

NPTF/NPSM Pipe Thread

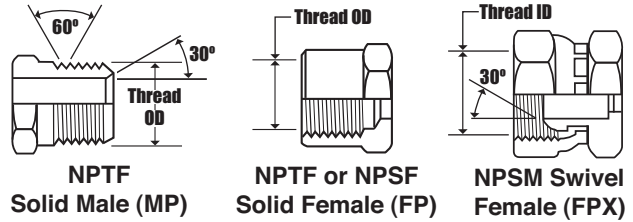
The NPTF male will mate with the NPTF, NPSF, or NPSM female.

The NPTF male has tapered threads and a 30° 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° inverted seat. The seal takes place on the 30° seat.

The NPTF connector is similar to, but not interchangeable with, the BSPT connector. The thread pitch is different in most sizes. Also, the thread angle is 60° instead of the 55° angle found on BSPT threads.

***NOTES:**

1. Torque values can vary considerably depending on thread condition. Only enough torque to achieve adequate sealing should be used.
2. With female straight or parallel pipe threads (NPSM), maximum values are 50% of those listed in the table.
3. If thread sealant is used, maximum values shown should be decreased by 25%.

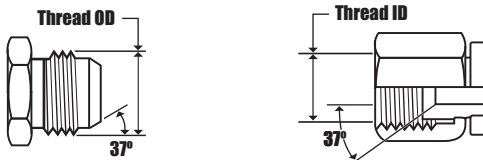


Dash Size	Nominal Size (In.)	No. Threads Per Inch	Female Thread I.D. (In.)	Male Thread O.D. (In.)
-2	1/8	27	23/64	13/32
-4	1/4	18	15/32	35/64
-6	3/8	18	19/32	43/64
-8	1/2	14	3/4	27/32
-12	3/4	14	61/64	1-1/16
-16	1	11-1/2	1-13/64	1-5/16
-20	1-1/4	11-1/2	1-17/32	1-43/64
-24	1-1/2	11-1/2	1-25/32	1-29/32
-32	2	11-1/2	2-1/4	2-3/8

37° Flare (JIC)

The JIC 37° flare male will mate with a JIC female only.* The JIC male has straight threads and a 37° flare seat. The JIC female has straight threads and a 37° flare seat. The seal is made on the 37° flare seat.

Some sizes have the same threads as the SAE 45° flare. Carefully measure the seat angle to differentiate.



JIC 37° Male (MJ, MJLN) JIC 37° Flare Female (FJX)

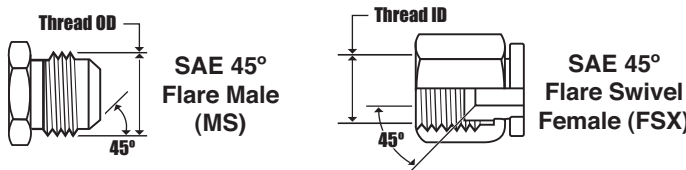
Dash Size	Nominal Size (In.)	No. Threads Per Inch	Female Thread I.D. (In.)	Male Thread O.D. (In.)
-2	1/8	24	17/64	5/16
-3	3/16	24	21/64	3/8
-4	1/4	20	25/64	7/16
-5	5/16	20	29/64	1/2
-6	3/8	18	1/2	9/16
-8	1/2	16	11/16	3/4
-10	5/8	14	13/16	7/8
-12	3/4	12	31/32	1-1/16
-14	7/8	12	1-7/64	1-3/16
-16	1	12	1-15/64	1-5/16
-20	1-1/4	12	1-35/64	1-5/8
-24	1-1/2	12	1-51/64	1-7/8
-32	2	12	2-27/64	2-1/2

SAE 45° Flare

The SAE 45° flare male will mate with an SAE 45° flare female only or a dual seat JIC/SAE 45°.*

The SAE male has straight threads and a 45° flare seat. The SAE female has straight threads and a 45° flare seat. The seal is made on the 45° flare seat.

Some sizes have the same threads as the SAE 37° flare. Carefully measure the seat angle to differentiate.



Dash Size	Nominal Size (In.)	No. Threads Per Inch	Female Thread I.D. (In.)	Male Thread O.D. (In.)
-2	1/8	24	17/64	5/16
-3	3/16	24	21/64	3/8
-4	1/4	20	25/64	7/16
-5	5/16	20	29/64	1/2
-6	3/8	18	9/16	5/8
-7	7/16	16	5/8	11/16
-8	1/2	16	11/16	3/4
-10	5/8	14	13/16	7/8
-12	3/4	14	63/64	1-1/16

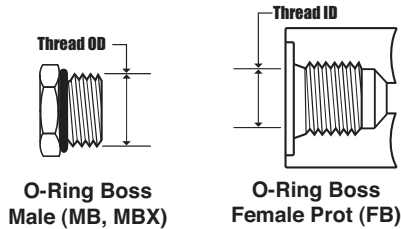
Special Power Steering Thread End

Dash Size	Nominal Size (In.)	No. Threads Per Inch	Female Thread I.D. (In.)	Male Thread O.D. (In.)
3/8	11/16	18	5/8	11/16

O-Ring Boss

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, a sealing face 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.

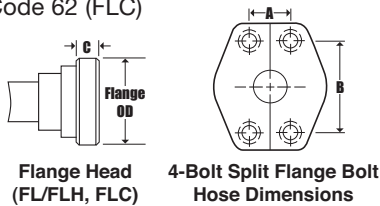


Dash Size	Nominal Size (In.)	No. Threads Per Inch	Female Thread	Male Thread	O-Ring
			I.D. (In.)	O.D. (In.)	I.D. (In.)
-2	1/8	24	17/64	5/16	0.239
-3	3/16	24	21/64	3/8	0.301
-4	1/4	20	25/64	7/16	0.351
-5	5/16	20	29/64	1/2	0.414
-6	3/8	18	1/2	9/16	0.468
-8	1/2	16	11/16	3/4	0.644
-10	5/8	14	13/16	7/8	0.755
-12	3/4	12	31/32	1-1/16	0.924
-14	7/8	12	1-7/64	1-3/16	1.048
-16	1	12	1-15/64	1-5/16	1.171
-20	1-1/4	12	1-35/64	1-5/8	1.475
-24	1-1/2	12	1-51/64	1-7/8	1.720
-32	2	12	2-27/64	2-1/2	2.337

O-Ring Flange - SAE J518

The SAE Code 61 and Code 62 4-Bolt Split Flange is used worldwide, usually as a connection on pumps and motors. There are three exceptions.

1. The -10 size, which is common outside of North America, is not an SAE Standard size. Generally found on Komatsu equipment.
2. Caterpillar flanges, which are the same flange O.D. as SAE Code 62, have a thicker flange head ("C" dimension in Table).
3. Poclain flanges, which are completely different from SAE flanges. Nominal Code 61 (FL) Code 62 (FLH) Caterpillar Code 62 (FLC)

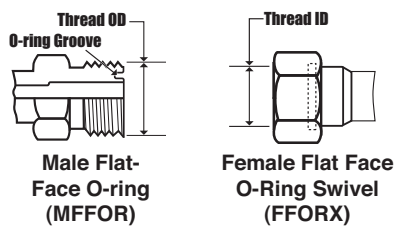


Dash Size	Nominal Flange Size (In.)	Code 61 (FL)			Code 62 (FLH)			Caterpillar Code 62 (FLC)					
		Flange O.D. (In.)	A (In.)	B (In.)	C (In.)	Flange O.D. (In.)	A (In.)	B (In.)	C (In.)	Flange O.D. (In.)	A (In.)	B (In.)	C (In.)
-8	1/2	1.188	.688	1.500	.265	1.250	.718	1.594	.305				
-10	5/8	1.345		.265									
-12	3/4	1.500	.875	1.875	.265	1.625	.937	2.000	.345	1.625	.938	2.000	.560
-16	1	1.750	1.031	2.062	.315	1.875	1.093	2.250	.375	1.875	1.094	2.250	.560
-20	1-1/4	2.000	1.188	2.312	.315	2.125	1.250	2.625	.405	2.125	1.250	2.625	.560
-24	1-1/2	2.375	1.406	2.750	.315	2.500	1.437	3.125	.495	2.500	1.438	3.125	.560
-32	2	2.812	1.688	3.062	.375	3.125	1.750	3.812	.495	3.125	1.750	3.812	.560
-40	2-1/2	3.312	2.000	3.500	.375								
-48	3	4.000	2.438	4.188	.375								
-56	3-1/2	4.500	2.750	4.750	.422								
-64	4	5.000	3.062	5.125	.442								
-80	5	6.000	3.625	6.000	.442								

O-Ring Face Seal (ORFS) - SAE J1453

The solid male O-ring face seal fitting will mate with a swivel female O-ring face seal SAE J1453 fitting only.

An O-ring rests in the O-ring groove in the male. A seal is made when the O-ring in the male contacts the flat face on the female.



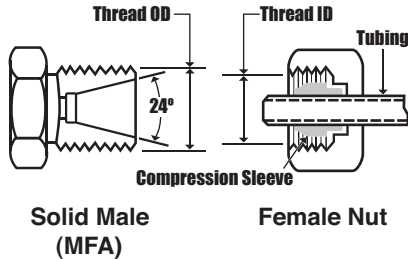
Dash Size	Nominal Size (In.)	No. Threads Per Inch	Female Thread I.D. (In.)	Male Thread O.D. (In.)
-4	1/4	18	1/2	9/16
-6	3/8	16	5/8	11/16
-8	1/2	16	3/4	13/16
-10	5/8	14	15/16	1
-12	3/4	12	1-1/8	1-3/16
-16	1	12	1-11/32	1-7/16
-20	1-1/4	12	1-19/32	1-11/16
-24	1-1/2	12	1-29/32	2



Flareless Tube

The flareless solid male will mate with a female flareless nut and compression sleeve only.

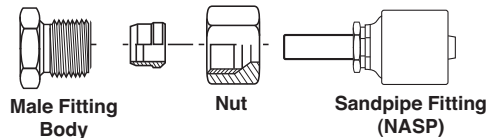
The male has straight threads and a 24° seat. The female has straight threads and has a compression sleeve for a sealing surface. The seal is made between the compression sleeve and the 24° seat on the male, and between the compression sleeve and the tubing on the female.



Dash Size	Tube Size (In.)	Nominal Size (In.)	No. Threads Per Inch	Female Thread I.D. (In.)	Male Thread O.D. (In.)
-2	1/8	5/16	24	17/64	5/16
-3	3/16	3/8	24	21/64	3/8
-4	1/4	7/16	20	25/64	7/16
-5	5/16	1/2	20	29/64	1/2
-6	3/8	9/16	18	1/2	9/16
-8	1/2	3/4	16	11/16	3/4
-10	5/8	7/8	14	13/16	7/8
-12	3/4	1-1/16	12	31/32	1-1/16
-14	7/8	1-3/16	12	1-7/64	1-3/16
-16	1	1-5/16	12	1-15/64	1-5/16
-20	1-1/4	1-5/8	12	1-35/64	1-5/8
-24	1-1/2	1-7/8	12	1-51/64	1-7/8
-32	2	2-1/2	12	2-27/64	2-1/2

North American Standpipe (NASP)

A standpipe assembly is comprised of three components attached to a male fitting. The components are a Standpipe Tube, Bite Sleeve and Nut. The Nut is placed over the Standpipe, followed by the Bite Sleeve (see illustration). The Bite Sleeve and Standpipe are selected on the basis of tube O.D. required.

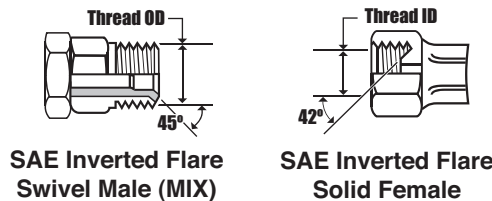


Dash Size	Tube Size (In.)	Tube Length (In.)
-4	0.25	0.88
-6	0.38	0.88
-8	0.50	1.00
-12	0.75	1.16
-16	1.00	1.12

SAE Inverted Flare Swivel Male (MIX)

The SAE 450 inverted flare male will mate with an SAE 420 inverted flare female only.

The male has straight threads and a 450 inverted flare. The female has straight threads and a 420 inverted flare. The seal is made on the 450 flare seat on the male and the 420 flare seat on the female.



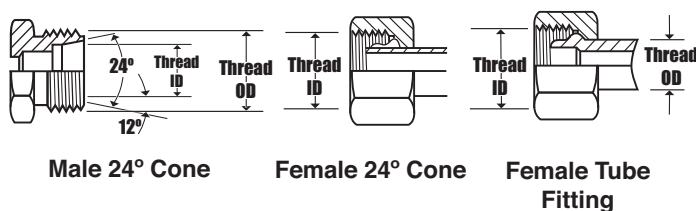
Dash Size	Nominal Size (In.)	No. Threads Per Inch	Female Thread I.D. (In.)	Male Thread O.D. (In.)
-2	1/8	28	9/32	5/16
-3	3/16	24	21/64	3/8
-4	1/4	24	25/64	7/16
-5	5/16	20	29/64	1/2
-6	3/8	18	37/64	5/8
-7	7/16	18	5/8	11/16
-8	1/2	18	45/64	3/4
-10	5/8	18	13/16	7/8
-12	3/4	16	1	1-1/16

French Metric (GAZ) 24° Cone

The French Metric (GAZ) male will mate with the female 24° cone or the female tube fitting.

The male has a 24° seat and straight metric threads. The female has a 24° seat or a tubing sleeve and straight metric threads.

When measuring the flare angle with the seat angle gauge, use the 12° gauge. (The seat angle gauge measures the angle from the connector centerline.)



Metric Thread Size	Female Thread I.D. (mm)	Male Thread O.D. (mm)	Tube O.D. (mm)
M20x1.5	18.5	20.0	13.25
M24x1.5	22.5	24.0	16.75
M30x1.5	28.5	30.0	21.25
M36x1.5	34.5	36.0	26.75
M45x1.5	43.5	45.0	33.50
M52x1.5	50.5	52.0	42.25