



Fluid Power Specialist



## JIC 37° Flare Fitting

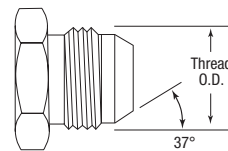
The JIC 37° flare male will mate with a JIC female only.

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.

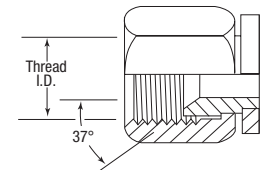
Some sizes have the same threads as the SAE 45° flare. Carefully measure the seat angle to differentiate

Dash Size	Nominal Size	No. Threads Per Inch	Female Threads Thread I.D. (Inc.)	Male Threads Thread O.D. (Inc.)
-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"

### JIC 37° Flare



JIC 37° Male



JIC 37° Flare Female

## SAE 45° Flare Fitting

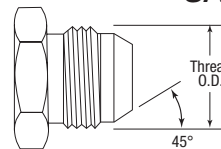
The SAE 45° flare male will mate with an SAE 45° flare female only.

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.

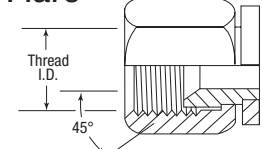
Some sizes have the same threads as the SAE 37° flare. Carefully measure the seat angle to differentiate

Dash Size	Nominal Size (In.)	No. Threads Per Inch	Female Threads Thread I.D. (Inc.)	Male Threads Thread O.D. (Inc.)
-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"	1 1/16"
-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"
-14	7/8"	12	1 11/64"	1 1/4"
-16	1"	12	1 19/64"	1 3/8"

### SAE 45° Flare



SAE 45° Flare Male



SAE 45° Flare Female

## Special Power Steering Thread End

Tube Size	Nominal Size (In.)	No. Threads Per Inch	Female Thread Thread I.D. (In.)	Male Thread Thread O.D. (In.)
3/8"	1 1/16"	18	5/8"	1 1/16"



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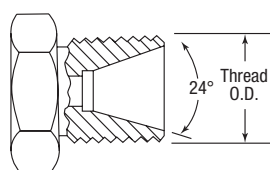


## Flareless Tube Fitting

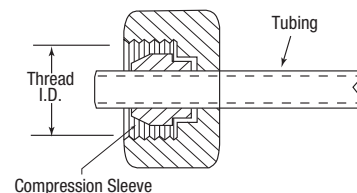
The flareless solid male will mate with a female flareless nut and compression sleeve only.

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 Threads Thread I.D. (Inc.)	Male Threads Thread O.D. (Inc.)
-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	17/64"	1 3/16"
-16	1"	1 5/16"	12	115/64"	1 5/16"
-20	1 1/4"	1 5/8"	12	135/64"	1 5/8"
-24	1 1/2"	1 7/8"	12	151/64"	1 7/8"
-32	2"	1 1/2"	12	227/64"	2 1/2"



Solid Male



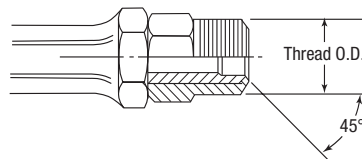
Female Nut

## SAE 45° Inverted Flare Fitting

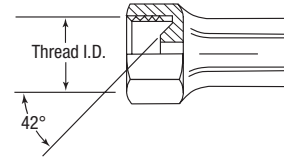
The SAE 45° inverted flare male will mate with an SAE 42° inverted flare female only.

The male has straight threads and a 45° inverted flare. The female has straight threads and a 42° inverted flare. The seal is made on the 45° flare seat on the male and the 42° flare seat on the female.

Dash Size	Nominal Size (In.)	No. Threads Per Inch	Female Threads Thread I.D. (Inc.)	Male Threads Thread O.D. (Inc.)
-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"



SAE Inverted Flare Swivel Male



SAE Inverted Flare Solid Female



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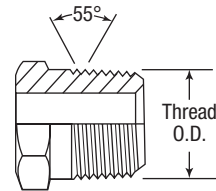
## British Standard Pipe (BSP) BSP Tapered (BSPT)

The BSPT (tapered) male will mate with a BSPT (tapered) female, or a BSPP (parallel) female.

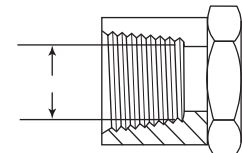
The BSPT male has tapered threads. When mating with either the BSPT (tapered) female or the BSPP (parallel) female port, the seal is made on the threads.

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

Dash Size	Nominal Size	No. Threads Per Inch	Female Threads Thread I.D. (Inc.)	Male Threads Thread O.D. (Inc.)
-2	1/8"	28	3/8"	11/32"
-4	1/4"	19	17/32"	15/32"
-6	3/8"	19	21/32"	19/32"
-8	1/2"	14	13/16"	3/4"
-10	5/8"	14	29/32"	13/16"
-12	3/4"	14	31/32"	31/32"
-16	1"	11	1 1/32"	1 7/32"
-20	1 1/4"	11	1 11/32"	1 17/32"
-24	1 1/2"	11	1 7/8"	1 25/32"
-32	2"	11	2 11/32"	2 7/32"



BSPT Male



BSPT Female

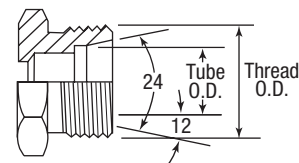
## DIN 24° Male & Mating Females

The DIN 24° cone male will mate with any of the three females shown above.

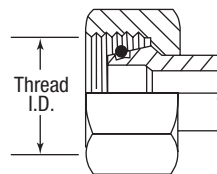
The male has a 24° seat, straight metric threads, and a recessed counterbore which matches the tube O.D. of the coupling used with it. The mating female is a 24° cone with O-ring, a metric tube fitting or a universal 24° or 60° cone.

There is a light and heavy series DIN coupling. Proper identification is made by measuring both the thread size and the tube O.D. (The heavy series has a smaller tube O.D. than the light, but has a thicker wall section.)

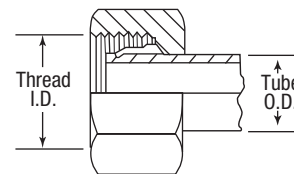
When measuring the flare angle with the seat angle gauge, use the 12 gauge. (The seat angle gauge measures the angle from the connector centerline).



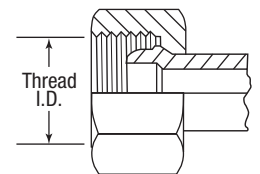
Male  
24 Cone, DIN 2353



Female  
24 Cone with O-Ring



Female  
Metric Tube



Female  
Universal 24° or 60° Cone



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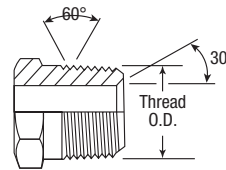
## NPT Pipe Thread

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

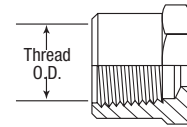
The NPTF male has tapered threads and a 30° inverted seat. The NPTF female has tapered threads and no seat. The seal takes place by deformation of the threads. The NPSM female has straight threads and a 30° inverted seat. The seal takes place on the 30° seat.

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.

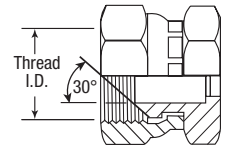
Dash Size	Nominal Size	No. Threads Per Inch	Female Threads Thread I.D. (Inc.)	Male Threads Thread O.D. (Inc.)
-2	1/8"	27	23/64"	13/32"
-4	1/4"	18	15/32"	35/64"
-6	3/8"	18	19/32"	43/64"
-8	1/2"	14	3/4"	27/32"
-12	3/4"	14	61/64"	11/16"
-16	1"	11 1/2"	1 13/64"	1 5/16"
-20	1 1/4"	11 1/2"	1 17/32"	1 43/64"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



NPTF Male



NPTF Female



NPSM Female

## Measuring Seat Angles

When the center line of the seat gauge extends parallel with the projected longitudinal axis of the coupling, then the angles of the gauge and seat match.

Compare the measurements taken to a coupling shown in the following tables that appear to be similar.

