

INSTRUMENT

PIPE Fittings



PIPE Fittings

CONTENTS

Features	79	Working Pressure	80
Installation Instruction	79	Pressure Rating	80
Materials	79	How to Order	81
Cleaning	79	Ordering Information & Dimensions	82
Pipe End Thread Information	80		

Male Pipe to Male Pipe

PCN ⁸² Close Nipple	PRA ⁸⁵ Reducing Adapter	PRC ⁸⁷ Reducing Coupling
PHN ⁸² Hex Nipple	PRB ⁸⁵ Reducing Bushing	PFE ⁸⁷ Female Elbow
PHLN ⁸³ Hex Long Nipple	PSE ⁸⁵ Street Elbow	PFT ⁸⁷ Female Tee
PHRN ⁸³ Reducing Hex Nipple	PRSE ⁸⁶ Reducing Street Elbow	PBJ ⁸⁷ Ball Joint Union
PME ⁸⁴ Male Elbow	PST ⁸⁶ Street Tee	PU ⁸⁸ Pipe Union
PMT ⁸⁴ Male Tee	PBT ⁸⁶ Branch Tee	

Female Pipe to Male Pipe

PA ⁸⁴ ⁸⁵ Adapter
--

Female Pipe to Female Pipe

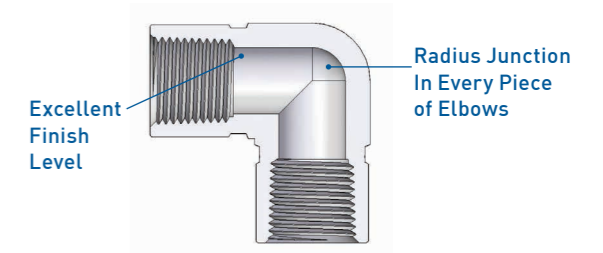
PC ⁸⁶ Coupling

Components

PCP ⁸⁸ Pipe Cap	PPG ⁸⁸ Pipe Plug
--------------------------------------	---------------------------------------

Features

Excellent finish level to allow smooth flow transition
 Every pieces of elbows have radius junction to eliminate entrapment areas and to allow smooth flow transition for all elbows including pipe fittings
 Fine threads meets the requirement of ASME/ANSI B1.20.1 to ensure maximum thread engagement
 Working pressures are higher than the traditional piping class, 3000 pipe fittings to ASME B16.11



Materials

UNILOK pipe fittings are available in various kinds of materials as below. Straight fittings are machined from bar stock and shaped fittings from forgings. For more details or special application, contact your local distributors.

Materials	Bar Stock	Forgings
316 SS or 316L SS	ASTM A479 ASME SA479	ASTM A182 ASME SA182
Brass	ASTM B16 ASTM B453	ASTM B283
Alloy 400 (Monel®)	ASTM B164	ASTM B564 ASME SB564

Sour Environment Services

UNILOK pipe fittings are comply with NACE MR-0175/ISO 15156 for sour oilfield application or NACE MR-0103 for petroleum refining operations. To order, add-N to the end of part number.

Installation Instruction

Pipe thread sealant is recommended for a leak tight seal. PTFE tape is commonly used only for installation of the pipe fittings with male thread.

Make sure both male and female threads clean. Warp PTFE tape clockwise from the first thread. Two time of wrapping is recommended. Don't overhang tape on the first thread as it might be entered the system. Cut off excess tape.

Cleaning

UNILOK pipe fittings are free from machine oils, loose particles and grease throughout the close cleaning process.

Pipe End Thread Information

The end connections with the lower pressure rating is the determining factor of pressure rating for the fittings with both UNILOK tube ends and pipe thread ends.

Pressure Rating for Pipe End Thread

Tapered Pipe Threads - NPT or ISO 7/1(BSPT)

Allowable pressure ratings for male and female threads are based on ASME B31.3 at ambient temperature.

Pipe Size	316SS				Brass				UNILOK Designator
	Male		Female		Male		Female		
inch	bar	psig	bar	psig	psig	bar	psig		
1/16	760	11000	460	6700	5500	230	3300	-01N/R	
1/8	690	10000	440	6500	5000	220	3200	-02N/R	
1/4	550	8000	450	6600	4000	220	3300	-04N/R	
3/8	540	7800	360	5300	3900	180	2600	-06N/R	
1/2	530	7700	330	4900	3800	160	2400	-08N/R	
3/4	500	7300	320	4600	3600	160	2300	-12N/R	
1	370	5300	300	4400	2600	150	2200	-16N/R	
1-1/4	410	6000	350	5000	3000	170	2500	-20N/R	
1-1/2	340	5000	310	4600	2500	150	2300	-24N/R	
2	270	3900	270	3900	1900	130	1900	-32N/R	

Design for NPT pipe thread is N, ISO 7/1 is R.

ISO 228/1 Parallel Thread (BSPP)

The pressure ratings are at ambient temperature.

Male Pipe Size	316SS		UNILOK Designator
	bar	psig	
1/8	315	4568	-02G
1/4	315	4568	-04G
3/8	315	4568	-06G
1/2	160	2320	-08G

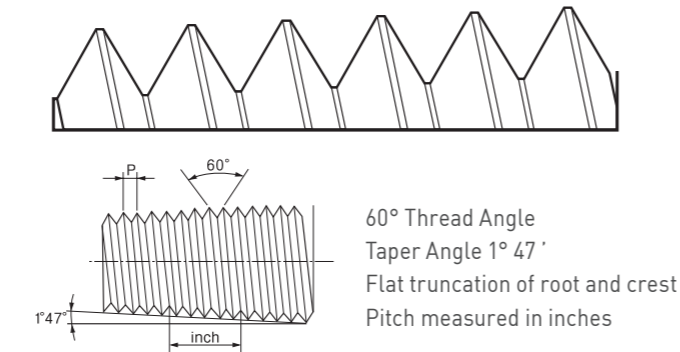
O-Seal Fittings

Rated to 206 bar (3000 psig) for 316SS fittings up to 1 inch and 25mm

Kinds of Pipe End Thread

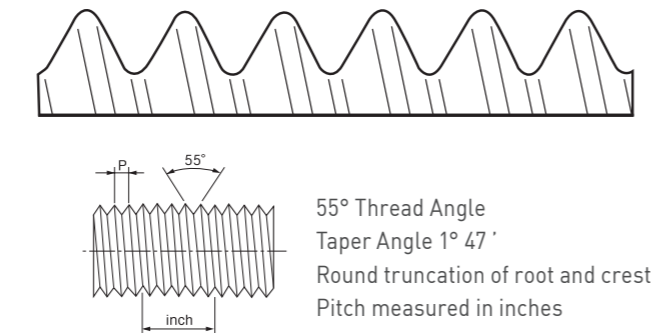
NPT Pipe Thread

NPT (National Pipe Thread) is based on ANSI B1.20.1



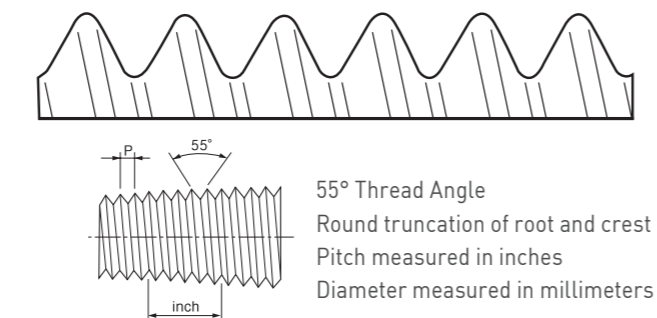
ISO 7/1 Tapered Pipe Thread

International Organization for Standard (ISO 7/1) Tapered (PT) Equivalent to BSPT (British Standard Pipe Taper Thread), DIN 2999, JIS B0203



ISO 228/1 Parallel Pipe Thread

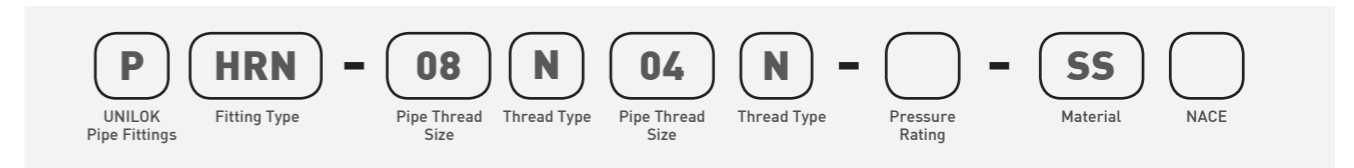
International Organization for Standard (ISO 228/1) Parallel(PF) Equivalent to BSPP (British Standard Pipe Parallel Thread), DIN ISO228/1, JIS B0202 Gasket or O-ring is normally used to seal into the parallel female threaded components.



How To order

UNILOK pipe fittings are ordered by part number as shown below.

Example: The following part number, *PHRN-08N04N-SS* is designated for Reducing Hex Nipple, 1/2 Male-NPT x 1/4 Male-NPT, 316SS.



Pipe Thread Size Designation						
Pipe Size	1/8	1/4	3/8	1/2	3/4	1
Designator	02	04	06	08	12	16

Thread Type Designation		
Designator	Thread Type	
N	NPT	National Standard Pipe Thread
R	ISO 7/1	Taper Pipe Thread
G	ISO 228/1	Parallel Pipe Thread
WS-*T		Socket Weld-Tube

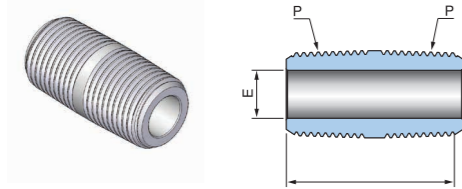
Material Designation	
Designator	Material
SS	316SS
BS	Brass
M0	Alloy400

Pressure Rating Designation	
Designator	Pressure Rating
6K	6000 psi
10K	10000 psi

Pipe fittings for high pressure application are available. The standard pressure ratings for each thread sizes are based on ASME B31.3 at ambient temperature.

For the availability of 6000psig and 10000psig, contact your local distributors.

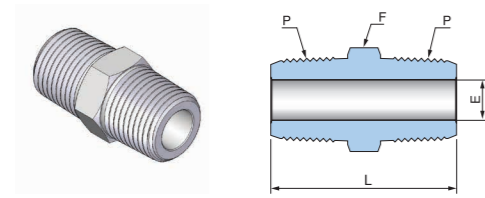
PCN Close Nipple



Male NPT to Male NPT

Part No.	P NPT	Dimensions (mm)	
		L	E
PCN-02N	1/8	21.8	4.8
PCN-04N	1/4	33.0	7.1
PCN-06N	3/8	34.0	9.6
PCN-08N	1/2	44.0	11.9
PCN-12N	3/4	38.1	15.7
PCN-16N	1	58.9	22.4

PHN Hex Nipple



Male NPT to Male NPT

Part No.	P NPT	Dimensions (mm)			
		L	E	F	
				inch	mm
PHN-02N	1/8	25.6	4.8	7/16	11.11
PHN-04N	1/4	35.6	7.1	9/16	14.28
PHN-06N	3/8	36.3	9.6	11/16	17.46
PHN-08N	1/2	46.7	11.9	7/8	22.22
PHN-12N	3/4	46.7	15.7	1-1/16	26.98
PHN-16N	1	58.9	22.4	1-3/8	34.92

Male NPT to Male ISO Tapered Thread

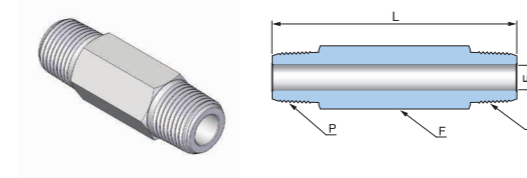
Part No.	P NPT	P1 ISO7/1	Dimensions (mm)			
			L	E	F	
					inch	mm
PHN-02N02R	1/8	1/8	25.6	4.8	7/16	11.11
PHN-04N04R	1/4	1/4	35.6	7.1	9/16	14.28
PHN-06N06R	3/8	3/8	36.3	9.6	11/16	17.46
PHN-08N08R	1/2	1/2	46.7	11.9	7/8	22.22
PHN-12N12R	3/4	3/4	46.7	15.7	1-1/16	26.98
PHN-16N16R	1	1	58.9	22.4	1-3/8	34.92

Male NPT to Male ISO Parallel Thread

Part No.	P NPT	P1 ISO 228/1	Dimensions (mm)					
			L	B	C	E	F	
							inch	mm
PHN-02N02G	1/8	1/8	27.7	7.1	13.8	4.1	9/16	14.28
PHN-04N04G	1/4	1/4	36.8	11.2	18.0	5.8	3/4	19.05
PHN-06N06G	3/8	3/8	37.6	11.2	21.8	7.9	7/8	22.22
PHN-08N08G	1/2	1/2	44.4	14.2	26.0	11.9	1-1/16	26.98
PHN-12N12G	3/4	3/4	49.0	15.7	32.0	15.7	1-5/16	33.33
PHN-16N16G	1	1	56.6	18.3	39.0	19.8	1-5/8	41.27

ISO Tapered threads are available for all fractional PCN, PHN. To order, add "R" as a suffix instead of "N".
Dimensions are for reference only and are subject to change without prior notice

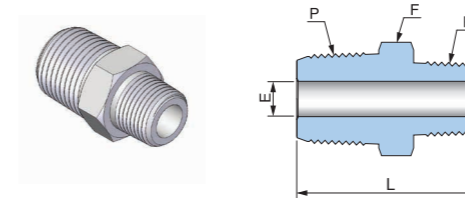
PHLN Hex Long Nipple



Male NPT to Male NPT

Part No.	P NPT	Dimensions (mm)			
		L	E	F	
				inch	mm
PHLN-02N-1.5	1/8	40	4.8	7/16	11.11
PHLN-02N-2.0		50			
PHLN-02N-2.5		65			
PHLN-02N-3.0		75			
PHLN-02N-4.0		100			
PHLN-04N-1.5	1/4	40	7.1	9/16	14.28
PHLN-04N-2.0		50			
PHLN-04N-2.5		65			
PHLN-04N-3.0		75			
PHLN-04N-4.0		100			
PHLN-04N-6.0	150				
PHLN-06N-2.0	3/8	50	9.6	11/16	17.46
PHLN-06N-3.0		75			
PHLN-06N-4.0		100			
PHLN-08N-2.0	1/2	50	11.9	7/8	22.22
PHLN-08N-3.0		75			
PHLN-08N-4.0		100			
PHLN-08N-6.0		150			
PHLN-12N-3.0	3/4	75	15.7	1-1/16	26.98
PHLN-12N-4.0		100			
PHLN-16N-3.0	1	75	22.4	1-3/8	34.92
PHLN-16N-4.0		100			

PHRN Reducing Hex Nipple

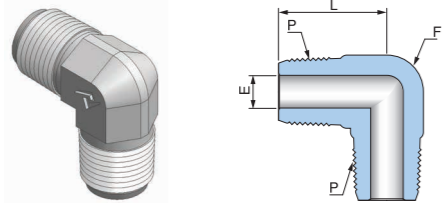


Male NPT to Reduced Male NPT

Part No.	P NPT	P1 NPT	Dimensions (mm)			
			L	E	F	
					inch	mm
PHRN-04N02N	1/4	1/8	31.0	4.8	9/16	14.28
PHRN-06N04N	3/8	1/4	36.3	7.1	11/16	17.46
PHRN-08N04N	1/2	1/4	41.9	7.1	7/8	22.22
PHRN-08N06N	1/2	3/8	41.9	9.6	7/8	22.22
PHRN-12N04N	3/4	1/4	41.9	7.1	1-1/16	26.98
PHRN-12N08N	3/4	1/2	46.7	11.9	1-1/16	26.98
PHRN-16N08N	1	1/2	54.1	11.9	1-3/8	34.92
PHRN-16N12N	1	3/4	54.1	15.7	1-3/8	34.92

ISO Tapered threads are available for all fractional PHLN, PHRN. To order, add "R" as a suffix instead of "N".
Dimensions are for reference only and are subject to change without prior notice

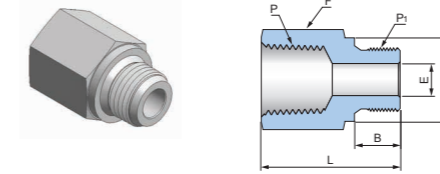
PME
Male Elbow



Male NPT to Male NPT

Part No.	P NPT	Dimensions (mm)			
		L	E	F	
				inch	mm
PME-02N	1/8	22.4	4.8	1/2	12.70
PME-04N	1/4	26.7	7.1	1/2	12.70
PME-06N	3/8	29.7	9.6	11/16	17.46
PME-08N	1/2	36.8	11.9	13/16	20.63

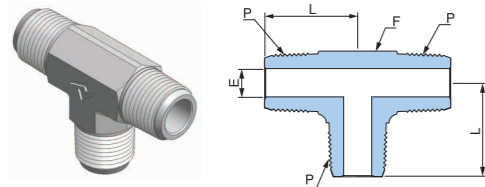
PA
Adapter



Female NPT to Male ISO Parallel Thread

Part No.	P NPT	P ₁ ISO 228/1	Dimensions (mm)					
			L	B	C	E	F	
							inch	mm
PA-02N02G	1/8	1/8	25.1	7.1	13.8	4.1	9/16	14.28
PA-04N04G	1/4	1/4	33.5	11.2	18.0	5.8	3/4	19.05
PA-06N06G	3/8	3/8	35.8	11.2	21.8	7.9	7/8	22.22
PA-08N08G	1/2	1/2	44.2	14.2	26.0	11.9	1-1/16	26.98
PA-12N12G	3/4	3/4	48.0	15.7	32.0	15.7	1-5/16	33.33
PA-16N16G	1	1	53.3	18.3	39.0	19.8	1-5/8	41.27

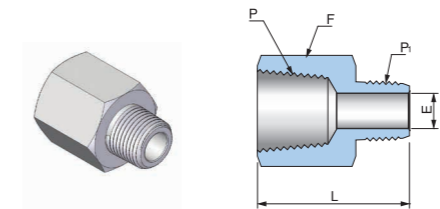
PMT
Male Tee



Male NPT to Male NPT

Part No.	P NPT	Dimensions (mm)			
		L	E	F	
				inch	mm
PMT-02N	1/8	22.4	4.8	1/2	12.70
PMT-04N	1/4	26.7	7.1	1/2	12.70
PMT-06N	3/8	29.7	9.6	11/16	17.46
PMT-08N	1/2	36.8	11.9	13/16	20.63

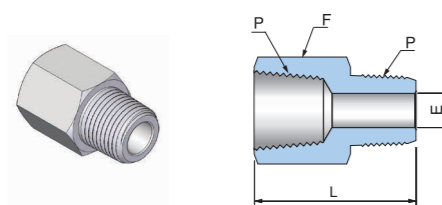
PRA
Reducing Adapter



Female NPT to Reduced Male NPT

Part No.	P NPT	P ₁ NPT	Dimensions (mm)			
			L	E	F	
					inch	mm
PRA-04N02N	1/4	1/8	32.0	4.8	3/4	19.05
PRA-06N04N	3/8	1/4	38.1	7.1	7/8	22.22
PRA-08N04N	1/2	1/4	44.7	7.1	1-1/16	26.98
PRA-08N06N	1/2	3/8	44.4	9.6	1-1/16	26.98
PRA-12N06N	3/4	3/8	46.2	9.6	1-5/16	33.33
PRA-12N08N	3/4	1/2	51.3	11.9	1-5/16	33.33
PRA-16N08N	1	1/2	54.9	11.9	1-5/8	41.27
PRA-16N12N	1	3/4	55.1	15.7	1-5/8	41.27

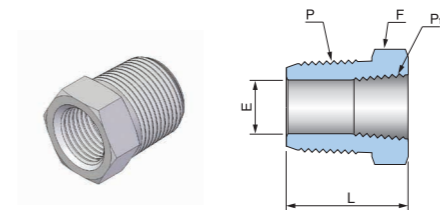
PA
Adapter



Female NPT to Male NPT

Part No.	P NPT	Dimensions (mm)			
		L	E	F	
				inch	mm
PA-02N	1/8	27.9	4.8	9/16	14.28
PA-04N	1/4	35.6	7.1	3/4	19.05
PA-06N	3/8	38.4	9.6	7/8	22.22
PA-08N	1/2	49.3	11.9	1-1/16	26.98
PA-12N	3/4	51.3	15.7	1-5/16	33.33
PA-16N	1	57.9	22.4	1-5/8	41.27

PRB
Reducing Bushing



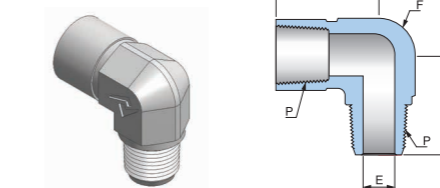
Male NPT to Reduced Female NPT

Part No.	P NPT	P ₁ NPT	Dimensions (mm)			
			L	E	F	
					inch	mm
PRB-04N02N	1/4	1/8	26.9	7.1	9/16	14.28
PRB-06N04N	3/8	1/4	30.2	9.6	3/4	19.05
PRB-08N04N	1/2	1/4	27.4	11.4	7/8	22.22
PRB-08N06N	1/2	3/8	35.8	11.9	7/8	22.22
PRB-12N04N	3/4	1/4	27.4	11.4	1-1/16	26.98
PRB-12N06N	3/4	3/8	27.4	15.0	1-1/16	26.98
PRB-12N08N	3/4	1/2	41.4	15.7	1-1/16	26.98
PRB-16N08N	1	1/2	34.8	18.5	1-3/8	34.92
PRB-16N12N	1	3/4	47.0	22.4	1-3/8	34.92

Female NPT to Male ISO Tapered Thread

Part No.	P NPT	P ₁ ISO 228/1	Dimensions (mm)			
			L	E	F	
					inch	mm
PA-02N02R	1/8	1/8	27.7	4.8	9/16	14.28
PA-04N04R	1/4	1/4	36.1	7.1	3/4	19.05
PA-06N06R	3/8	3/8	38.1	9.6	7/8	22.22
PA-08N08R	1/2	1/2	49.3	11.9	1-1/16	26.98
PA-12N12R	3/4	3/4	51.3	15.7	1-5/16	33.33
PA-16N16R	1	1	58.4	22.4	1-5/8	41.27

PSE
Street Elbow



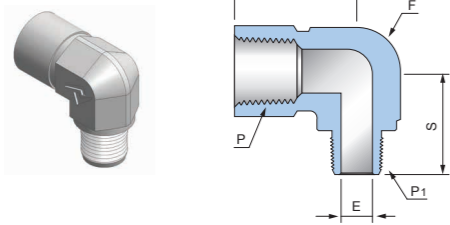
Female NPT to Male NPT

Part No.	P NPT	Dimensions (mm)				
		L	S	E	F	
					inch	mm
PSE-02N	1/8	26.4	22.1	4.8	1/2	12.70
PSE-04N	1/4	29.7	29.7	7.1	11/16	17.46
PSE-06N	3/8	36.1	32.0	9.6	13/16	20.63
PSE-08N	1/2	39.6	39.6	11.9	1	25.40

ISO Tapered threads are available for all fractional PME, PMT, PA. To order, add "R" as a suffix instead of "N".
Dimensions are for reference only and are subject to change without prior notice

ISO Tapered threads are available for all fractional PA, PRA, PRB, PSE. To order, add "R" as a suffix instead of "N".
Dimensions are for reference only and are subject to change without prior notice

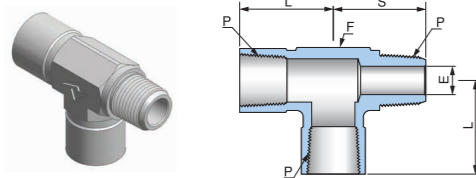
PRSE Reducing Street Elbow



Female NPT to Reduced Male NPT

Part No.	P NPT	P ₁ NPT	Dimensions (mm)				
			L	S	E	F	
						inch	mm
PRSE-04N02N	1/4	1/8	29.7	25.4	4.8	11/16	17.46
PRSE-06N04N	3/8	1/4	36.1	32.0	7.1	13/16	20.63
PRSE-08N04N	1/2	1/4	39.6	35.1	7.1	1	25.40
PRSE-08N06N	1/2	3/8	39.6	35.1	9.6	1	25.40

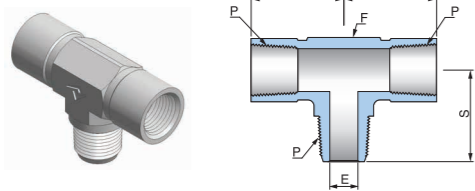
PST Street Tee



Female NPT to Male NPT

Part No.	P NPT	Dimensions (mm)				
		L	S	E	F	
					inch	mm
PST-02N	1/8	26.4	22.1	4.8	1/2	12.70
PST-04N	1/4	29.7	29.7	7.1	11/16	17.46
PST-06N	3/8	36.1	32.0	9.6	13/16	20.63
PST-08N	1/2	39.6	39.6	11.9	1	25.40

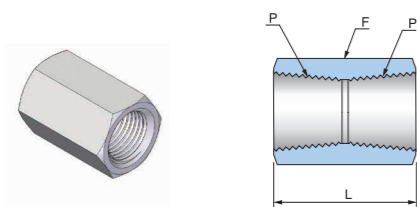
PBT Branch Tee



Female NPT to Male NPT

Part No.	P NPT	Dimensions (mm)				
		L	S	E	F	
					inch	mm
PBT-02N	1/8	26.4	22.1	4.8	1/2	12.70
PBT-04N	1/4	29.7	29.7	7.1	11/16	17.46
PBT-06N	3/8	36.1	32.0	9.6	13/16	20.63
PBT-08N	1/2	39.6	39.6	11.9	1	25.40

PC Coupling

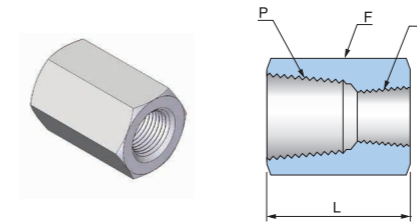


Female NPT to Female NPT

Part No.	P NPT	Dimensions (mm)		
		L	F	
			inch	mm
PC-02N	1/8	20.6	9/16	14.28
PC-04N	1/4	30.2	3/4	19.05
PC-06N	3/8	33.3	7/8	22.22
PC-08N	1/2	39.6	1-1/16	26.98
PC-12N	3/4	41.1	1-5/16	33.33
PC-16N	1	50.8	1-5/8	41.27

ISO Tapered threads are available for all fractional PRSE, PST, PBT, PC. To order, add "R" as a suffix instead of "N".
Dimensions are for reference only and are subject to change without prior notice

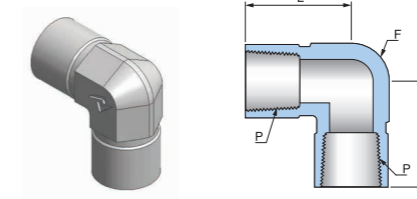
PRC Reducing Coupling



Female NPT to Reduced Female NPT

Part No.	P NPT	P ₁ NPT	Dimensions (mm)		
			L	F	
				inch	mm
PRC-04N02N	1/4	1/8	31.0	3/4	19.05
PRC-06N04N	3/8	1/4	35.1	7/8	22.22
PRC-08N04N	1/2	1/4	44.4	1-1/16	26.98
PRC-08N06N	1/2	3/8	45.2	1-1/16	26.98
PRC-12N04N	3/4	1/4	46.0	1-5/16	33.33
PRC-12N08N	3/4	1/2	52.3	1-5/16	33.33
PRC-16N08N	1	1/2	55.6	1-5/8	41.27
PRC-16N12N	1	3/4	57.2	1-5/8	41.27

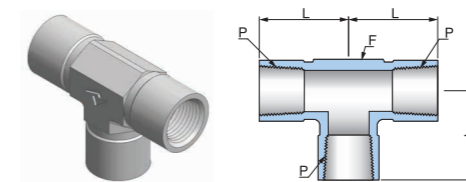
PFE Female Elbow



Female NPT to Female NPT

Part No.	P NPT	Dimensions (mm)		
		L	F	
			inch	mm
PFE-02N	1/8	26.4	1/2	12.70
PFE-04N	1/4	29.7	11/16	17.46
PFE-06N	3/8	36.1	13/16	20.63
PFE-08N	1/2	39.6	1	25.40

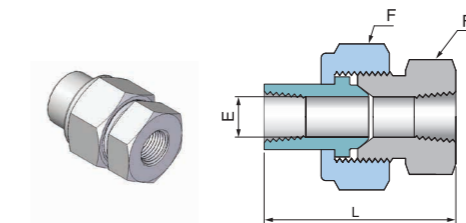
PFT Female Tee



Female NPT to Female NPT

Part No.	P NPT	Dimensions (mm)		
		L	F	
			inch	mm
PFT-02N	1/8	26.4	1/2	12.70
PFT-04N	1/4	29.7	11/16	17.46
PFT-06N	3/8	36.1	13/16	20.63
PFT-08N	1/2	39.6	1	25.40

PBJ Ball Joint Union

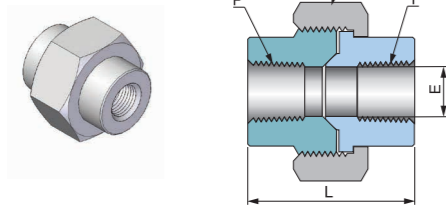


Female NPT to Female NPT

Part No.	P NPT	Dimensions (mm)					
		L	E	F		F ₁	
				inch	mm	inch	mm
PBJ-04N	1/4	59.4	9.1	1-3/8	34.92	1-3/16	30.16
PBJ-06N	3/8	63.5	13.2	1-1/2	38.10	1-5/16	33.33
PBJ-08N	1/2	68.3	15.7	1-3/4	44.45	1-5/8	41.27
PBJ-12N	3/4	79.2	22.4	2-1/8	53.97	1-7/8	47.62
PBJ-16N	1	90.4	26.2	2-1/2	63.50	2-3/8	60.32

ISO Tapered threads are available for all fractional PRC, PFE, PFT, PBJ. To order, add "R" as a suffix instead of "N".
Dimensions are for reference only and are subject to change without prior notice

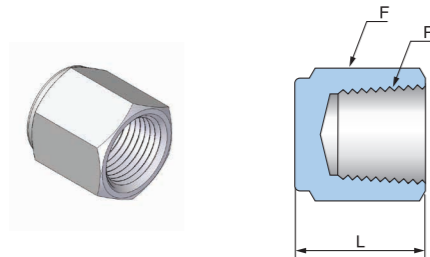
PU
Pipe Union



Female NPT to Female NPT

Part No.	P NPT	Dimensions (mm)		
		L	E	F
Pressure Rating, 3000psig				
PU-08N	1/2	49.2	17.2	46
PU-12N	3/4	57.2	21.5	54
PU-16N	1	62.2	27.5	63
Pressure Rating, 6000psig				
PU-08N-6K	1/2	58.3	17.2	54
PU-12N-6K	3/4	64.3	21.5	63
PU-16N-6K	1	72.4	27.5	82

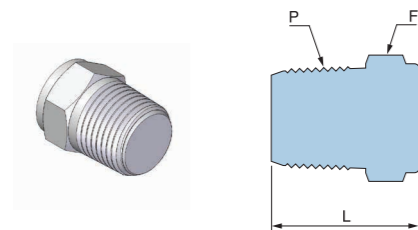
PCP
Pipe Cap



Female NPT

Part No.	P NPT	Dimensions (mm)		
		L	F	
			inch	mm
PCP-02N	1/8	19.1	9/16	14.28
PCP-04N	1/4	23.1	3/4	19.05
PCP-06N	3/8	26.2	7/8	22.22
PCP-08N	1/2	34.0	1-1/16	26.98
PCP-12N	3/4	36.6	1-5/16	33.33
PCP-16N	1	41.1	1-5/8	41.27

PPG
Pipe Plug



Male NPT

Part No.	P NPT	Dimensions (mm)		
		L	F	
			inch	mm
PPG-02N	1/8	19.1	7/16	11.11
PPG-04N	1/4	24.4	9/16	14.28
PPG-06N	3/8	25.1	11/16	17.46
PPG-08N	1/2	30.7	7/8	22.22
PPG-12N	3/4	30.7	1-1/16	26.98
PPG-16N	1	38.1	1-3/8	34.92

ISO Tapered threads are available for all fractional PCP, PPG. To order, add "R" as a suffix instead of "N".
Dimensions are for reference only and are subject to change without prior notice