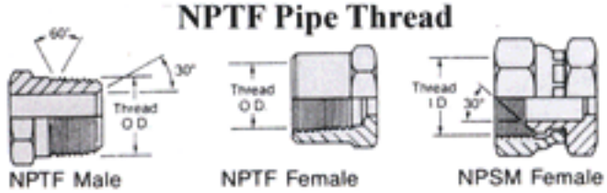
Thread Identification Guide

NPTF Pipe Thread

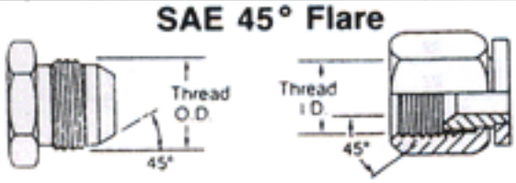


NPTF Male | NPTF Female | NPSM Female

The NPTF (IPT) male will mate with the NPTF or NPSM female. The NPTF (IPT) male has tapered threads and a 30 degree inverted seat. The NPTF female has tapered threads and no seat. The seal takes place by deformation of the threads. The NPSM female has straight threads and a 30 degree inverted seat. The seal takes place on the 30 degree seat.

Nominal Size (in.)	No. Threads Per Inch	Female Thread I.D. (in.)	Male Thread O.D. (in.)
1/8	27	23/64	13/32
1/4	18	15/32	35/64
3/8	18	19/32	43/64
1/2	14	3/4	27/32
3/4	14	61/64	1-1/16
1	11-1/2	1-13/64	1-5/16
1-1/4	11-1/2	1-17/32	1-43/64
1-1/2	11-1/2	1-25/32	1-29/32
2	11-1/2	2-1/4	2-3/8

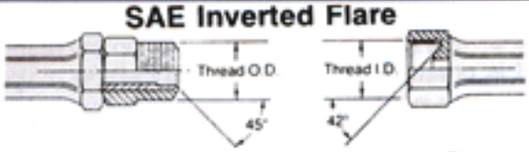
SAE 45° Flare



The SAE 45 degree flare male will mate with an SAE 45 degree flare female only. The SAE male has straight threads and a 45 degree flare seat. The SAE female has straight threads and a 45 degree flare seat. The seal is made on the 45 degree flare seat.

Nominal Size (in.)	No. Threads Per Inch	Female Thread I.D. (in.)	Male Thread O.D. (in.)
1/4	20	25/64	7/16
5/16	20	29/64	1/2
3/8	18	9/16	5/8
1/2	16	11/16	3/4

SAE Inverted Flare

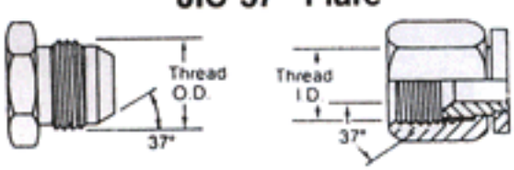


SAE Inverted Flare Swivel Male | SAE Inverted Flare Solid Female

The SAE 45 degree inverted flare male will mate with an 42 degree inverted flare female only. The male has straight threads and a 45 degree inverted flare. The female has straight threads and a 42 degree inverted flare. The seal is made on the 45 degree flare seat on the male and the 42 degree flare seat on the female.

Nominal Size (in.)	No. Threads Per Inch	Female Thread I.D. (in.)	Male Thread O.D. (in.)
1/4	24	25/64	7/16
5/16	20	29/64	1/2
3/8	18	37/64	5/8
1/2	18	45/64	3/4

JIC 37° Flare



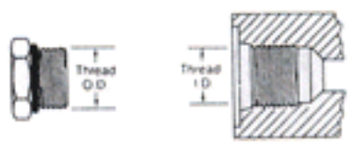
JIC 37° | JIC 37° Flare Female

The JIC 37 degree flare male will mate with a JIC female only. The JIC male has straight threads and a 37 degree flare seat. The JIC female has straight threads and a 37 degree flare seat. The seal is made on the 37 degree flare seat. (Chart in next column)

JIC 37° Flare Guide

Nominal Size (in.)	No. Threads Per Inch	Female Thread I.D. (in.)	Male Thread O.D. (in.)
1/4	20	25/64	7/16
5/16	20	29/64	1/2
3/8	18	1/2	9/16
1/2	16	11/16	3/4
5/8	14	13/16	7/8
3/4	12	31/32	1-1/16
7/8	12	1-7/64	1-3/16
1	12	1-15/64	1-5/16
1-1/4	12	1-35/64	1-5/8
1-1/2	12	1-51/64	1-7/8
2	12	2-27/64	2-1/2

SAE Straight Thread O-Ring Boss



O-Ring Boss Male | O-Ring Boss Female Port

The O-ring boss male will mate with an O-ring boss female only. The female is generally found on ports. The male has straight threads and an O-ring. The female has straight threads and a sealing face. The seal is made at the O-ring on the male and the sealing face on the female.

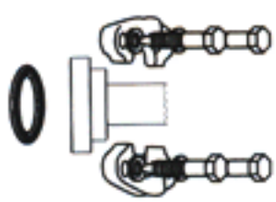
Nominal Size (in.)	No. Threads Per Inch	Female Thread I.D. (in.)	Male Thread O.D. (in.)	O-Ring I.D.	O-Ring Torus
1/4	20	25/64	7/16	.351	.072
3/8	18	1/2	9/16	.468	.078
1/2	16	11/16	3/4	.644	.087
5/8	14	13/16	7/8	.755	.097
3/4	12	31/32	1-1/16	.924	.116

ORF SEAL

The ORF Seal system consists of a flat, finished surface on the female connector s flange and a recessed O-Ring held in a circular groove on the male. The seal is created as the flange and O-Ring make contact as the female nut screws onto the male thread. A secondary seal is made as the male connector is drawn into contact with the flange. The back-up seal also prevents extrusion of the O-Ring under extreme pressure. ORF provides a better seal in high-vibrating, high-impulse or high-torque applications.

Nominal Size I.D.	No. Threads Per Inch	Female Thread I.D.	Male Thread O.D.
1/4	18	33/64	9/16
3/8	16	5/8	11/16
1/2	16	3/4	13/16
3/4	12	1-13/32	1-3/16
1	12	1-23/64	1-7/16
1-1/4	12	1-39/64	1-11/16

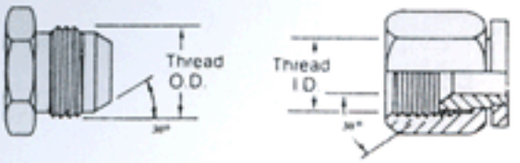
Split Flange Couplings



Split Flange couplings work well in high pressure or high vibration applications. A split flange clamp is bolted to a machined port sealing the split flange head and O-ring to the port. There are two typical styles: Code 61 & Code 62, with Code 62 for higher pressure applications.

Thread Identification Guide

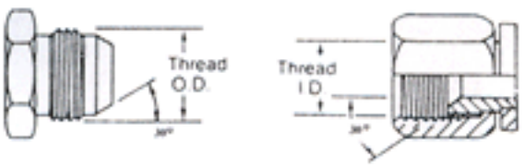
Female JIS 30° Flare



The JIS 30 Degree flare is similar to the JIC 37 Degree. The only differences are that the threads are a British straight thread(BSPP) and the sealing seat is 30 degrees. The seal is made on the 30 degree seat.

Nominal Size (in.)	Thread Size	Female Thread I.D. (in.)	Male Thread O.D. (in.)
1/4	1/4-19	1/2	17/32
3/8	3/8-19	5/8	11/16
1/2	1/2-14	25/32	27/32
3/4	3/4-14	1	1-1/16
1	1-11	1-1/4	1-11/32

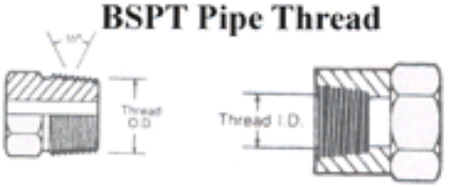
Female 30° Flare



The Female 30 Degree flare is similar to the JIC 37 Degree. The only differences are that the threads are a Metric straight thread and the sealing seat is 30 degrees. The seal is made on the 30 degree seat. This particular style of couplings is frequently referred to as a Komatsu style connection.

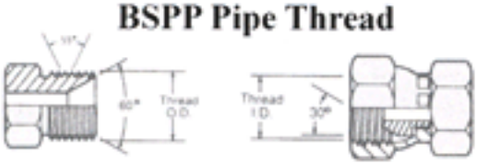
Nominal Size (mm)	Thread Size	Female Thread I.D. (mm)	Male Thread O.D. (mm)
6	M14x1.5	12.5	14
9	M18x1.5	16.5	18
12	M22x1.5	20.5	22
16	M24x1.5	22.5	24
19	M30x1.5	28.5	30
25	M33x1.5	31.5	33

BSPT Pipe Thread



The British Standard Tapered Pipe Thread is similar to the NPTF pipe thread in that they both seal on the deformation of the threads. BSPT and NPTF are NOT interchangeable due to the fact that the thread angle differs. The BSPT thread angle is 55 degrees, and the NPTF thread angle is 60 degrees.

BSPP Pipe Thread



BSPP Male **BSPP Female Swivel**

The British Standard Parralel Pipe Thread is similar to the NPSM pipe thread in that they both seal on the 30 degree seat of the corresponding female fitting. BSPP and NPSM are NOT interchangeable due to the fact that the thread angle differs. The BSPP thread angle is 55 degrees, and the NPSM thread angle is 60 degrees.

DIN Style Couplings

Male DIN **Female DIN Light** **Female DIN Heavy**

DIN style couplings seal in several different configurations. The common male has a 24 degree included angle seat. Two of the female styles are represented above. The Female DIN Light seals on globeseal, and the Female DIN Heavy seals on a 24 degree seat with an O-ring. As expected the Female DIN Heavy is for higher pressure applications.

DIN Style Couplings Thread Chart

Nominal Size Light (mm)	Nominal Size Heavy (mm)	Thread Size (Metric)	Female Thread ID (mm)	Male Thread OD (mm)
6		M12x1.5	10.6	12
8	6	M14x1.5	12.5	14
10	8	M16x1.5	14.5	16
12	10	M18x1.5	16.5	18
	12	M20x1.5	18.5	20
15	14	M22x1.5	20.5	22
	16	M24x1.5	22.5	24
18		M26x1.5	24.5	26
22	20	M30x2.0	28	30
28	25	M36x2.0	34	36
	30	M42x2.0	40	42

TORQUE VALUE CHARTS

JIC and SAE Connection Torque Values

Nut Dash Size	Pound Inches Torque	Newton Meters Torque
-4	130-150	15-17
-5	165-195	19-22
-6	235-265	27-30
-8	525-575	59-65
-10	600-700	68-79
-12	950-1050	107-119
-16	1400-1500	158-170
-20	1900-2100	215-237
-24	2250-2550	254-288
-32	3000-3400	339-384

O-Ring Face Seal (ORF) Connection Torque Values

Nut Dash Size	Pound Inches Torque	Newton Meters Torque
-4	210-230	24-26
-6	295-345	33-39
-8	555-505	51-57
-10	715-785	81-89
-12	1035-1125	117-127
-16	1350-1530	153-173
-20	1590-1770	180-200

Torque Conversions

Pound Inch = Pound Foot x 12
Pound Foot = Pound Inch x 0.083
Pound Inch = Newton Meter x 8.85
Pound Foot = Newton Meter x 0.737
Newton Meter = Pound Inch x 0.113
Newton Meter = Pound Foot x 1.356