-76.2-	76.2	14.3	7.1	8000 (551)	4000 (275)
1/4	NPT4-TLN-NPT4-101.6-	101.6	14.3	7.1	8000 (551)	4000 (275)
3/8	NPT6-TLN-NPT6-38.1-	38.1	17.5	9.6	7800 (537)	3900 (268)
3/8	NPT6-TLN-NPT6-50.8-	50.8	17.5	9.6	7800 (537)	3900 (268)
3/8	NPT6-TLN-NPT6-63.5-	63.5	17.5	9.6	7800 (537)	3900 (268)
3/8	NPT6-TLN-NPT6-76.2-	76.2	17.5	9.6	7800 (537)	3900 (268)
3/8	NPT6-TLN-NPT6-101.6-	101.6	17.5	9.6	7800 (537)	3900 (268)
1/2	NPT8-TLN-NPT8-50.8-	50.8	22.2	11.9	7700 (530)	3800 (261)
1/2	NPT8-TLN-NPT8-76.2-	76.2	22.2	11.9	7700 (530)	3800 (261)
1/2	NPT8-TLN-NPT8-101.6-	101.6	22.2	11.9	7700 (530)	3800 (261)
1/2	NPT8-TLN-NPT8-152.4-	152.4	22.2	11.9	7700 (530)	3800 (261)
3/4	NPT12-TLN-NPT12-50.8-	50.8	27.0	15.7	7300 (502)	3600 (248)
3/4	NPT12-TLN-NPT12-76.2-	76.2	27.0	15.7	7300 (502)	3600 (248)
3/4	NPT12-TLN-NPT12-101.6-	101.6	27.0	15.7	7300 (502)	3600 (248)
1	NPT16-TLN-NPT16-76.2-	76.2	34.9	22.4	5300 (365)	2600 (179)
1	NPT16-TLN-NPT16-101.6-	101.6	34.9	22.4	5300 (365)	2600 (179)



### Male ISO Tapered Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
		L	F	E	316 SS, Steel	Brass
1/8	MBT2-TLN-MBT2-38.1-	38.1	11.1	4.8	10000 (689)	5000 (344)
1/8	MBT2-TLN-MBT2-50.8-	50.8	11.1	4.8	10000 (689)	5000 (344)
1/8	MBT2-TLN-MBT2-63.5-	63.5	11.1	4.8	10000 (689)	5000 (344)
1/8	MBT2-TLN-MBT2-76.2-	76.2	11.1	4.8	10000 (689)	5000 (344)
1/4	MBT4-TLN-MBT4-38.1-	38.1	14.3	7.1	8000 (551)	4000 (275)
1/4	MBT4-TLN-MBT4-50.8-	50.8	14.3	7.1	8000 (551)	4000 (275)
1/4	MBT4-TLN-MBT4-63.5-	63.5	14.3	7.1	8000 (551)	4000 (275)
1/4	MBT4-TLN-MBT4-76.2-	76.2	14.3	7.1	8000 (551)	4000 (275)
1/4	MBT4-TLN-MBT4-101.6-	101.6	14.3	7.1	8000 (551)	4000 (275)
3/8	MBT6-TLN-MBT6-38.1-	38.1	17.5	9.6	7800 (537)	3900 (268)
3/8	MBT6-TLN-MBT6-50.8-	50.8	17.5	9.6	7800 (537)	3900 (268)
3/8	MBT6-TLN-MBT6-63.5-	63.5	17.5	9.6	7800 (537)	3900 (268)
3/8	MBT6-TLN-MBT6-76.2-	76.2	17.5	9.6	7800 (537)	3900 (268)
3/8	MBT6-TLN-MBT6-101.6-	101.6	17.5	9.6	7800 (537)	3900 (268)
1/2	MBT8-TLN-MBT8-50.8-	50.8	22.2	11.9	7700 (530)	3800 (261)
1/2	MBT8-TLN-MBT8-76.2-	76.2	22.2	11.9	7700 (530)	3800 (261)
1/2	MBT8-TLN-MBT8-101.6-	101.6	22.2	11.9	7700 (530)	3800 (261)
1/2	MBT8-TLN-MBT8-152.4-	152.4	22.2	11.9	7700 (530)	3800 (261)
3/4	MBT12-TLN-MBT12-50.8-	50.8	27.0	15.7	7300 (502)	3600 (248)
3/4	MBT12-TLN-MBT12-76.2-	76.2	27.0	15.7	7300 (502)	3600 (248)
3/4	MBT12-TLN-MBT12-101.6-	101.6	27.0	15.7	7300 (502)	3600 (248)
1	MBT16-TLN-MBT16-76.2-	76.2	34.9	22.4	5300 (365)	2600 (179)
1	MBT16-TLN-MBT16-101.6-	101.6	34.9	22.4	5300 (365)	2600 (179)

## Hex Couplings



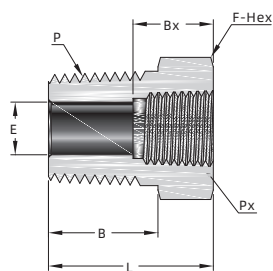
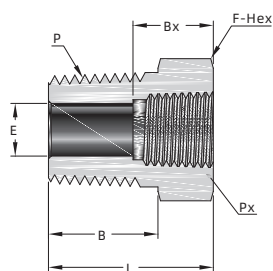
### Female NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
			L	F	E	316 SS, Steel	Brass
1/16	1/16	FNPT1-THC-FNPT1-	19.8	11.1	4.8	6700 (460)	3300 (227)
1/8	1/8	FNPT2-THC-FNPT2-	20.6	14.3	8.6	6500 (447)	3200 (220)
1/4	1/8	FNPT4-THC-FNPT2-	31.0	19.1	8.6	6600 (454)	3300 (227)
1/4	1/4	FNPT4-THC-FNPT4-	30.2	19.1	11.4	6600 (454)	3300 (227)
3/8	1/4	FNPT6-THC-FNPT4-	35.1	22.2	11.4	5300 (365)	2600 (179)
3/8	3/8	FNPT6-THC-FNPT6-	33.3	22.2	15.0	5300 (365)	2600 (179)
1/2	1/8	FNPT8-THC-FNPT2-	39.6	27.0	8.6	4900 (337)	2400 (165)
1/2	1/4	FNPT8-THC-FNPT4-	44.4	27.0	11.4	4900 (337)	2400 (165)
1/2	3/8	FNPT8-THC-FNPT6-	45.2	27.0	15.0	4900 (337)	2400 (165)
1/2	1/2	FNPT8-THC-FNPT8-	39.6	27.0	18.5	4900 (337)	2400 (165)
3/4	1/4	FNPT12-THC-FNPT4-	46.0	33.3	11.4	4600 (316)	2300 (158)
3/4	1/2	FNPT12-THC-FNPT8-	52.3	33.3	18.5	4600 (316)	2300 (158)
3/4	3/4	FNPT12-THC-FNPT12-	41.1	33.3	23.9	4600 (316)	2300 (158)
1	1/2	FNPT16-THC-FNPT8-	55.6	41.3	18.5	4400 (303)	2200 (151)
1	3/4	FNPT16-THC-FNPT12-	57.2	41.3	23.9	4400 (303)	2200 (151)
1	1	FNPT16-THC-FNPT16-	50.8	41.3	29.7	4400 (303)	2200 (151)
<b>Heavy-Wall Female NPT Threads</b>							
1/4	1/4	FNPT4-THC1-FNPT4-	30.2	25.4	11.4	10000 (689)	—
1/2	1/4	FNPT8-THC1-FNPT4-	44.4	38.1	11.4	10000 (689)	—
1/2	1/2	FNPT8-THC1-FNPT8-	39.6	38.1	18.5	10000 (689)	—

### Female ISO Tapered Threads

P-BSPT Size	Px-BSPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
			L	F	E	316 SS, Steel	Brass
1/8	1/8	FBT2-THC-FBT2-	20.6	14.3	8.4	6500 (447)	3200 (220)
1/4	1/4	FBT4-THC-FBT4-	30.2	19.1	11.2	6600 (454)	3300 (227)
3/8	1/4	FBT6-THC-FBT4-	35.1	22.2	11.2	5300 (365)	2600 (179)
3/8	3/8	FBT6-THC-FBT6-	33.3	22.2	14.7	5300 (365)	2600 (179)
1/2	1/4	FBT8-THC-FBT4-	44.4	27.0	11.2	4900 (337)	2400 (165)
1/2	3/8	FBT8-THC-FBT6-	45.2	27.0	14.7	4900 (337)	2400 (165)
1/2	1/2	FBT8-THC-FBT8-	39.6	27.0	18.3	4900 (337)	2400 (165)

## Reducing Bushings



### Male NPT Threads

### Female NPT Threads

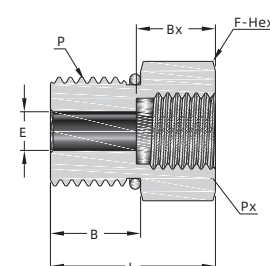
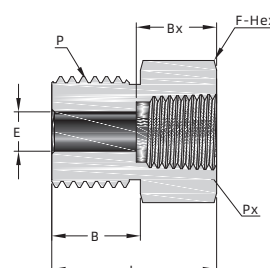
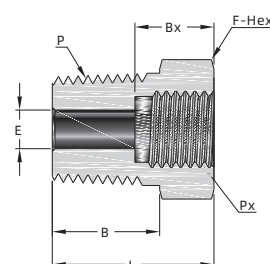
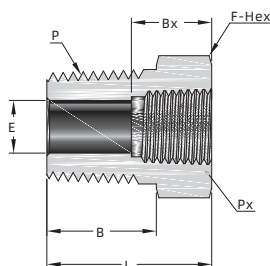
P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/16	NPT2-TRB-FNPT1-	26.2	11.1	9.7	9.9	4.8	6500 (447)	3200 (220)
1/4	1/16	NPT4-TRB-FNPT1-	21.8	14.3	14.2	9.9	4.8	8000 (551)	4000 (275)
1/4	1/8	NPT4-TRB-FNPT2-	26.9	14.3	14.2	10.4	7.1	6500 (447)	3300 (227)
3/8	1/16	NPT6-TRB-FNPT1-	21.8	17.5	14.2	9.9	4.8	13300 (971)	6600 (454)
3/8	1/8	NPT6-TRB-FNPT2-	21.8	17.5	14.2	10.4	8.6	9200 (633)	4700 (323)
3/8	1/4	NPT6-TRB-FNPT4-	30.2	19.1	14.2	15.0	9.6	6600 (454)	3300 (227)
1/2	1/8	NPT8-TRB-FNPT2-	27.4	22.2	19.1	10.4	8.6	12200 (840)	6200 (427)
1/2	1/4	NPT8-TRB-FNPT4-	27.4	22.2	19.1	15.0	11.4	8300 (571)	4400 (303)
1/2	3/8	NPT8-TRB-FNPT6-	35.8	22.2	19.1	15.0	11.9	5300 (365)	2600 (179)
3/4	1/8	NPT12-TRB-FNPT2-	27.4	27.0	19.1	10.4	7.1	20000(1378)	10000(689)
3/4	1/4	NPT12-TRB-FNPT4-	27.4	27.0	19.1	15.0	11.4	12000 (826)	6000 (410)
3/4	3/8	NPT12-TRB-FNPT6-	27.4	27.0	19.1	15.0	15.0	8200 (564)	4300 (296)
3/4	1/2	NPT12-TRB-FNPT8-	41.4	27.0	19.1	19.8	15.7	4900 (337)	2400 (165)
1	1/8	NPT16-TRB-FNPT2-	34.8	34.9	23.9	10.4	7.1	20000(1378)	10000(689)
1	1/4	NPT16-TRB-FNPT4-	34.8	34.9	23.9	15.0	11.4	14500 (999)	7400 (509)
1	3/8	NPT16-TRB-FNPT6-	34.8	34.9	23.9	15.0	15.0	11600 (799)	5900 (406)
1	1/2	NPT16-TRB-FNPT8-	34.8	34.9	23.9	19.8	18.5	8600 (592)	4300 (296)
1	3/4	NPT16-TRB-FNPT12-	47.0	34.9	23.9	20.6	22.4	5300 (365)	2600 (179)
1 1/4	3/4	NPT20-TRB-FNPT12-	37.3	44.5	23.9	20.6	22.4	7800 (537)	3900 (268)
1 1/4	1	NPT20-TRB-FNPT16-	37.3	44.5	23.9	25.4	22.4	3500 (241)	1750 (120)
1 1/2	1	NPT24-TRB-FNPT16-	40.1	50.8	26.2	25.4	22.4	6600 (454)	3300 (227)
1 1/2	1 1/4	NPT24-TRB-FNPT20-	56.0	54.0	26.2	25.4	34.0	5000 (344)	2500 (172)

### Male NPT Threads

### Female ISO Tapered Pipe Threads

P-NPT Size	Px-BSPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/16	NPT2-TRB-FBT1-	26.2	11.1	9.7	9.9	4.8	6500 (447)	3200 (220)
1/4	1/16	NPT4-TRB-FBT1-	21.8	14.3	14.2	9.9	4.8	8000 (551)	4000 (275)
1/4	1/8	NPT4-TRB-FBT2-	26.9	14.3	14.2	10.4	7.1	6500 (447)	3300 (227)
3/8	1/16	NPT6-TRB-FBT1-	21.8	17.5	14.2	9.9	4.8	13300 (917)	6600 (454)
3/8	1/8	NPT6-TRB-FBT2-	21.8	17.5	14.2	10.4	7.1	9200 (633)	4700 (323)
3/8	1/4	NPT6-TRB-FBT4-	30.2	19.1	14.2	15.0	9.6	6600 (454)	3300 (227)
1/2	1/8	NPT8-TRB-FBT2-	27.4	22.2	19.1	10.4	7.1	12200 (840)	6200 (427)
1/2	1/4	NPT8-TRB-FBT4-	27.4	22.2	19.1	15.0	10.4	8300 (571)	4400 (303)
1/2	3/8	NPT8-TRB-FBT6-	35.8	22.2	19.1	15.0	11.9	5300 (365)	2600 (179)
3/4	1/8	NPT12-TRB-FBT2-	27.4	27.0	19.1	10.4	7.1	20000 (1378)	10000 (689)
3/4	1/4	NPT12-TRB-FBT4-	27.4	27.0	19.1	15.0	10.4	12000 (826)	6000 (410)
3/4	3/8	NPT12-TRB-FBT6-	27.4	27.0	19.1	15.0	12.7	8200 (564)	4300 (296)
3/4	1/2	NPT12-TRB-FBT8-	41.4	27.0	19.1	19.8	15.7	4900 (337)	2400 (165)
1	1/8	NPT16-TRB-FBT2-	34.8	34.9	23.9	10.4	7.1	20000 (1378)	10000 (689)
1	1/4	NPT16-TRB-FBT4-	34.8	34.9	23.9	15.0	10.4	14500 (999)	7400 (509)
1	3/8	NPT16-TRB-FBT6-	34.8	34.9	23.9	15.0	12.7	11600 (799)	5900 (406)
1	1/2	NPT16-TRB-FBT8-	34.8	34.9	23.9	19.8	15.7	8600 (592)	4300 (296)
1	3/4	NPT16-TRB-FBT12-	47.0	34.9	23.9	20.6	22.4	5300 (365)	2600 (179)
1 1/4	3/4	NPT20-TRB-FBT12-	37.3	44.5	23.9	20.6	22.4	7800 (537)	3900 (268)
1 1/4	1	NPT20-TRB-FBT16-	37.3	44.5	23.9	25.4	22.4	3500 (241)	1750 (120)
1 1/2	1	NPT24-TRB-FBT16-	40.1	50.8	26.2	25.4	22.4	6600 (454)	3300 (227)
1 1/2	1 1/4	NPT24-TRB-FBT20-	56.0	54.0	26.2	25.4	34.0	5000 (344)	2500 (172)

## Reducing Bushings



### Male ISO Tapered Threads

### Female ISO Tapered Threads

P-BSPT Size	Px-BSPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/4	1/8	MBT4-TRB-FBT2-	26.9	14.3	14.2	10.4	7.1	6500 (447)	3200 (220)
3/8	1/4	MBT6-TRB-FBT4-	30.2	19.1	14.2	15.0	9.6	6600 (454)	3300 (227)
1/2	1/4	MBT8-TRB-FBT4-	27.4	22.2	19.1	15.0	11.2	8300 (571)	4400 (303)
1/2	3/8	MBT8-TRB-FBT6-	35.8	22.2	19.1	15.0	11.9	5300 (365)	2600 (179)

### Male NPT Threads

### Female ISO Parallel Threads

P-NPT Size	Px-BG Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar) 316 SS, Steel
			L	F	B	Bx	E	
3/8	1/4	NPT6-TRB-FBP4-	30.2	19.1	14.2	12.9	5.6	5700 (392)
1/2	3/8	NPT8-TRB-FBP6-	35.8	22.2	19.1	14.2	6.6	5700 (392)
3/4	1/2	NPT12-TRB-FBP8-	41.4	27.0	19.1	18.8	7.1	3900 (268)

### Male ISO Parallel Threads

### Female NPT Threads

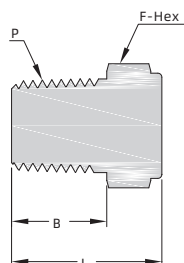
P-BG Size	Px-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/4	1/8	MBP4-TRB-FNPT2-	26.9	14.3	12.9	10.4	4.5	6500 (447)	3200 (220)
3/8	1/4	MBP6-TRB-FNPT4-	31.0	19.1	14.2	15	7.1	6600 (454)	3300 (227)
1/2	3/8	MBP8-TRB-FNPT6-	35.8	22.2	18.8	15	6.6	5300 (365)	2600 (179)

### Male SAE Straight Threads

### Female MS Straight Threads

P-SAE/MS Thread Size	Px-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar) 316 SS, Steel
			L	F	B	Bx	E	
9/16-18	7/16-20	OST9-TRB-FST7-	28.4	20.6	9.9	14.0	7.1	4500 (310)
3/4-16	7/16-20	OST12-TRB-FST7-	24.9	22.2	11.2	14.0	9.9	4500 (310)
3/4-16	9/16-18	OST12-TRB-FST9-	30.2	25.4	11.2	16.0	10.7	4500 (310)
7/8-14	9/16-18	OST14-TRB-FST9-	27.9	25.4	12.7	16.0	12.7	3600 (248)
7/8-14	3/4-16	OST14-TRB-FST12-	36.1	30.2	12.7	18.0	12.7	3600 (248)
1 1/16-12	3/4-16	OST17-TRB-FST12-	32.3	31.8	15.0	18.0	16.5	3600 (248)
1 5/16-12	1 1/16-12	OST21-TRB-FST17-	40.9	41.3	15.0	24.0	22.1	2900 (199)
1 5/8-12	1 5/16-12	OST26-TRB-FST21-	50.3	54.0	15.0	24.0	27.7	2300 (158)
1 7/8-12	1 5/16-12	OST30-TRB-FST21-	50.3	54.0	15.0	24.0	31.2	2300 (158)

## Pipe Plugs

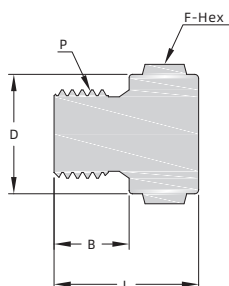


### Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm		
		L	F	B
1/16	TP-NPT1-	14.2	7.9	9.7
1/8	TP-NPT2-	14.2	11.1	9.7
1/4	TP-NPT4-	19.1	14.3	14.2
3/8	TP-NPT6-	19.8	17.5	14.2
1/2	TP-NPT8-	24.6	22.2	19.1
3/4	TP-NPT12-	30.7	27.0	19.1
1	TP-NPT16-	38.1	34.9	23.9
1 1/4	TP-NPT20-	38.4	44.5	23.9
1 1/2	TP-NPT24-	43.7	50.8	26.2
2	TP-NPT32-	50.8	69.9	26.2

### Male ISO Tapered Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm		
		L	F	B
1/16	TP-MBT1-	14.2	7.9	9.7
1/8	TP-MBT2-	14.2	11.1	9.7
1/4	TP-MBT4-	19.1	14.3	14.2
3/8	TP-MBT6-	19.8	17.5	14.2
1/2	TP-MBT8-	24.6	22.2	19.1
3/4	TP-MBT12-	30.7	27.0	19.1
1	TP-MBT16-	38.1	34.9	23.9
1 1/4	TP-MBT20-	38.4	44.5	23.9
1 1/2	TP-MBT24-	43.7	50.8	26.2
2	TP-MBT32-	50.8	69.9	26.2

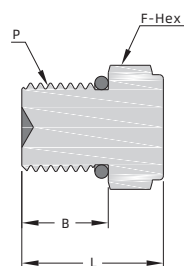


### Male ISO parallel Threads

P-BS Size	Basic Ordering Number	Dimension, mm			
		L	F	B	D
1/8	TP-MBS2-	14.0	14.3	7.1	13.7
1/4	TP-MBS4-	19.8	19.1	11.2	18.0
3/8	TP-MBS6-	19.8	22.2	11.2	21.8
1/2	TP-MBS8-	25.1	27.0	14.0	25.9
3/4	TP-MBS12-	28.7	33.3	15.7	32.0
1	TP-MBS16-	30.7	41.3	18.0	39.1

### Male Metric Threads

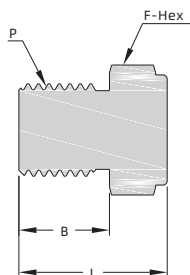
P-Metric Size	Basic Ordering Number	Dimension, mm			
		L	F	B	D
M14 x 1.5	TP-BSMS14-	21	20.6	12	18.8
M16 x 1.5	TP-BSMS16-	23	22.2	12	20.8
M18 x 1.5	TP-BSMS18-	25	23.8	12	22.8
M20 x 1.5	TP-BSMS20-	26.5	25.4	14	24.8
M22 x 1.5	TP-BSMS22-	28.8	28.6	14	26.8
M24 x 1.5	TP-BSMS24-	29	35.0	14	28.8
M27 x 2	TP-BSMS27-	30	36.5	16	31.8



### Male SAE/MS Straight Threads

P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm		
		L	F	B
7/16-20	TP-OST7-	19.3	14.3	9.1
9/16-18	TP-OST9-	20.8	17.5	9.9
3/4-16	TP-OST12-	22.6	22.2	11.2
1 1/16-12	TP-OST17-	28.4	31.8	15.0
1 5/16-12	TP-OST21-	30.0	38.1	15.0

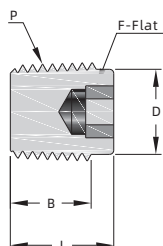
## Pipe Plugs



### Male Metric Threads

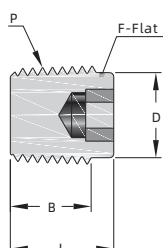
P-Metric Size	Basic Ordering Number	Dimension, mm		
		L	F	B
M14 x 1.5	TP-MS14-	18	16	13
M16 x 1.5	TP-MS16-	20	18	14
M18 x 1.5	TP-MS18-	22	19	15
M20 x 1.5	TP-MS20-	24	22	16
M22 x 1.5	TP-MS22-	26	24	17
M24 x 1.5	TP-MS24-	26	27	17
M27 x 2	TP-MS27-	27	30	18
M30 x 2	TP-MS30-	32	32	20

## Hollow Hex Plugs



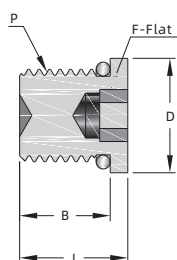
### Male ISO Tapered Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm			
		L	F	B	D
1/16	THP-MBT1-	7.6	4.0	7.4	7.4
1/8	THP-MBT2-	10.4	4.8	7.4	9.4
1/4	THP-MBT4-	15.5	6.4	12.4	12.1
3/8	THP-MBT6-	15.5	7.9	12.4	15.7
1/2	THP-MBT8-	19.3	9.5	16.2	19.3
3/4	THP-MBT12-	19.8	14.3	16.7	25.7
1	THP-MBT16-	20.8	15.9	17.7	31.8



### Male NPT Threads

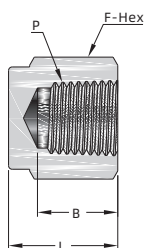
P-NPT Size	Basic Ordering Number	Dimension, mm			
		L	F	B	D
1/16	THP-NPT1-	7.6	4.0	7.4	7.4
1/8	THP-NPT2-	10.4	4.8	7.4	9.4
1/4	THP-NPT4-	15.5	6.4	12.4	12.1
3/8	THP-NPT6-	15.0	7.9	11.9	15.7
1/2	THP-NPT8-	19.3	9.5	16.2	19.3
3/4	THP-NPT12-	19.8	14.3	16.7	25.7
1	THP-NPT16-	20.8	15.9	17.7	31.8



### Male SAE/MS Straight Threads

P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm			
		L	F	B	D
7/16-20	THP-OST7-	11.4	4.8	9.1	14.2
9/16-18	THP-OST9-	12.2	6.4	9.9	17.5
3/4-16	THP-OST12-	14.2	7.9	11.2	22.4
1 1/16-12	THP-OST17-	19.1	14.3	15.0	31.8
1 5/16-12	THP-OST21-	19.1	15.9	15.0	38.1

## Pipe Caps



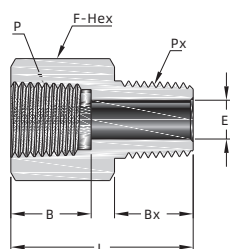
### Female NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
		L	F	B	316 SS, Steel	Brass
1/16	PC-FNPT1-	12.7	11.1	9.9	6700 (460)	3300 (227)
1/8	PC-FNPT2-	19.1	14.3	10.4	6500 (447)	3200 (220)
1/4	PC-FNPT4-	23.1	19.1	15.0	6600 (454)	3300 (277)
3/8	PC-FNPT6-	26.2	22.2	15.0	5300 (365)	2600 (179)
1/2	PC-FNPT8-	34.0	27.0	19.8	4900 (337)	2400 (165)
3/4	PC-FNPT12-	36.6	33.3	20.6	4600 (316)	2300 (158)
1	PC-FNPT16-	41.1	41.3	25.4	4400 (303)	2200 (151)
Heavy-Wall Female NPT Threads						
1/4	PC1-FNPT4	28.2	25.4	15.0	10000 (689)	—
1/2	PC1-FNPT8	40.1	38.1	19.8	10000 (689)	—

### Female ISO Tapered Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
		L	F	B	316 SS, Steel	Brass
1/16	PC-FBT1-	12.7	11.1	9.9	6700 (460)	3300 (227)
1/8	PC-FBT2-	19.1	14.3	10.4	6500 (447)	3200 (220)
1/4	PC-FBT4-	23.1	19.1	15.0	6600 (454)	3300 (277)
3/8	PC-FBT6-	26.2	22.2	15.0	5300 (365)	2600 (179)
1/2	PC-FBT8-	34.0	27.0	19.8	4900 (337)	2400 (165)
3/4	PC-FBT12-	36.6	33.3	20.6	4600 (316)	2300 (158)
1	PC-FBT16-	41.1	41.3	25.4	4400 (303)	2200 (151)

Adapters

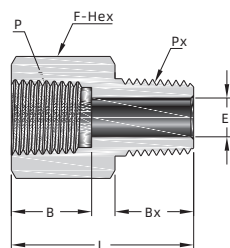


Female NPT Threads

Male NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/16	FNPT2-TA-NPT1-	27.7	14.3	10.4	9.7	3.0	6500 (447)	3200 (220)
1/8	1/8	FNPT2-TA-NPT2-	27.9	14.3	10.4	9.7	4.8	6500 (447)	3200 (220)
1/4	1/16	FNPT4-TA-NPT1-	30.5	19.1	15.0	9.7	3.0	6600 (454)	3300 (227)
1/4	1/8	FNPT4-TA-NPT2-	32.0	19.1	15.0	9.7	4.8	6600 (454)	3300 (227)
1/4	1/4	FNPT4-TA-NPT4-	35.6	19.1	15.0	14.2	7.1	6600 (454)	3300 (227)
3/8	1/16	FNPT6-TA-NPT1-	31.8	22.2	15.0	9.7	3.0	5300 (365)	2600 (179)
3/8	1/8	FNPT6-TA-NPT2-	33.8	22.2	15.0	9.7	4.8	5300 (365)	2600 (179)
3/8	1/4	FNPT6-TA-NPT4-	38.1	22.2	15.0	14.2	7.1	5300 (365)	2600 (179)
3/8	3/8	FNPT6-TA-NPT6-	38.4	22.2	15.0	14.2	9.6	5300 (365)	2600 (179)
1/2	1/8	FNPT8-TA-NPT2-	40.1	27.0	19.8	9.7	4.8	4900 (337)	2400 (165)
1/2	1/4	FNPT8-TA-NPT4-	44.7	27.0	19.8	14.2	7.1	4900 (337)	2400 (165)
1/2	3/8	FNPT8-TA-NPT6-	44.4	27.0	19.8	14.2	9.6	4900 (337)	2400 (165)
1/2	1/2	FNPT8-TA-NPT8-	49.3	27.0	19.8	19.1	11.9	4900 (337)	2400 (165)
3/4	1/8	FNPT12-TA-NPT2-	39.6	33.3	20.6	9.7	4.8	4600 (316)	2300 (158)
3/4	1/4	FNPT12-TA-NPT4-	47.0	33.3	20.6	14.2	7.1	4600 (316)	2300 (158)
3/4	3/8	FNPT12-TA-NPT6-	46.2	33.3	20.6	14.2	9.6	4600 (316)	2300 (158)
3/4	1/2	FNPT12-TA-NPT8-	51.3	33.3	20.6	19.1	11.9	4600 (316)	2300 (158)
3/4	3/4	FNPT12-TA-NPT12-	51.3	33.3	20.6	19.1	15.7	4600 (316)	2300 (158)
1	1/8	FNPT16-TA-NPT2-	46.0	41.3	25.4	9.7	4.8	4400 (303)	2200 (151)
1	1/4	FNPT16-TA-NPT4-	49.8	41.3	25.4	14.2	7.1	4400 (303)	2200 (151)
1	3/8	FNPT16-TA-NPT6-	50.8	41.3	25.4	14.2	9.6	4400 (303)	2200 (151)
1	1/2	FNPT16-TA-NPT8-	54.9	41.3	25.4	19.1	11.9	4400 (303)	2200 (151)
1	3/4	FNPT16-TA-NPT12-	55.1	41.3	25.4	19.1	15.7	4400 (303)	2200 (151)
1	1	FNPT16-TA-NPT16-	57.9	41.3	25.4	23.9	22.4	4400 (303)	2200 (151)
1 1/4	1	FNPT20-TA-NPT16-	62.7	54.0	25.4	23.9	22.4	5000 (344)	2500 (172)
<b>Heavy-Wall Female to male NPT Threads</b>									
1/4	1/4	FNPT4-TA1-NPT4-	36.3	25.4	15.0	14.2	5.8	10000 (689)	/
1/2	1/4	FNPT8-TA1-NPT4-	46.0	38.1	19.8	14.2	5.8	10000 (689)	/
1/2	1/2	FNPT8-TA1-NPT8-	51.3	38.1	19.8	19.1	9.9	10000 (689)	/

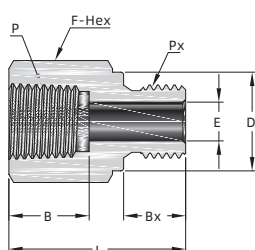
## Adapters



### Female NPT Threads

### Male ISO Tapered Threads

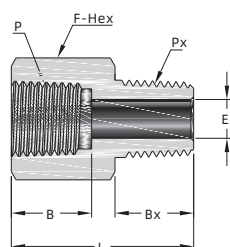
P-NPT Size	Px-BSPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/8	FNPT2-TA-MBT2-	27.7	14.3	10.4	9.7	4.8	6500 (447)	3200 (220)
1/4	1/4	FNPT4-TA-MBT4-	36.1	19.1	15.0	14.2	7.1	6600 (454)	3300 (227)
3/8	3/8	FNPT6-TA-MBT6-	38.1	22.2	15.0	14.2	9.6	5300 (365)	2600 (179)
1/2	1/2	FNPT8-TA-MBT8-	49.3	27.0	19.8	19.1	11.9	4900 (337)	2400 (165)
3/4	3/4	FNPT12-TA-MBT12-	51.3	33.3	20.6	19.1	15.7	4600 (316)	2300 (158)
1	1	FNPT16-TA-MBT16-	58.4	41.3	25.4	23.9	22.4	4400 (303)	2200 (151)



### Female NPT Threads

### Male ISO Parallel Threads

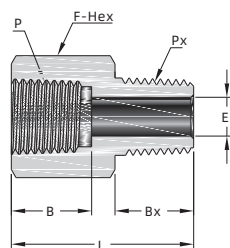
P-NPT Size	Px-BS Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
			L	F	B	Bx	D	E	316 SS, Steel	Brass
1/8	1/8	FNPT2-TA-MBS2-	25.1	14.3	9.9	7.1	13.7	4.1	6500 (447)	3200 (220)
1/4	1/4	FNPT4-TA-MBS4-	33.5	19.1	10.4	11.2	18.0	5.8	6600 (454)	3300 (227)
3/8	3/8	FNPT6-TA-MBS6-	35.8	22.2	15.0	11.2	21.6	7.9	5300 (365)	2600 (179)
1/2	1/2	FNPT8-TA-MBS8-	44.2	27.0	15.0	14.2	25.9	11.9	4900 (337)	2400 (165)
3/4	3/4	FNPT12-TA-MBS12-	48.0	33.3	20.6	15.7	32.0	15.7	4600 (316)	2300 (158)
1	1	FNPT16-TA-MBS16-	53.3	41.3	25.4	18.3	38.9	19.8	4400 (303)	2200 (151)



### Female ISO Tapered Threads

### Male ISO Tapered Threads

P-BSPT Size	Px-BSPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/8	FBT2-TA-MBT2-	27.7	14.3	10.4	9.7	4.8	6500 (447)	3200 (220)
1/4	1/8	FBT4-TA-MBT2-	32.0	19.1	15.0	9.7	4.8	6600 (454)	3300 (227)
1/4	1/4	FBT4-TA-MBT4-	36.1	19.1	15.0	14.2	7.1	6600 (454)	3300 (227)
3/8	1/4	FBT6-TA-MBT4-	38.1	22.2	15.0	14.2	7.1	5300 (365)	2600 (179)
3/8	3/8	FBT6-TA-MBT6-	38.1	22.2	15.0	14.2	9.6	5300 (365)	2600 (179)
1/2	1/4	FBT8-TA-MBT4-	44.7	27.0	19.8	14.2	7.1	4900 (337)	2400 (165)
1/2	3/8	FBT8-TA-MBT6-	44.4	27.0	19.8	14.2	9.6	4900 (337)	2400 (165)
1/2	1/2	FBT8-TA-MBT8-	49.5	27.0	19.8	19.1	11.9	4900 (337)	2400 (165)
3/4	3/4	FBT12-TA-MBT12-	51.3	33.3	20.6	19.1	15.7	4600 (316)	2300 (158)
1	1	FBT16-TA-MBT16-	58.4	41.3	25.4	23.9	22.4	4400 (303)	2200 (151)

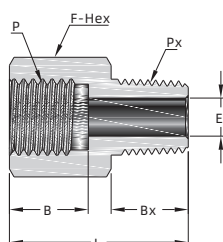
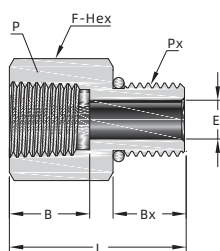


### Female ISO Tapered Threads

### Male NPT Threads

P-BSPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 SS, Steel	Brass
1/8	1/8	FBT2-TA-NPT2-	27.7	14.3	10.4	9.7	4.8	6500 (447)	3200 (220)
1/4	1/4	FBT4-TA-NPT4-	36.3	19.1	15.0	14.2	7.1	6600 (454)	3300 (227)
3/8	3/8	FBT6-TA-NPT6-	38.4	22.2	15.0	14.2	9.6	5300 (365)	2600 (179)
1/2	1/2	FBT8-TA-NPT8-	49.8	27.0	19.8	19.1	11.9	4900 (337)	2400 (165)
3/4	3/4	FBT12-TA-NPT12-	51.3	33.3	20.6	19.1	15.7	4600 (316)	2300 (158)
1	1	FBT16-TA-NPT16-	58.4	41.3	25.4	23.9	22.4	4400 (303)	2200 (151)

## Adapters



### Female NPT Threads

### Male SAE/MS Straight Threads

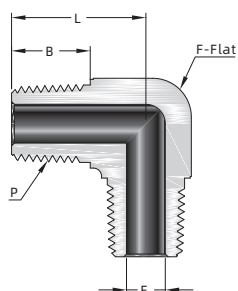
P-NPT Size	Px-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar) 316 SS, Steel
			L	F	B	Bx	E	
1/4	7/16-20	FNPT4-TA-OST7-	33.5	19.1	15.0	9.1	5.1	4500 (310)
3/8	9/16-18	FNPT6-TA-OST9-	35.3	23.8	15.0	9.9	7.1	4500 (310)
1/2	3/4-16	FNPT8-TA-OST12-	44.7	27.0	19.8	11.2	10.7	4500 (310)
3/4	1 1/16-12	FNPT12-TA-OST17-	50.5	34.9	20.6	15.0	16.7	3600 (248)
1	1 5/16-12	FNPT16-TA-OST21-	53.8	41.3	25.4	15.0	22.4	2900 (199)

### Female ISO Parallel Threads

### Male NPT Threads

P-BG Size	Px-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar) 316 SS, Steel
			L	F	B	Bx	E	
1/8	1/8	FBP2-TA-NPT2-	21.8	14.3	6.5	9.7	4.8	6100 (420)
1/4	1/4	FBP4-TA-NPT4-	30.2	19.1	12.9	14.2	5.6	5700 (392)
3/8	3/8	FBP6-TA-NPT6-	32.2	23.8	14.2	14.2	6.6	5700 (392)
1/2	1/2	FBP8-TA-NPT8-	42.7	27.0	18.8	19.1	7.1	3900 (268)

## Male Elbows



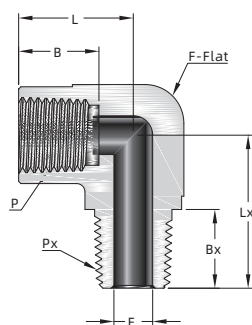
### Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	B	E	316 SS, Steel	Brass
1/16	NPT1-TME-NPT1-	15.5	9.5	9.7	3.0	11000 (757)	5500 (378)
1/8	NPT2-TME-NPT2-	22.4	11.1	9.7	4.8	10000 (689)	5000 (344)
1/4	NPT4-TME-NPT4-	26.7	12.7	14.2	7.1	8000 (551)	4000 (275)
3/8	NPT6-TME-NPT6-	29.7	17.5	14.2	9.6	7800 (537)	3900 (268)
1/2	NPT8-TME-NPT8-	36.8	20.6	19.1	11.9	7700 (530)	3800 (261)
3/4	NPT12-TME-NPT12-	40.4	27.0	19.1	15.7	7300 (502)	3600 (248)
1	NPT16-TME-NPT16-	50.0	34.9	23.9	22.4	5300 (365)	2600 (179)

### Male ISO Tapered Pipe Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	B	E	316 SS, Steel	Brass
1/16	MBT1-TME-MBT1-	15.5	9.5	9.7	3.0	11000 (757)	5500 (378)
1/8	MBT2-TME-MBT2-	22.4	11.1	9.7	4.8	10000 (689)	5000 (344)
1/4	MBT4-TME-MBT4-	26.7	12.7	14.2	7.1	8000 (551)	4000 (275)
3/8	MBT6-TME-MBT6-	29.7	17.5	14.2	9.6	7800 (537)	3900 (268)
1/2	MBT8-TME-MBT8-	36.8	20.6	19.1	11.9	7700 (530)	3800 (261)
3/4	MBT12-TME-MBT12-	40.4	27.0	19.1	15.7	7300 (502)	3600 (248)
1	MBT16-TME-MBT16-	50.0	34.9	23.9	22.4	5300 (365)	2600 (179)

Street Elbows

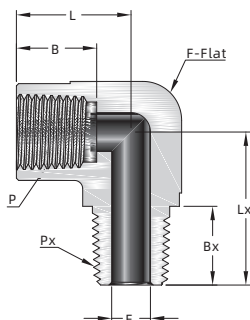


Female NPT Threads

Male NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	FNPT1-TSE-NPT1-	21.8	11.1	9.9	3.0	22.4	9.7	9200 (633)	4600 (316)
1/16	1/8	FNPT1-TSE-NPT2-	21.8	11.1	9.9	4.8	22.4	9.7	9200 (633)	4600 (316)
1/16	1/4	FNPT1-TSE-NPT4-	22.4	14.3	9.9	4.8	27.7	14.2	8000 (551)	4000 (275)
1/16	3/8	FNPT1-TSE-NPT6-	22.4	17.5	9.9	4.8	29.7	14.2	7800 (537)	3900 (268)
1/8	1/16	FNPT2-TSE-NPT1-	26.4	12.7	10.4	3.0	22.1	9.7	6200 (426)	3100 (213)
1/8	1/8	FNPT2-TSE-NPT2-	26.4	12.7	10.4	4.8	22.1	9.7	6200 (426)	3100 (213)
1/8	1/4	FNPT2-TSE-NPT4-	22.4	14.3	10.4	7.1	27.7	14.2	6500 (447)	3200 (220)
1/8	3/8	FNPT2-TSE-NPT6-	22.4	17.5	10.4	7.1	29.7	14.2	7800 (537)	3900 (268)
1/8	1/2	FNPT2-TSE-NPT8-	24.1	20.6	10.4	7.1	36.8	19.1	7700 (530)	3800 (261)
1/8	3/4	FNPT2-TSE-NPT12-	25.4	27.0	10.4	7.1	40.4	19.1	7300 (502)	3600 (248)
1/8	1	FNPT2-TSE-NPT16-	26.4	34.9	10.4	7.1	50.0	23.9	5300 (365)	2600 (179)
1/4	1/8	FNPT4-TSE-NPT2-	29.7	17.5	15.0	4.8	25.4	9.7	7200 (496)	3600 (248)
1/4	1/4	FNPT4-TSE-NPT4-	29.7	17.5	15.0	7.1	29.7	14.2	7200 (496)	3600 (248)
1/4	3/8	FNPT4-TSE-NPT6-	29.7	17.5	15.0	8.6	29.7	14.2	7200 (496)	3600 (248)
1/4	1/2	FNPT4-TSE-NPT8-	25.4	20.6	15.0	8.6	36.8	19.1	7200 (496)	3600 (248)
1/4	3/4	FNPT4-TSE-NPT12-	25.4	27.0	15.0	8.6	40.4	19.1	7300 (502)	3600 (248)
1/4	1	FNPT4-TSE-NPT16-	41.4	34.9	15.0	8.6	50.0	23.9	5300 (365)	2600 (179)
3/8	1/4	FNPT6-TSE-NPT4-	36.1	20.6	15.0	7.1	32.0	14.2	5600 (385)	2800 (192)
3/8	3/8	FNPT6-TSE-NPT6-	36.1	20.6	15.0	9.6	32.0	14.2	5600 (385)	2800 (192)
3/8	1/2	FNPT6-TSE-NPT8-	36.1	20.6	15.0	11.9	36.8	19.1	5600 (385)	2800 (192)
3/8	3/4	FNPT6-TSE-NPT12-	31.2	27.0	15.0	11.9	40.4	19.1	7300 (502)	3600 (248)
3/8	1	FNPT6-TSE-NPT16-	41.4	34.9	15.0	11.9	50.0	23.9	5300 (365)	2600 (179)
1/2	1/4	FNPT8-TSE-NPT4-	39.6	25.4	19.8	7.1	35.1	14.2	5600 (385)	2800 (192)
1/2	3/8	FNPT8-TSE-NPT6-	39.6	25.4	19.8	9.6	35.1	14.2	5600 (385)	2800 (192)
1/2	1/2	FNPT8-TSE-NPT8-	39.6	25.4	19.8	11.9	39.6	19.1	5600 (385)	2800 (192)
1/2	3/4	FNPT8-TSE-NPT12-	31.2	27.0	19.8	15.7	40.4	19.1	5600 (385)	2800 (192)
1/2	1	FNPT8-TSE-NPT16-	41.4	34.9	19.8	15.7	50.0	23.9	5300 (365)	2600 (179)
3/4	3/4	FNPT12-TSE-NPT12-	48.8	31.8	20.6	15.7	42.4	19.1	5100 (351)	2500 (172)
3/4	1	FNPT12-TSE-NPT16-	41.4	34.9	20.6	22.4	50.0	23.9	5100 (351)	2500 (172)
1	1	FNPT16-TSE-NPT16-	48.5	42.9	25.4	22.4	49.3	23.9	5300 (365)	2600 (179)
1 1/4	1 1/4	FNPT20-TSE-NPT20-	60.5	50.8	25.4	31.8	60.5	23.9	3100 (213)	1600 (110)

Street Elbows

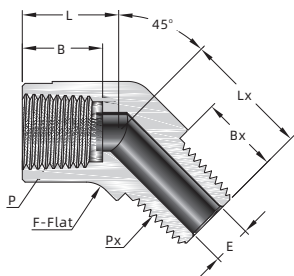


Female ISO Tapered Pipe Threads

Male ISO Tapered Threads

P-BSPT Size	Px-BSPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	FBT1-TSE-MBT1-	21.8	11.1	9.9	3.0	22.4	9.7	9200 (633)	4600 (316)
1/16	1/8	FBT1-TSE-MBT2-	21.8	11.1	9.9	4.8	22.4	9.7	9200 (633)	4600 (316)
1/16	1/4	FBT1-TSE-MBT4-	22.4	14.3	9.9	4.8	27.7	14.2	8000 (551)	4000 (275)
1/16	3/8	FBT1-TSE-MBT6-	22.4	17.5	9.9	4.8	29.7	14.2	7800 (537)	3900 (268)
1/8	1/16	FBT2-TSE-MBT1-	26.4	12.7	10.4	3.0	22.1	9.7	6200 (426)	3100 (213)
1/8	1/8	FBT2-TSE-MBT2-	26.4	12.7	10.4	4.8	22.1	9.7	6200 (426)	3100 (213)
1/8	1/4	FBT2-TSE-MBT4-	22.4	14.3	10.4	7.1	27.7	14.2	6500 (447)	3200 (220)
1/8	3/8	FBT2-TSE-MBT6-	22.4	17.5	10.4	7.1	29.7	14.2	7800 (537)	3900 (268)
1/8	1/2	FBT2-TSE-MBT8-	24.1	20.6	10.4	7.1	36.8	19.1	7700 (530)	3800 (261)
1/8	3/4	FBT2-TSE-MBT12-	25.4	27.0	10.4	7.1	40.4	19.1	7300 (502)	3600 (248)
1/8	1	FBT2-TSE-MBT16-	26.4	34.9	10.4	7.1	50.0	23.9	5300 (365)	2600 (179)
1/4	1/8	FBT4-TSE-MBT2-	29.7	17.5	15.0	4.8	25.4	9.7	7200 (496)	3600 (248)
1/4	1/4	FBT4-TSE-MBT4-	29.7	17.5	15.0	7.1	29.7	14.2	7200 (496)	3600 (248)
1/4	3/8	FBT4-TSE-MBT6-	29.7	17.5	15.0	8.6	29.7	14.2	7200 (496)	3600 (248)
1/4	1/2	FBT4-TSE-MBT8-	25.4	20.6	15.0	8.6	36.8	19.1	7200 (496)	3600 (248)
1/4	3/4	FBT4-TSE-MBT12-	25.4	27.0	15.0	8.6	40.4	19.1	7300 (502)	3600 (248)
1/4	1	FBT4-TSE-MBT16-	41.4	34.9	15.0	8.6	50.0	23.9	5300 (365)	2600 (179)
3/8	1/4	FBT6-TSE-MBT4-	36.1	20.6	15.0	7.1	32.0	14.2	5600 (385)	2800 (192)
3/8	3/8	FBT6-TSE-MBT6-	36.1	20.6	15.0	9.6	32.0	14.2	5600 (385)	2800 (192)
3/8	1/2	FBT6-TSE-MBT8-	36.1	20.6	15.0	11.9	36.8	19.1	5600 (385)	2800 (192)
3/8	3/4	FBT6-TSE-MBT12-	31.2	27.0	15.0	11.9	40.4	19.1	7300 (502)	3600 (248)
3/8	1	FBT6-TSE-MBT16-	41.4	34.9	15.0	11.9	50.0	23.9	5300 (365)	2600 (179)
1/2	1/4	FBT8-TSE-MBT4-	39.6	25.4	19.8	7.1	35.1	14.2	5600 (385)	2800 (192)
1/2	3/8	FBT8-TSE-MBT6-	39.6	25.4	19.8	9.6	35.1	14.2	5600 (385)	2800 (192)
1/2	1/2	FBT8-TSE-MBT8-	39.6	25.4	19.8	11.9	39.6	19.1	5600 (385)	2800 (192)
1/2	3/4	FBT8-TSE-MBT12-	31.2	27.0	19.8	15.7	40.4	19.1	5600 (385)	2800 (192)
1/2	1	FBT8-TSE-MBT16-	41.4	34.9	19.8	15.7	50.0	23.9	5300 (365)	2600 (179)
3/4	3/4	FBT12-TSE-MBT12-	48.8	31.8	20.6	15.7	42.4	19.1	5100 (351)	2500 (172)
3/4	1	FBT12-TSE-MBT16-	41.4	34.9	20.6	22.4	50.0	23.9	5100 (351)	2500 (172)
1	1	FBT16-TSE-MBT16-	48.5	42.9	25.4	22.4	49.3	23.9	5300 (365)	2600 (179)
1 1/4	1 1/4	FBT20-TSE-MBT20-	60.5	50.8	25.4	31.8	60.5	23.9	3100 (213)	1600 (110)

45° Street Elbows

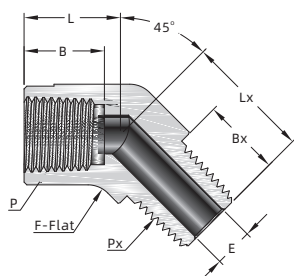


Female NPT Threads

Male NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	FNPT1-T45E-NPT1-	16.8	11.1	9.9	3.0	16.8	9.7	9200 (633)	4600 (316)
1/16	1/8	FNPT1-T45E-NPT2-	16.8	11.1	9.9	4.8	16.8	9.7	9200 (633)	4600 (316)
1/16	1/4	FNPT1-T45E-NPT4-	16.8	14.3	9.9	4.8	21.8	14.2	8000 (551)	4000 (275)
1/16	3/8	FNPT1-T45E-NPT6-	22.4	17.5	9.9	4.8	23.8	14.2	7800 (537)	3900 (268)
1/8	1/16	FNPT2-T45E-NPT1-	20.2	12.7	10.4	3.0	17.2	9.7	6200 (426)	3100 (213)
1/8	1/8	FNPT2-T45E-NPT2-	20.2	12.7	10.4	4.8	17.2	9.7	6200 (426)	3100 (213)
1/8	1/4	FNPT2-T45E-NPT4-	16.8	14.3	10.4	7.1	21.8	14.2	6500 (447)	3200 (220)
1/8	3/8	FNPT2-T45E-NPT6-	22.4	17.5	10.4	7.1	23.8	14.2	7800 (537)	3900 (268)
1/8	1/2	FNPT2-T45E-NPT8-	22.2	20.6	10.4	7.1	29.0	19.1	7700 (530)	3800 (261)
1/8	3/4	FNPT2-T45E-NPT12-	25.4	27.0	10.4	7.1	30.5	19.1	7300 (502)	3600 (248)
1/8	1	FNPT2-T45E-NPT16-	26.4	34.9	10.4	7.1	49.3	23.9	5300 (365)	2600 (179)
1/4	1/8	FNPT4-T45E-NPT2-	25.4	17.5	15.0	4.8	19.3	9.7	7200 (496)	3600 (248)
1/4	1/4	FNPT4-T45E-NPT4-	25.4	17.5	15.0	7.1	19.3	14.2	7200 (496)	3600 (248)
1/4	3/8	FNPT4-T45E-NPT6-	25.4	17.5	15.0	8.6	23.8	14.2	7200 (496)	3600 (248)
1/4	1/2	FNPT4-T45E-NPT8-	22.2	20.6	15.0	8.6	29.0	19.1	7200 (496)	3600 (248)
1/4	3/4	FNPT4-T45E-NPT12-	25.4	27.0	15.0	8.6	30.5	19.1	7300 (502)	3600 (248)
1/4	1	FNPT4-T45E-NPT16-	32.0	34.9	15.0	8.6	37.6	23.9	5300 (365)	2600 (179)
3/8	1/4	FNPT6-T45E-NPT4-	27.0	20.6	15.0	7.1	24.2	14.2	5600 (385)	2800 (192)
3/8	3/8	FNPT6-T45E-NPT6-	27.0	20.6	15.0	9.6	24.2	14.2	5600 (385)	2800 (192)
3/8	1/2	FNPT6-T45E-NPT8-	27.0	20.6	15.0	11.9	29.0	19.1	5600 (385)	2800 (192)
3/8	3/4	FNPT6-T45E-NPT12-	27.0	27.0	15.0	11.9	30.5	19.1	7300 (502)	3600 (248)
3/8	1	FNPT6-T45E-NPT16-	32.0	34.9	15.0	11.9	37.6	23.9	5300 (365)	2600 (179)
1/2	1/4	FNPT8-T45E-NPT4-	32.0	25.4	19.8	7.1	25.2	14.2	5600 (385)	2800 (192)
1/2	3/8	FNPT8-T45E-NPT6-	32.0	25.4	19.8	9.6	25.2	14.2	5600 (385)	2800 (192)
1/2	1/2	FNPT8-T45E-NPT8-	32.0	25.4	19.8	11.9	32.0	19.1	5600 (385)	2800 (192)
1/2	3/4	FNPT8-T45E-NPT12-	32.5	27.0	19.8	15.7	30.5	19.1	5600 (385)	2800 (192)
1/2	1	FNPT8-T45E-NPT16-	37.6	34.9	19.8	15.7	37.6	23.9	5300 (365)	2600 (179)
3/4	3/4	FNPT12-T45E-NPT12-	34.5	31.8	20.6	15.7	34.5	19.1	5100 (351)	2500 (172)
3/4	1	FNPT12-T45E-NPT16-	37.6	34.9	20.6	22.4	37.6	23.9	5100 (351)	2500 (172)
1	1	FNPT16-T45E-NPT16-	46.0	42.9	25.4	22.4	46.0	23.9	5300 (365)	2600 (179)
1 1/4	1 1/4	FNPT20-T45E-NPT20-	50.8	50.8	25.4	31.8	50.8	23.9	3100 (213)	1600 (110)

45° Street Elbows

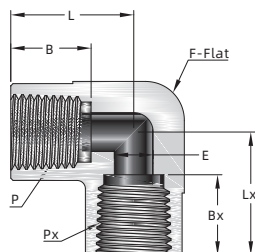


Female ISO Tapered Threads

Male ISO Tapered Threads

P-BSPT Size	Px-BSPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	FBT1-T45E-MBT1-	16.8	11.1	9.9	3.0	16.8	9.7	9200 (633)	4600 (316)
1/16	1/8	FBT1-T45E-MBT2-	16.8	11.1	9.9	4.8	16.8	9.7	9200 (633)	4600 (316)
1/16	1/4	FBT1-T45E-MBT4-	16.8	14.3	9.9	4.8	21.8	14.2	8000 (551)	4000 (275)
1/16	3/8	FBT1-T45E-MBT6-	22.4	17.5	9.9	4.8	23.8	14.2	7800 (537)	3900 (268)
1/8	1/16	FBT2-T45E-MBT1-	20.2	12.7	10.4	3.0	17.2	9.7	6200 (426)	3100 (213)
1/8	1/8	FBT2-T45E-MBT2-	20.2	12.7	10.4	4.8	17.2	9.7	6200 (426)	3100 (213)
1/8	1/4	FBT2-T45E-MBT4-	16.8	14.3	10.4	7.1	21.8	14.2	6500 (447)	3200 (220)
1/8	3/8	FBT2-T45E-MBT6-	22.4	17.5	10.4	7.1	23.8	14.2	7800 (537)	3900 (268)
1/8	1/2	FBT2-T45E-MBT8-	22.2	20.6	10.4	7.1	29.0	19.1	7700 (530)	3800 (261)
1/8	3/4	FBT2-T45E-MBT12-	25.4	27.0	10.4	7.1	30.5	19.1	7300 (502)	3600 (248)
1/8	1	FBT2-T45E-MBT16-	26.4	34.9	10.4	7.1	49.3	23.9	5300 (365)	2600 (179)
1/4	1/8	FBT4-T45E-MBT2-	25.4	17.5	15.0	4.8	19.3	9.7	7200 (496)	3600 (248)
1/4	1/4	FBT4-T45E-MBT4-	25.4	17.5	15.0	7.1	19.3	14.2	7200 (496)	3600 (248)
1/4	3/8	FBT4-T45E-MBT6-	25.4	17.5	15.0	8.6	23.8	14.2	7200 (496)	3600 (248)
1/4	1/2	FBT4-T45E-MBT8-	22.2	20.6	15.0	8.6	29.0	19.1	7200 (496)	3600 (248)
1/4	3/4	FBT4-T45E-MBT12-	25.4	27.0	15.0	8.6	30.5	19.1	7300 (502)	3600 (248)
1/4	1	FBT4-T45E-MBT16-	32.0	34.9	15.0	8.6	37.6	23.9	5300 (365)	2600 (179)
3/8	1/4	FBT6-T45E-MBT4-	27.0	20.6	15.0	7.1	24.2	14.2	5600 (385)	2800 (192)
3/8	3/8	FBT6-T45E-MBT6-	27.0	20.6	15.0	9.6	24.2	14.2	5600 (385)	2800 (192)
3/8	1/2	FBT6-T45E-MBT8-	27.0	20.6	15.0	11.9	29.0	19.1	5600 (385)	2800 (192)
3/8	3/4	FBT6-T45E-MBT12-	27.0	27.0	15.0	11.9	30.5	19.1	7300 (502)	3600 (248)
3/8	1	FBT6-T45E-MBT16-	32.0	34.9	15.0	11.9	37.6	23.9	5300 (365)	2600 (179)
1/2	1/4	FBT8-T45E-MBT4-	32.0	25.4	19.8	7.1	25.2	14.2	5600 (385)	2800 (192)
1/2	3/8	FBT8-T45E-MBT6-	32.0	25.4	19.8	9.6	25.2	14.2	5600 (385)	2800 (192)
1/2	1/2	FBT8-T45E-MBT8-	32.0	25.4	19.8	11.9	32.0	19.1	5600 (385)	2800 (192)
1/2	3/4	FBT8-T45E-MBT12-	32.5	27.0	19.8	15.7	30.5	19.1	5600 (385)	2800 (192)
1/2	1	FBT8-T45E-MBT16-	37.6	34.9	19.8	15.7	37.6	23.9	5300 (365)	2600 (179)
3/4	3/4	FBT12-T45E-MBT12-	34.5	31.8	20.6	15.7	34.5	19.1	5100 (351)	2500 (172)
3/4	1	FBT12-T45E-MBT16-	37.6	34.9	20.6	22.4	37.6	23.9	5100 (351)	2500 (172)
1	1	FBT16-T45E-MBT16-	46.0	42.9	25.4	22.4	46.0	23.9	5300 (365)	2600 (179)
1 1/4	1 1/4	FBT20-T45E-MBT20-	50.8	50.8	25.4	31.8	50.8	23.9	3100 (213)	1600 (110)

## Female Elbows



### Female NPT Threads

P-FNPT Size	Px-FNPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	FNPT1-TFE-FNPT1-	21.8	11.1	9.9	4.8	21.8	9.9	6700 (460)	3300 (227)
1/8	1/16	FNPT2-TFE-FNPT1-	26.4	12.7	10.4	4.8	26.4	9.9	6200 (427)	3100 (213)
1/8	1/8	FNPT2-TFE-FNPT2-	26.4	12.7	10.4	8.6	26.4	10.4	6200 (427)	3100 (213)
1/4	1/8	FNPT4-TFE-FNPT2-	29.7	17.5	15.0	7.1	29.7	10.4	7200 (496)	3600 (248)
1/4	1/4	FNPT4-TFE-FNPT4-	29.7	17.5	15.0	11.4	29.7	15.0	7200 (496)	3600 (248)
3/8	3/8	FNPT6-TFE-FNPT6-	36.1	20.6	15.0	15.0	36.1	15.0	5600 (385)	2800 (192)
1/2	1/2	FNPT8-TFE-FNPT8-	39.6	25.4	19.8	18.5	39.6	19.8	5600 (385)	2800 (192)
3/4	3/4	FNPT12-TFE-FNPT12-	48.8	31.8	20.6	23.9	48.8	20.6	5100 (351)	2500 (172)
1	1	FNPT16-TFE-FNPT16-	48.5	42.9	25.4	29.7	48.5	25.4	6400 (440)	3200 (220)
1 1/4	1 1/4	FNPT20-TFE-FNPT20-	59.8	50.8	25.4	27.7	50.8	25.4	3100 (213)	1600 (110)
1 1/2	1 1/2	FNPT24-TFE-FNPT24-	65.0	63.5	27.7	34.0	52.8	27.7	5100 (351)	2500 (172)

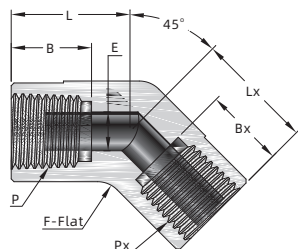
### Heavy-Wall Female NPT Threads

1/4	1/4	FNPT4-TFE1-FNPT4-	39.6	25.4	15.0	11.4	29.7	15.0	10000 (689)	—
1/2	1/2	FNPT8-TFE1-FNPT8-	50.0	42.9	19.8	18.5	39.6	19.8	10000 (689)	—

### Female ISO Tapered Threads

P-BSPT Size	Px-BSPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	FBT1-TFE-FBT1-	21.8	11.1	9.9	4.8	21.6	9.9	6700 (460)	3300 (227)
1/8	1/16	FBT2-TFE-FBT1-	16.8	12.7	10.4	4.8	16.8	9.9	6200 (427)	3100 (213)
1/8	1/8	FBT2-TFE-FBT2-	26.4	12.7	10.4	7.1	26.4	10.4	6200 (427)	3100 (213)
1/4	1/8	FBT4-TFE-FBT2-	29.7	17.5	15.0	7.1	29.7	10.4	7200 (496)	3600 (248)
1/4	1/4	FBT4-TFE-FBT4-	29.7	17.5	15.0	10.4	29.7	15.0	7200 (496)	3600 (248)
3/8	3/8	FBT6-TFE-FBT6-	36.1	20.6	15.0	12.7	36.1	15.0	5600 (385)	2800 (192)
1/2	1/2	FBT8-TFE-FBT8-	39.6	25.4	19.8	15.7	39.6	19.8	5600 (385)	2800 (192)
3/4	3/4	FBT12-TFE-FBT12-	48.8	31.8	20.6	22.4	48.8	20.6	5100 (351)	2500 (172)
1	1	FBT16-TFE-FBT16-	48.5	42.9	25.4	22.4	48.5	25.4	6400 (440)	3200 (220)
1 1/4	1 1/4	FBT20-TFE-FBT20-	59.8	50.8	25.4	27.7	50.8	25.4	3100 (213)	1600 (110)
1 1/2	1 1/2	FBT24-TFE-FBT24-	65.0	63.5	27.7	34.0	52.8	27.7	5100 (351)	2500 (172)

## 45° Female Elbows



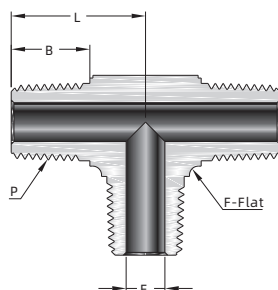
### Female NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	FNPT1-T45FE-FNPT1-	16.8	11.1	9.9	4.8	16.8	9.9	6700 (460)	3300 (227)
1/8	1/16	FNPT2-T45FE-FNPT1-	20.2	12.7	10.4	4.8	20.2	9.9	6200 (427)	3100 (213)
1/8	1/8	FNPT2-T45FE-FNPT2-	20.2	12.7	10.4	7.1	20.2	10.4	6200 (427)	3100 (213)
1/4	1/8	FNPT4-T45FE-FNPT2-	25.4	17.5	15.0	7.1	25.4	10.4	7200 (496)	3600 (248)
1/4	1/4	FNPT4-T45FE-FNPT4-	25.4	17.5	15.0	10.4	25.4	15.0	7200 (496)	3600 (248)
3/8	3/8	FNPT6-T45FE-FNPT6-	27.0	20.6	15.0	12.7	27.0	15.0	5600 (385)	2800 (192)
1/2	1/2	FNPT8-T45FE-FNPT8-	32.0	25.4	19.8	15.7	32.0	19.8	5600 (385)	2800 (192)
3/4	3/4	FNPT12-T45FE-FNPT12-	34.5	31.8	20.6	22.4	34.5	20.6	5100 (351)	2500 (172)
1	1	FNPT16-T45FE-FNPT16-	46.0	42.9	25.4	22.4	46.0	25.4	6400 (440)	3200 (220)
1 1/4	1 1/4	FNPT20-T45FE-FNPT20-	43.2	50.8	25.4	27.7	43.2	25.4	3100 (213)	1600 (110)
1 1/2	1 1/2	FNPT24-T45FE-FNPT24-	46.0	63.5	27.7	34.0	46.0	27.7	5100 (351)	2500 (172)

### Female ISO Tapered Pipe Threads

P-BSPT Size	Px-BSPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 SS, Steel	Brass
1/16	1/16	FBT1-T45FE-FBT1-	16.8	11.1	9.9	4.8	16.8	9.9	6700 (460)	3300 (227)
1/8	1/16	FBT2-T45FE-FBT1-	20.2	12.7	10.4	4.8	20.2	9.9	6200 (427)	3100 (213)
1/8	1/8	FBT2-T45FE-FBT2-	20.2	12.7	10.4	7.1	20.2	10.4	6200 (427)	3100 (213)
1/4	1/8	FBT4-T45FE-FBT2-	25.4	17.5	15.0	7.1	25.4	10.4	7200 (496)	3600 (248)
1/4	1/4	FBT4-T45FE-FBT4-	25.4	17.5	15.0	10.4	25.4	15.0	7200 (496)	3600 (248)
3/8	3/8	FBT6-T45FE-FBT6-	27.0	20.6	15.0	12.7	27.0	15.0	5600 (385)	2800 (192)
1/2	1/2	FBT8-T45FE-FBT8-	32.0	25.4	19.8	15.7	32.0	19.8	5600 (385)	2800 (192)
3/4	3/4	FBT12-T45FE-FBT12-	34.5	31.8	20.6	22.4	34.5	20.6	5100 (351)	2500 (172)
1	1	FBT16-T45FE-FBT16-	46.0	42.9	25.4	22.4	46.0	25.4	6400 (440)	3200 (220)
1 1/4	1 1/4	FBT20-T45FE-FBT20-	43.2	50.8	25.4	27.7	43.2	25.4	3100 (213)	1600 (110)
1 1/2	1 1/2	FBT24-T45FE-FBT24-	46.0	63.5	27.7	34.0	46.0	27.7	5100 (351)	2500 (172)

## Male Tees



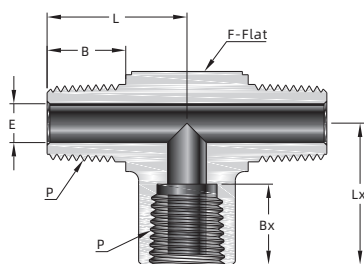
### Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	B	E	316 SS, Steel	Brass
1/16	NPT1-TMT-NPT1-NPT1-	15.5	9.5	9.7	3.0	11000 (757)	5500 (378)
1/8	NPT2-TMT-NPT2-NPT2-	22.4	11.1	9.7	4.8	10000 (689)	5000 (344)
1/4	NPT4-TMT-NPT4-NPT4-	26.7	12.7	14.2	7.1	8000 (551)	4000 (275)
3/8	NPT6-TMT-NPT6-NPT6-	29.7	17.5	14.2	9.6	7800 (537)	3900 (268)
1/2	NPT8-TMT-NPT8-NPT8-	36.8	20.6	19.1	11.9	7700 (530)	3800 (261)
3/4	NPT12-TMT-NPT12-NPT12-	42.4	27.0	19.1	15.7	7300 (502)	3600 (248)
1	NPT16-TMT-NPT16-NPT16-	49.3	34.9	23.9	22.4	5300 (365)	2600 (179)
1 1/4	NPT20-TMT-NPT20-NPT20-	56.4	42.9	23.9	27.7	6000 (410)	3000 (200)
1 1/2	NPT24-TMT-NPT24-NPT24-	67.1	47.6	26.2	34.0	5000 (344)	2500 (172)

### Male ISO Tapered Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	B	E	316 SS, Steel	Brass
1/16	MBT1-TMT-MBT1-MBT1-	15.5	9.5	9.7	3.0	11000 (757)	5500 (378)
1/8	MBT2-TMT-MBT2-MBT2-	22.4	11.1	9.7	4.8	10000 (689)	5000 (344)
1/4	MBT4-TMT-MBT4-MBT4-	26.7	12.7	14.2	7.1	8000 (551)	4000 (275)
3/8	MBT6-TMT-MBT6-MBT6-	29.7	17.5	14.2	9.6	7800 (537)	3900 (268)
1/2	MBT8-TMT-MBT8-MBT8-	36.8	20.6	19.1	11.9	7700 (530)	3800 (261)
3/4	MBT12-TMT-MBT12-MBT12-	42.4	27.0	19.1	15.7	7300 (502)	3600 (248)
1	MBT16-TMT-MBT16-MBT16-	49.3	34.9	23.9	22.4	5300 (365)	2600 (179)
1 1/4	MBT20-TMT-MBT20-MBT20-	56.4	42.9	23.9	27.7	6000 (410)	3000 (200)
1 1/2	MBT24-TMT-MBT24-MBT24-	67.1	47.6	26.2	34.0	5000 (344)	2500 (172)

### Female Branch Tees



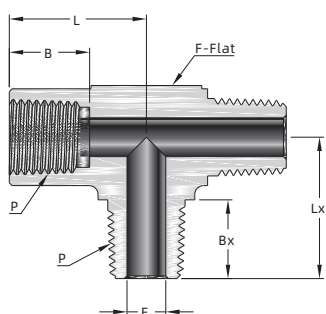
#### NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	NPT1-TFBT-NPT1-FNPT1-	18.3	11.1	3.0	9.7	21.8	9.9	9200 (633)	4600 (316)
1/8	NPT2-TFBT-NPT2-FNPT2-	22.1	12.7	4.8	9.7	26.4	10.4	6200 (427)	3100 (213)
1/4	NPT4-TFBT-NPT4-FNPT4-	29.7	17.5	7.1	14.2	29.7	15.0	7200 (496)	3600 (248)
3/8	NPT6-TFBT-NPT6-FNPT6-	32.0	20.6	9.6	14.2	36.1	15.0	5600 (385)	2800 (192)
1/2	NPT8-TFBT-NPT8-FNPT8-	39.6	25.4	11.9	19.1	39.6	19.8	5600 (385)	2800 (192)
3/4	NPT12-TFBT-NPT12-FNPT12-	42.4	31.8	15.7	19.1	48.8	20.6	5100 (351)	2500 (172)
1	NPT16-TFBT-NPT16-FNPT16-	49.3	42.9	22.4	23.9	48.5	25.4	5300 (365)	2600 (179)

#### ISO Tapered Pipe Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	MBT1-TFBT-MBT1-FBT1-	18.3	11.1	3.0	9.7	21.8	9.9	9200 (633)	4600 (316)
1/8	MBT2-TFBT-MBT2-FBT2-	22.1	12.7	4.8	9.7	26.4	10.4	6200 (427)	3100 (213)
1/4	MBT4-TFBT-MBT4-FBT4-	29.7	17.5	7.1	14.2	29.7	15.0	7200 (496)	3600 (248)
3/8	MBT6-TFBT-MBT6-FBT6-	32.0	20.6	9.6	14.2	36.1	15.0	5600 (385)	2800 (192)
1/2	MBT8-TFBT-MBT8-FBT8-	39.6	25.4	11.9	19.1	39.6	19.8	5600 (385)	2800 (192)
3/4	MBT12-TFBT-MBT12-FBT12-	42.4	31.8	15.7	19.1	48.8	20.6	5100 (351)	2500 (172)
1	MBT16-TFBT-MBT16-FBT16-	49.3	42.9	22.4	23.9	48.5	25.4	5300 (365)	2600 (179)

### Female Run Tees



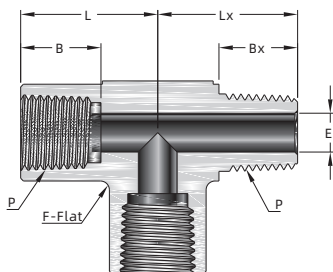
#### NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	FNPT1-TFRT-NPT1-NPT1-	21.8	11.1	3.0	9.9	18.3	9.7	9200 (633)	4600 (316)
1/8	FNPT2-TFRT-NPT2-NPT2-	26.4	12.7	4.8	10.4	22.1	9.7	6200 (427)	3100 (213)
1/4	FNPT4-TFRT-NPT4-NPT4-	29.7	17.5	7.1	15.0	29.7	14.2	7200 (496)	3600 (248)
3/8	FNPT6-TFRT-NPT6-NPT6-	36.1	20.6	9.6	15.0	32.0	14.2	5600 (385)	2800 (192)
1/2	FNPT8-TFRT-NPT8-NPT8-	39.6	25.4	11.9	19.8	39.6	19.1	5600 (385)	2800 (192)
3/4	FNPT12-TFRT-NPT12-NPT12-	48.8	31.8	15.7	20.6	42.4	19.1	5100 (351)	2500 (172)
1	FNPT16-TFRT-NPT16-NPT16-	48.5	42.9	22.4	25.4	49.3	23.9	5300 (365)	2600 (179)

#### ISO Tapered Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	FBT1-TFRT-MBT1-MBT1-	21.8	11.1	3.0	9.9	18.3	9.7	9200 (633)	4600 (316)
1/8	FBT2-TFRT-MBT2-MBT2-	26.4	12.7	4.8	10.4	22.1	9.7	6200 (427)	3100 (213)
1/4	FBT4-TFRT-MBT4-MBT4-	29.7	17.5	7.1	15.0	29.7	14.2	7200 (496)	3600 (248)
3/8	FBT6-TFRT-MBT6-MBT6-	36.1	20.6	9.6	15.0	32.0	14.2	5600 (385)	2800 (192)
1/2	FBT8-TFRT-MBT8-MBT8-	39.6	25.4	11.9	19.8	39.6	19.1	5600 (385)	2800 (192)
3/4	FBT12-TFRT-MBT12-MBT12-	48.8	31.8	15.7	20.6	42.4	19.1	5100 (351)	2500 (172)
1	FBT16-TFRT-MBT16-MBT16-	48.5	42.9	22.4	25.4	49.3	23.9	5300 (365)	2600 (179)

## Male Street Tees



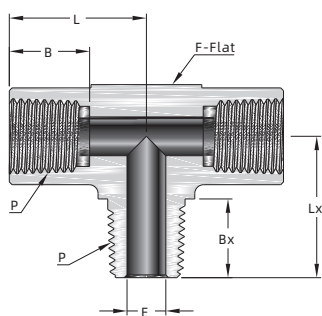
### NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	FNPT1-TMST-NPT1-FNPT1-	21.8	11.1	3.0	9.9	18.3	9.7	9200 (633)	4600 (316)
1/8	FNPT2-TMST-NPT2-FNPT2-	26.4	12.7	4.8	10.4	22.1	9.7	6200 (427)	3100 (213)
1/4	FNPT4-TMST-NPT4-FNPT4-	29.7	17.5	7.1	15.0	29.7	14.2	7200 (496)	3600 (248)
3/8	FNPT6-TMST-NPT6-FNPT6-	36.1	20.6	9.6	15.0	32.0	14.2	5600 (385)	2800 (192)
1/2	FNPT8-TMST-NPT8-FNPT8-	39.6	25.4	11.9	19.8	39.6	19.1	5600 (385)	2800 (192)
3/4	FNPT12-TMST-NPT12-FNPT12-	48.8	31.8	15.7	20.6	42.4	19.1	5100 (351)	2500 (172)
1	FNPT16-TMST-NPT16-FNPT16-	48.5	42.9	22.4	25.4	49.3	23.9	5300 (365)	2600 (179)

### ISO Tapered Pipe Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	FBT1-TMST-MBT1-FBT1-	21.8	11.1	3.0	9.9	18.3	9.7	9200 (633)	4600 (316)
1/8	FBT2-TMST-MBT2-FBT2-	26.4	12.7	4.8	10.4	22.1	9.7	6200 (427)	3100 (213)
1/4	FBT4-TMST-MBT4-FBT4-	29.7	17.5	7.1	15.0	29.7	14.2	7200 (496)	3600 (248)
3/8	FBT6-TMST-MBT6-FBT6-	36.1	20.6	9.6	15.0	32.0	14.2	5600 (385)	2800 (192)
1/2	FBT8-TMST-MBT8-FBT8-	39.6	25.4	11.9	19.8	39.6	19.1	5600 (385)	2800 (192)
3/4	FBT12-TMST-MBT12-FBT12-	48.8	31.8	15.7	20.6	42.4	19.1	5100 (351)	2500 (172)
1	FBT16-TMST-MBT16-FBT16-	48.5	42.9	22.4	25.4	49.3	23.9	5300 (365)	2600 (179)

## Male Branch Tees



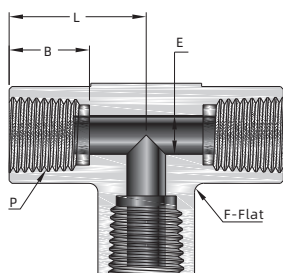
### NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	FNPT1-TMBT-FNPT1-NPT1-	21.8	11.1	3.0	9.9	18.3	9.7	9200 (633)	4600 (316)
1/8	FNPT2-TMBT-FNPT2-NPT2-	26.4	12.7	4.8	10.4	22.1	9.7	6200 (427)	3100 (213)
1/4	FNPT4-TMBT-FNPT4-NPT4-	29.7	17.5	7.1	15.0	29.7	14.2	7200 (496)	3600 (248)
3/8	FNPT6-TMBT-FNPT6-NPT6-	36.1	20.6	9.6	15.0	32.0	14.2	5600 (385)	2800 (192)
1/2	FNPT8-TMBT-FNPT8-NPT8-	39.6	25.4	11.9	19.8	39.6	19.1	5600 (385)	2800 (192)
3/4	FNPT12-TMBT-FNPT12-NPT12-	48.8	31.8	15.7	20.6	42.4	19.1	5100 (351)	2500 (172)
1	FNPT16-TMBT-FNPT16-NPT16-	48.5	42.9	22.4	25.4	49.3	23.9	5300 (365)	2600 (179)

### ISO Tapered Pipe Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
		L	F	E	B	Lx	Bx	316 SS, Steel	Brass
1/16	FBT1-TMBT-FBT1-MBT1-	21.8	11.1	3.0	9.9	18.3	9.7	9200 (633)	4600 (316)
1/8	FBT2-TMBT-FBT2-MBT2-	26.4	12.7	4.8	10.4	22.1	9.7	6200 (427)	3100 (213)
1/4	FBT4-TMBT-FBT4-MBT4-	29.7	17.5	7.1	15.0	29.7	14.2	7200 (496)	3600 (248)
3/8	FBT6-TMBT-FBT6-MBT6-	36.1	20.6	9.6	15.0	32.0	14.2	5600 (385)	2800 (192)
1/2	FBT8-TMBT-FBT8-MBT8-	39.6	25.4	11.9	19.8	39.6	19.1	5600 (385)	2800 (192)
3/4	FBT12-TMBT-FBT12-MBT12-	48.8	31.8	15.7	20.6	42.4	19.1	5100 (351)	2500 (172)
1	FBT16-TMBT-FBT16-MBT16-	48.5	42.9	22.4	25.4	49.3	23.9	5300 (365)	2600 (179)

## Female Tees



### Female NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	E	B	316 SS, Steel	Brass
1/16	FNPT1-TFT-FNPT1-FNPT1-	21.8	11.1	4.8	9.9	6700 (460)	3300 (227)
1/8	FNPT2-TFT-FNPT2-FNPT2-	26.4	12.7	8.6	10.4	6200 (427)	3100 (213)
1/4	FNPT4-TFT-FNPT4-FNPT4-	29.7	17.5	11.4	15.0	7200 (496)	3600 (248)
3/8	FNPT6-TFT-FNPT6-FNPT6-	36.1	20.6	15.0	15.0	5600 (385)	2800 (192)
1/2	FNPT8-TFT-FNPT8-FNPT8-	39.6	25.4	18.5	19.8	5600 (385)	2800 (192)
3/4	FNPT12-TFT-FNPT12-FNPT12-	48.8	31.8	23.9	20.6	5100 (351)	2500 (172)
1	FNPT16-TFT-FNPT16-FNPT16-	48.5	42.9	29.7	25.4	6400 (440)	3200 (220)
1 1/4	FNPT20-TFT-FNPT20-FNPT20-	59.8	50.8	37.2	25.4	3100 (213)	1600 (110)
1 1/2	FNPT24-TFT-FNPT24-FNPT24-	65.0	63.5	43.3	27.7	5100 (351)	2500 (172)

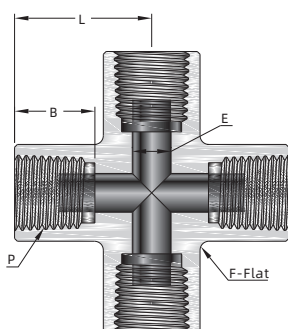
### Heavy-Wall Female NPT Threads

1/4	FNPT4-TFT1-FNPT4-FNPT4-	39.6	25.4	11.4	15.0	10000 (689)	—
1/2	FNPT8-TFT1-FNPT8-FNPT8-	50.0	27.0	18.5	19.8	10000 (689)	—

### Female ISO Tapered Pipe Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	E	B	316 SS, Steel	Brass
1/16	FBT1-TFT-FBT1-FBT1-	21.8	11.1	4.8	9.9	6700 (460)	3300 (227)
1/8	FBT2-TFT-FBT2-FBT2-	26.4	12.7	8.6	10.4	6200 (427)	3100 (213)
1/4	FBT4-TFT-FBT4-FBT4-	29.7	17.5	11.2	15.0	7200 (496)	3600 (248)
3/8	FBT6-TFT-FBT6-FBT6-	36.1	20.6	14.7	15.0	5600 (385)	2800 (192)
1/2	FBT8-TFT-FBT8-FBT8-	39.6	25.4	18.3	19.8	5600 (385)	2800 (192)
3/4	FBT12-TFT-FBT12-FBT12-	48.8	31.8	23.9	20.6	5100 (351)	2500 (172)
1	FBT16-TFT-FBT16-FBT16-	48.5	42.9	29.7	25.4	6400 (440)	3200 (220)
1 1/4	FBT20-TFT-FBT20-FBT20-	59.8	50.8	37.2	25.4	3100 (213)	1600 (110)
1 1/2	FBT24-TFT-FBT24-FBT24-	65.0	63.5	43.3	27.7	5100 (351)	2500 (172)

## Female Crosses



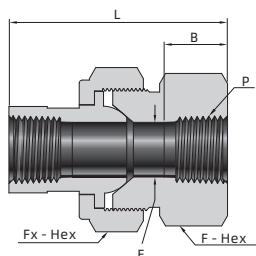
### Female NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	E	B	316 SS, Steel	Brass
1/16	FNPT1-TFC-FNPT1-FNPT1-FNPT1-	21.8	11.1	4.8	9.9	6700 (460)	3300 (227)
1/8	FNPT2-TFC-FNPT2-FNPT2-FNPT2-	26.4	12.7	8.6	10.4	6200 (427)	3100 (213)
1/4	FNPT4-TFC-FNPT4-FNPT4-FNPT4-	29.7	17.5	11.4	15.0	7200 (496)	3600 (248)
3/8	FNPT6-TFC-FNPT6-FNPT6-FNPT6-	36.1	20.6	15.0	15.0	5600 (385)	2800 (192)
1/2	FNPT8-TFC-FNPT8-FNPT8-FNPT8-	39.6	25.4	18.5	19.8	5600 (385)	2800 (192)
3/4	FNPT12-TFC-FNPT12-FNPT12-FNPT12-	48.8	31.8	23.9	20.6	5100 (351)	2500 (172)
1	FNPT16-TFC-FNPT16-FNPT16-FNPT16-	48.5	42.9	29.7	25.4	6400 (440)	3200 (220)

### Female ISO Tapered Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	E	B	316 SS, Steel	Brass
1/16	FBT1-TFC-FBT1-FBT1-FBT1-	21.8	11.1	4.8	9.9	6700 (460)	3300 (227)
1/8	FBT2-TFC-FBT2-FBT2-FBT2-	26.4	12.7	8.6	10.4	6200 (427)	3100 (213)
1/4	FBT4-TFC-FBT4-FBT4-FBT4-	29.7	17.5	11.4	15.0	7200 (496)	3600 (248)
3/8	FBT6-TFC-FBT6-FBT6-FBT6-	36.1	20.6	15.0	15.0	5600 (385)	2800 (192)
1/2	FBT8-TFC-FBT8-FBT8-FBT8-	39.6	25.4	18.5	19.8	5600 (385)	2800 (192)
3/4	FBT12-TFC-FBT12-FBT12-FBT12-	48.8	31.8	23.9	20.6	5100 (351)	2500 (172)
1	FBT16-TFC-FBT16-FBT16-FBT16-	48.5	42.9	29.7	25.4	6400 (440)	3200 (220)

## Union Ball Joints (UBJ)



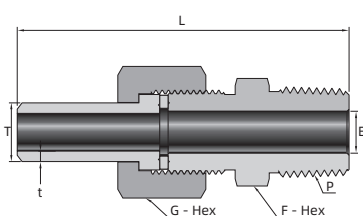
### Female NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar) 316 SS, Steel
		L	F	Fx	B	E	
1/8	FNPT2-UBJ-FNPT2-	46.0	23.8	28.6	10.4	6.8	8400 (578)
1/4	FNPT4-UBJ-FNPT4-	59.4	30.2	34.9	15.0	9.1	6600 (454)
3/8	FNPT6-UBJ-FNPT6-	63.5	33.3	38.1	15.0	13.2	5300 (365)
1/2	FNPT8-UBJ-FNPT8-	68.3	41.3	44.5	19.8	15.7	6000 (410)
3/4	FNPT12-UBJ-FNPT12-	79.2	47.6	54.0	20.6	22.4	4600 (316)
1	FNPT16-UBJ-FNPT16-	90.4	60.3	63.5	25.4	26.2	6800 (468)

### Female ISO Tapered Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar) 316 SS, Steel
		L	F	Fx	B	E	
1/8	FBT2-UBJ-FBT2-	46.0	23.8	28.6	10.4	6.8	8400 (578)
1/4	FBT4-UBJ-FBT4-	59.4	30.2	34.9	15.0	9.1	6600 (454)
3/8	FBT6-UBJ-FBT6-	63.5	33.3	38.1	15.0	13.2	5300 (365)
1/2	FBT8-UBJ-FBT8-	68.3	41.3	44.5	19.8	15.7	6000 (410)
3/4	FBT12-UBJ-FBT12-	79.2	47.6	54.0	20.6	22.4	4600 (316)
1	FBT16-UBJ-FBT16-	90.4	60.3	63.5	25.4	26.2	6800 (468)

## Male Pipe to Tube Butt Weld (UGJ)



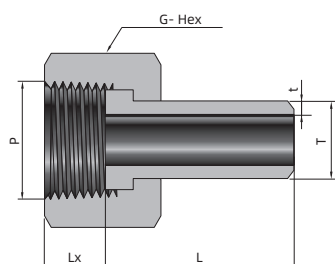
### NPT Thread

### Metric Tube

P-NPT Size	T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm(in.)				Working Pressure psig (bar)
				L	F	G	E	
1/8	14	2.0	MBW14-UGJ-NPT2-	69.0 (2.72)	19.0 (0.75)	22.0 (0.87)	4.8 (0.19)	6280 (433)
1/4	6	1.8	MBW6-UGJ-NPT4-	60.0 (2.36)	14.0 (0.55)	14.0 (0.55)	3.0 (0.12)	8240 (566)
1/4	8	1.8	MBW8-UGJ-NPT4-	73.2 (2.88)	14.0 (0.55)	16.0 (0.63)	4.0 (0.16)	8240 (566)
1/4	10	2.2	MBW10-UGJ-NPT4-	73.2 (2.88)	15.0 (0.59)	18.0 (0.71)	6.0 (0.24)	8160 (563)
1/4	12	2.2	MBW12-UGJ-NPT4-	73.2 (2.88)	18.0 (0.71)	22.0 (0.87)	7.0 (0.28)	6470 (446)
1/4	14	2.0	MBW14-UGJ-NPT4-	73.2 (2.88)	19.0 (0.75)	22.0 (0.87)	7.1 (0.28)	6280 (433)
1/4	16	3.0	MBW16-UGJ-NPT4-	73.2 (2.88)	22.0 (0.87)	25.0 (0.98)	7.1 (0.28)	6140 (423)
1/4	18	2.8	MBW18-UGJ-NPT4-	74.2 (2.92)	24.0 (0.94)	27.0 (1.06)	7.1 (0.28)	5670 (392)
3/8	14	2.0	MBW14-UGJ-NPT6-	73.2 (2.88)	19.0 (0.75)	22.0 (0.87)	9.7 (0.38)	6280 (433)
1/2	12	2.2	MBW12-UGJ-NPT8-	78.0 (3.07)	18.0 (0.71)	22.0 (0.87)	7.0 (0.28)	6470 (446)
1/2	14	2.0	MBW14-UGJ-NPT8-	78.0 (3.07)	19.0 (0.75)	22.0 (0.87)	9.0 (0.35)	6280 (433)
1/2	16	3.0	MBW16-UGJ-NPT8-	78.0 (3.07)	22.0 (0.87)	25.0 (0.98)	10.0 (0.39)	6140 (423)
1/2	22	3.0	MBW22-UGJ-NPT8-	82.0 (3.23)	30.0 (1.18)	32.0 (1.26)	11.9 (0.47)	4620 (319)
1/2	25	3.5	MBW25-UGJ-NPT8-	86.0 (3.39)	32.0 (1.26)	35.0 (1.38)	11.9 (0.47)	4730 (326)
1	25	3.5	MBW25-UGJ-NPT16-	103.0 (4.06)	35.0 (1.38)	35.0 (1.38)	17.0 (0.67)	4730 (326)

# Pipe to Weld Fittings

## Pipe to Tube Butt Weld



### ISO Parallel Thread

### Metric Tube

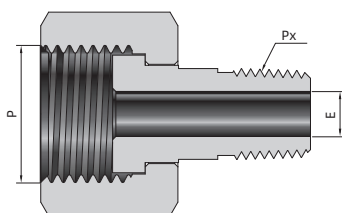
P-ISO Thread Size	T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
				L	G	Lx	
1/2	12	2.2	FBP8-PTW-MBW12-	34	27.0	9.2	6470 (446)
1/2	14	2.0	FBP8-PTW-MBW14-	34	27.0	9.2	6280 (433)
1/2	16	3.0	FBP8-PTW-MBW16-	34	27.0	9.2	6140 (423)

### 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-PTW-MBW12-	34	22	9	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	2.0	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	2.0	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	3.0	FMS20-PTW-MBW16-	34	25	11	6140 (423)
M22 x 1.5	14	2.0	FMS22-PTW-MBW14-	34	27	11	6280 (433)
M22 x 1.5	16	3.0	FMS22-PTW-MBW16-	34	27	11	6140 (423)
M24 x 1.5	16	3.0	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	2.0	FMS27-PTW-MBW14-	34	32	14	6280 (433)
M27 x 2	16	3.0	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)

## Pipe to Pipe Unions (TPU)



### Metric Thread

### NPT Threads

P-Metric Thread Size	Px-NPT Size	Basic Ordering Number	Dimension, mm	Working Pressure psig (bar) 316 SS, Steel
			E	
M20 x 1.5	1/8	FMS20-TPU-NPT2-	4.8	4500 (310)
M20 x 1.5	1/4	FMS20-TPU-NPT4-	7.1	4500 (310)

### Metric Thread

### ISO Tapered Pipe Threads

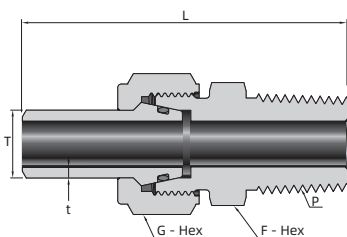
P-Metric Thread Size	Px-BSPT Size	Basic Ordering Number	Dimension, mm	Working Pressure psig (bar) 316 SS, Steel
			E	
M20 x 1.5	1/8	FMS20-TPU-MBT2-	4.8	4500 (310)
M20 x 1.5	1/4	FMS20-TPU-MBT4-	7.1	4500 (310)

### ISO Parallel Thread

### NPT Threads

P-BG Size	Px-NPT Size	Basic Ordering Number	Dimension, mm	Working Pressure psig (bar) 316 SS, Steel
			E	
1/2	1/8	FBP8-TPU-NPT2	4.8	4900 (337)
1/2	1/4	FBP8-TPU-NPT4	7.1	4900 (337)

## Male Pipe to Tube Butt Weld (UOJ)



### NPT Thread

### Metric Tube

P-NPT Size	T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)				Working Pressure psig (bar)
				L	F	G	E	
1/8	14	2.0	MBW14-UOJ-NPT2-	69.0 (2.72)	19.0 (0.75)	22.0 (0.87)	4.8 (0.19)	6280 (433)
1/4	6	1.8	MBW6-UOJ-NPT4-	60.0 (2.36)	14.0 (0.55)	14.0 (0.55)	3.0 (0.12)	8240 (566)
1/4	8	1.8	MBW8-UOJ-NPT4-	73.2 (2.88)	14.0 (0.55)	16.0 (0.63)	4.0 (0.16)	8240 (566)
1/4	10	2.2	MBW10-UOJ-NPT4-	73.2 (2.88)	15.0 (0.59)	18.0 (0.71)	6.0 (0.24)	8160 (563)
1/4	12	2.2	MBW12-UOJ-NPT4-	73.2 (2.88)	18.0 (0.71)	22.0 (0.87)	7.0 (0.28)	6470 (446)
1/4	14	2.0	MBW14-UOJ-NPT4-	73.2 (2.88)	19.0 (0.75)	22.0 (0.87)	7.1 (0.28)	6280 (433)
1/4	16	3.0	MBW16-UOJ-NPT4-	73.2 (2.88)	22.0 (0.87)	25.0 (0.98)	7.1 (0.28)	6140 (423)
1/4	18	2.8	MBW18-UOJ-NPT4-	74.2 (2.92)	24.0 (0.94)	27.0 (1.06)	7.1 (0.28)	5670 (392)
3/8	14	2.0	MBW14-UOJ-NPT6-	73.2 (2.88)	19.0 (0.75)	22.0 (0.87)	9.7 (0.38)	6280 (433)
1/2	12	2.2	MBW12-UOJ-NPT8-	78.0 (3.07)	18.0 (0.71)	22.0 (0.87)	7.0 (0.28)	6470 (446)
1/2	14	2.0	MBW14-UOJ-NPT8-	78.0 (3.07)	19.0 (0.75)	22.0 (0.87)	9.0 (0.35)	6280 (433)
1/2	16	3.0	MBW16-UOJ-NPT8-	78.0 (3.07)	22.0 (0.87)	25.0 (0.98)	10.0 (0.39)	6140 (423)
1/2	22	3.0	MBW22-UOJ-NPT8-	82.0 (3.23)	30.0 (1.18)	32.0 (1.26)	11.9 (0.47)	4620 (319)
1/2	25	3.5	MBW25-UOJ-NPT8-	86.0 (3.39)	32.0 (1.26)	35.0 (1.38)	11.9 (0.47)	4730 (326)
1	25	3.5	MBW25-UOJ-NPT16-	103.0 (4.06)	35.0 (1.38)	35.0 (1.38)	17.0 (0.67)	4730 (326)

Port 1 Type	Port 1 Size	Fitting Configuration	Port 2 Port 3 and Port 4	Material
FNPT Female NPT	2 1/8 in.	TP Pipe Plug	Same as the Port 1 or as follows:	316 316 S.S.
NPT Male NPT	4 1/4 in.	THP Hollow Hex Plug	FMS Female Metric	316L 316L S.S.
NPTO O-ring with Male NPT	5 5/16-24	TCN Close Nipple	MS Male Metric (for BG)	304 304 S.S.
FBT Female BSPT	6 3/8 in. or 3/8-24	TPN Special Pipe Nipple	BPMS Male Metric (for BP)	304L 304L S.S.
MBT Male BSPT	7 7/16-20	THN Hex Nipple	BSMS Male Metric (for BS)	
MBTO O-ring with Male BSPT	8 1/2 in. or M8 x 1	TLN Hex Long Nipple	OMS O-ring with Male Metric	
FBP Female BSPP	9 9/16-18	TRB Reducing Bushing	FST Female SAE	
PMBP Male BSPP (for BP)	10 M10 x 1	PC Pipe Cap	MST Male SAE (for BG)	
MBS Male BSPP (for BS)	12 3/4 in. or M12 x 1.5 or 3/4-16	THC Hex Coupling	BPST Male SAE (for BP)	
MBP Male BSPP (for BG)	14 M14 x 1.5 or 7/8-14	UBJ Union Ball Joints	BSST Male SAE (for BS)	
	16 1 in. or M16 x 1.5	UGJ Union Gasket Joints	OST O-ring with Male SAE	
	17 1 1/16-12	UOJ Union O-Ring Joints	PPT Positionable BSPP Thread	
	18 M18 x 1.5	TA Adapter	PMS Positionable Metric Parallel Thread	
	19 1 3/16-12	TME Male Elbow	PST Positionable SAE Parallel Thread	
	20 1 1/4 in. or M20 x 1.5	TSE Street Elbow		
	21 1 5/16-12	T45E 45° Street Elbow		
	22 M22 x 1.5	TFE Female Elbow		
	24 1 1/2 in. or M24 x 1.5	T45FE 45° Female Elbow		
	26 1 5/8-12	TMT Male Tee		
	27 M27 x 2	TFBT Female Branch Tee		
	30 1 7/8-12 or M30 x 2	TFRT Female Run Tee		
	32 2 in.	TMST Male Street Tee		
		TMBT Male Branch Tee		
		TFT Female Tee		
		TFC Female Cross		
		TPU Pipe to Pipe Unions		

