

# Thread Identification Guide



## Technical Information

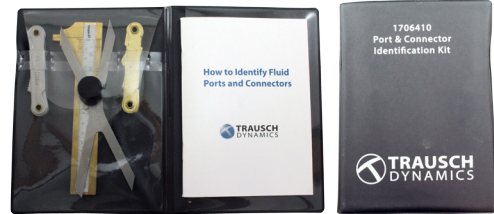
### Adapter Sizing Chart

NPTF, BSPT and BSPP measure 1/4" larger than their actual size. For example, a 1/4" NPTF, BSPT or BSPP will actually measure 1/2" on the O. D. of the threads. JIC, SAE O-ring & Flat Face threads measure as listed below. The first number listed is the size of thread, the second number is the threads per inch.

Size	NPTF (Pipe)	JIC (37°)	SAE (O-Ring)	Face Seal (Flat Face)	BSPP (Parallel)	BSPT (Tapered)
-2	1/8 - 27	5/16 - 24	5/16 - 24	-	1/8 - 28	1/8 - 28
-3	-	3/8 - 24	3/8 - 24	-	-	-
-4	1/4 - 18	7/16 - 20	7/16 - 20	9/16 - 18	1/4 - 19	1/4 - 19
-5	-	1/2 - 20	1/2 - 20	-	-	-
-6	3/8 - 18	9/16 - 18	9/16 - 18	11/16 - 16	3/8 - 19	3/8 - 19
-8	1/2 - 14	3/4 - 16	3/4 - 16	13/16 - 16	1/2 - 14	1/2 - 14
-10	-	7/8 - 14	7/8 - 14	1 - 14	-	-
-12	3/4 - 14	1-1/16 - 12	1-1/16 - 12	13/16 - 12	3/4 - 14	3/4 - 14
-14	-	1-3/16 - 12	1-3/16 - 12	15/16 - 12	-	-
-16	1 - 11-1/2	1-5/16 - 12	1-5/16 - 12	17/16 - 12	1 - 11	1 - 11
-20	1-1/4 - 11-1/2	1-5/8 - 12	1-5/8 - 12	1 11/16 - 12	1-1/4 - 11	1-1/4 - 11
-24	1-1/2 - 11-1/2	1-7/8 - 12	1-7/8 - 12	2 - 12	1-1/2 - 11	1-1/2 - 11
-32	2 - 11-1/2	2-1/2 - 12	2-1/2 - 12	2 1/2 - 12	2 - 11	2 - 11

### Thread Sizing Kit

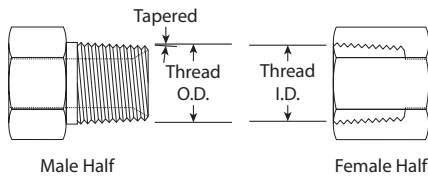
Allows the user to properly identify threads of all hydraulic types. This handy kit includes a fractional thread pitch gauge, a metric thread pitch gauge, inside & outside caliper (inches and millimeters), a seat angle gauge (24 degree/30 degree/37 degree/45 degree), 27-page fluid ports & connections identification guid. A carrying case is standard for easy and convenient storage.



Stock Number	Ship Wt.
1706410	1

### NPTF (National Pipe Thread Fuel)

Commonly referred to as "pipe" threads, this connection is still widely used in fluid power systems, even though it is not recommended by the National Fluid Power Association (NFPA) for use in hydraulic applications. The thread is tapered and the seal takes place by deformation of the threads. NPTF threads differ from NPT threads in that NPT threads are designed for mechanical or low-pressure air or fluid applications. Visually, the two look identical. However, the thread forms are different. Mating a NPT threads with NPTF threads will most likely produce a connection what will leak. All of our hydraulic fittings and adapters are NPTF threads. A thread sealant is recommended for all NPTF fittings and adapters.

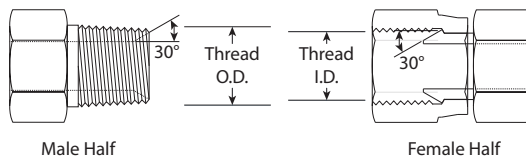


NPTF Thread Measuring Tip: Measure the thread diameter and subtract one quarter inch to find the nominal thread size.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
1/8	02	1/8 - 27	12/32 (0.41)	3/8 (0.38)
1/4	04	1/4 - 18	17/32 (0.54)	1/2 (0.49)
3/8	06	3/8 - 18	11/16 (0.68)	5/8 (0.63)
1/2	08	1/2 - 14	27/32 (0.84)	25/32 (0.77)
3/4	12	3/4 - 14	1 1/16 (1.05)	1 (0.98)
1	16	1 - 11 1/2	1 5/32 (1.32)	1 1/4 (1.24)
1 1/4	20	1 1/4 - 11 1/2	1 21/32 (1.66)	1 19/32 (1.58)
1 1/2	24	1 1/2 - 11 1/2	1 29/32 (1.90)	1 13/16 (1.82)
2	32	2 - 11 1/2	2 3/8 (2.38)	2 5/16 (2.30)

### NPSM (National Pipe Thread Mechanical)

Commonly referred to as "female pipe swivels," this connection is still widely used in fluid power systems. The NPSM thread design differs from the NPTF pipe thread design which seals on the threads themselves. The NPSM female pipe swivel seals on a 30° seat (flare) and is visible down inside of the swivel nut. This swivel nut is permanently attached to the body and mates with a male pipe thread that has a 30° seat (chamfer) machined into the end. The threads bring both 30° seats (flare and chamfer) together creating a metal-to-metal mechanical seal. Please note that not all male NPTF threads have a chamfer machined into the end. The SAE standard does not require the chamfer to be machined. Sometimes a male NPTF thread adapter or fitting will have what looks like a small chamfer, but is in fact a small burr that does not meet the requirement for the metal-to-metal mechanical seal.

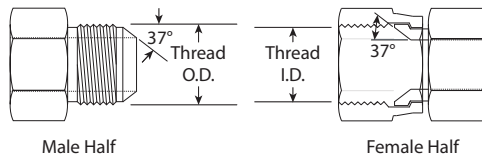


Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
1/8	02	1/8 - 27	12/32 (0.41)	3/8 (0.38)
1/4	04	1/4 - 18	17/32 (0.54)	1/2 (0.49)
3/8	06	3/8 - 18	11/16 (0.68)	5/8 (0.63)
1/2	08	1/2 - 14	27/32 (0.84)	25/32 (0.77)
3/4	12	3/4 - 14	1 1/16 (1.05)	1 (0.98)
1	16	1 - 11 1/2	1 5/32 (1.32)	1 1/4 (1.24)
1 1/4	20	1 1/4 - 11 1/2	1 21/32 (1.66)	1 19/32 (1.58)
1 1/2	24	1 1/2 - 11 1/2	1 29/32 (1.90)	1 13/16 (1.82)
2	32	2 - 11 1/2	2 3/8 (2.38)	2 5/16 (2.30)



## JIC 37° Flare (SAE J514)

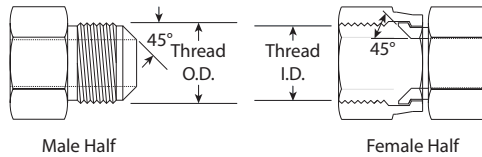
The 37° JIC (Joint Industrial Council) is a reliable, straight thread, single-flare design that is used across the world. It is very popular in many applications and environments because it's compact and easy to assemble. It also features high holding power with low torque requirements. The 37° JIC connection consists of three pieces: the nut, the sleeve, and the fitting in a range of sizes from 1/8" up to 2". The sleeve not only absorbs vibration, but acts as a support to the flare during assembly and helps reduce the risk of twisting the tube. Since the 37° JIC is a metal-to-metal seal, it can be connected and reconnected multiple times.



Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
1/8	02	5/16 - 24	5/16 (.31)	9/32 (.27)
3/16	03	3/8 - 24	3/8 (.38)	11/32 (.34)
1/4	04	7/16 - 20	7/16 (.44)	13/32 (.39)
5/16	05	1/2 - 20	1/2 (.50)	15/32 (.45)
3/8	06	9/16 - 18	9/16 (.56)	17/32 (.51)
1/2	08	3/4 - 16	3/4 (.75)	11/16 (.69)
5/8	10	7/8 - 14	7/8 (.88)	13/16 (.81)
3/4	12	1 1/16 - 12	1 1/16 (1.06)	1 (.98)
7/8	14	1 3/16 - 12	1 3/16 (1.19)	1 1/8 (1.10)
1	16	1 5/16 - 12	1 5/16 (1.31)	1 1/4 (1.23)
1 1/4	20	1 5/8 - 12	1 5/8 (1.63)	1 9/16 (1.54)
1 1/2	24	1 7/8 - 12	1 7/8 (1.88)	1 13/16 (1.79)
2	32	2-1/2 - 12	2-1/2 (2.50)	2 7/16 (2.42)

## SAE 45° Flare (SAE J512)

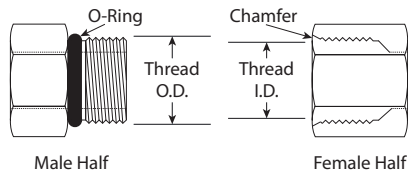
This connection is commonly used in refrigeration, automotive and truck piping systems. The connection is most commonly made of brass. Both the male and the female connectors have 45° seats. The seal takes place between the male flare and the female cone seat. The threads hold the connection mechanically.



Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
1/8	02	5/16 - 24	5/16 (.31)	9/32 (.27)
3/16	03	3/8 - 24	3/8 (.38)	11/32 (.34)
1/4	04	7/16 - 20	7/16 (.44)	13/32 (.39)
5/16	05	1/2 - 20	1/2 (.50)	15/32 (.45)
3/8	06	5/8 - 18	5/8 (.63)	9/16 (.57)
1/2	08	3/4 - 16	3/4 (.75)	11/16 (.69)
5/8	10	7/8 - 14	7/8 (.88)	13/16 (.81)
3/4	12	1 1/16 - 14	1 1/16 (1.06)	1 (.98)
7/8	14	1 1/4 - 12	1 1/4 (1.25)	1 5/32 (1.16)
1	16	1 3/8 - 12	1 3/8 (1.38)	1 9/32 (1.29)

## SAE Straight Thread O-Ring (ORB)

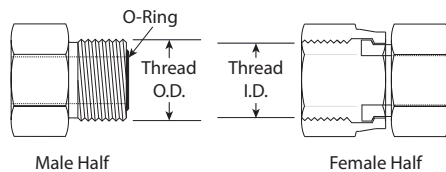
This port connection is recommended by the NFPA for optimum leakage control in medium to high pressure hydraulic systems. Sometimes referred to as "O-Ring Boss," the male connector has a straight thread and an o-ring. The female port has a straight thread, a machined surface (minimal spotface) and a chamfer to accept the o-ring. The seal takes place by compressing the o-ring into the chamfer. The threads hold the connection mechanically.



Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.	O-Ring
1/8	02	5/16 - 24	5/16 (.31)	9/32 (.27)	902N90
3/16	03	3/8 - 24	3/8 (.38)	11/32 (.34)	903N90
1/4	04	7/16 - 20	7/16 (.44)	13/32 (.39)	904N90
5/16	05	1/2 - 20	1/2 (.50)	15/32 (.45)	905N90
3/8	06	9/16 - 18	9/16 (.56)	17/32 (.51)	906N90
1/2	08	3/4 - 16	3/4 (.75)	11/16 (.69)	908N90
5/8	10	7/8 - 14	7/8 (.88)	13/16 (.81)	910N90
3/4	12	1 1/16 - 12	1 1/16 (1.06)	1 (.98)	912N90
7/8	14	1 3/16 - 12	1 3/16 (1.19)	1 1/8 (1.10)	914N90
1	16	1 5/16 - 12	1 5/16 (1.31)	1 1/4 (1.23)	916N90
1 1/4	20	1 5/8 - 12	1 5/8 (1.63)	1 9/16 (1.54)	920N90
1 1/2	24	1 7/8 - 12	1 7/8 (1.88)	1 13/16 (1.79)	924N90
2	32	2-1/2 - 12	2-1/2 (2.50)	2 7/16 (2.42)	932N90

## O-Ring Face Seal (ORFS)

This connection offers the very best leakage control available today. The male connector has a straight thread and o-ring in the face. The female has a straight thread and a machined flat face. The seal takes place by compressing the o-ring onto the flat face of the female, similar to a flange type fitting. The threads hold the connection mechanically.



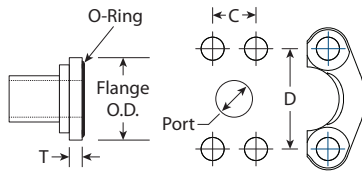
Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.	O-Ring
1/4"	04	9/16 - 18	9/16 (.56)	17/32 (.51)	011N90
3/8"	06	11/16 - 16	11/16 (.69)	5/8 (.63)	012N90
1/2"	08	13/16 - 16	13/16 (.82)	3/4 (.75)	014N90
5/8"	10	1 - 14	1 (1.00)	15/16 (.93)	016N90
3/4"	12	1 3/16 - 12	1 3/16 (1.19)	1 1/8 (1.11)	018N90
1"	16	1 7/16 - 12	1 7/16 (1.44)	1 3/4 (1.36)	021N90
1 1/4"	20	1 11/16 - 12	1 11/16 (1.69)	1 5/8 (1.61)	025N90
1 1/2"	24	2 - 12	2 (2.00)	1 15/16 (1.92)	029N90



## Code 61 4-Bolt Flange (SAE J518\*)

This connection is commonly used in fluid power systems. The Code 61 is referred to as the "standard" series of flanges. The female (port) is an unthreaded hole with four bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an o-ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the o-ring. The o-ring is compressed between the flange head and the flat surface surrounding the port. The threaded bolts hold the connection together.

\*SAE J518 is interchangeable with ISO 6162, JIS B 8363, and DIN 20066 except for the bolt sizes.

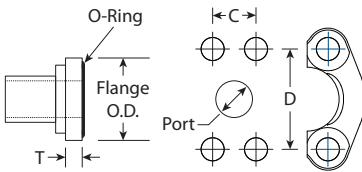


Port/ Inch Size	Dash Size	C	D	Flange		Bolt	
				O.D.	T	Thread	O-Ring
1/2	08	0.688	1.500	1.188	0.265	5/16 - 18	210N90
3/4	12	0.875	1.875	1.500	0.265	3/8 - 16	214N90
1	16	1.031	2.062	1.750	0.315	3/8 - 16	219N90
1 1/4	20	1.188	2.312	2.000	0.315	7/16 - 14	222N90
1 1/2	24	1.406	2.750	2.375	0.315	1/2 - 13	225N90
2	32	1.688	3.062	2.812	0.375	1/2 - 13	228N90
2 1/2	40	2.000	3.500	3.310	0.375	1/2 - 13	232N90
3	48	2.438	4.188	4.000	0.375	5/8 - 11	237N90

## Code 62 4-Bolt Flange (SAE J518\*)

This connection is commonly used in fluid power systems. The Code 62 is referred to as the "6000 PSI" series of flanges. The female (port) is an unthreaded hole with four bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an o-ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the o-ring. The o-ring is compressed between the flange head and the flat surface surrounding the port. The threaded bolts hold the connection together.

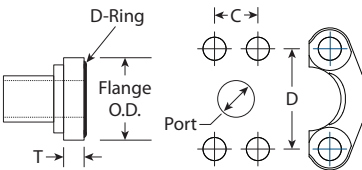
\*SAE J518 is interchangeable with ISO 6162, JIS B 8363, and DIN 20066 except for the bolt sizes.



Port/ Inch Size	Dash Size	C	D	Flange		Bolt	
				O.D.	T	Thread	O-Ring
1/2	08	0.718	1.594	1.250	0.345	5/16 - 18	210N90
3/4	12	0.937	2.000	1.620	0.345	3/8 - 16	214N90
1	16	1.093	2.250	1.880	0.375	7/16 - 14	219N90
1 1/4	20	1.250	2.625	2.120	0.405	1/2 - 13	222N90
1 1/2	24	1.437	3.125	2.500	0.495	5/8 - 11	225N90
2	32	1.750	3.812	3.120	0.495	3/4 - 10	228N90

## CAT 4-Bolt Flange (Caterpillar®)

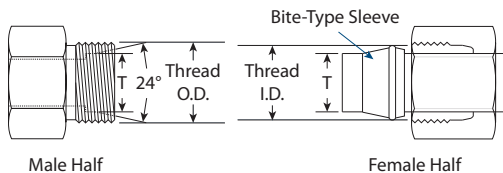
This connection is commonly used on Caterpillar® equipment. It is identical to the Code 62 flange, with two exceptions. The flange thickness is 0.560" for all flange sizes and the use of a d-ring is required rather than an o-ring. The female (port) is an unthreaded hole with four bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an d-ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the d-ring. The d-ring is compressed between the flange head and the flat surface surrounding the port. The threaded bolts hold the connection together.



Port/ Inch Size	Dash Size	C	D	Flange		Bolt	
				O.D.	T	Thread	D-Ring
1/2	08	0.718	1.594	1.250	0.560	5/16 - 18	3246080
3/4	12	0.937	2.000	1.620	0.560	3/8 - 16	3246081
1	16	1.093	2.250	1.880	0.560	7/16 - 14	3246082
1 1/4	20	1.250	2.625	2.120	0.560	1/2 - 13	3246083
1 1/2	24	1.437	3.125	2.500	0.560	5/8 - 11	3246084
2	32	1.750	3.812	3.120	0.560	3/4 - 10	3246087

## Flareless Tube Fittings

The male connection has straight threads and a 24° seat. The female connection incorporates a bite-type sleeve used in conjunction with a tube and female nut. When the female nut is tightened, the seal is made between the sleeve and the 24° seat. A seal is also made between the sleeve and the tubing. The threads hold the connection mechanically.

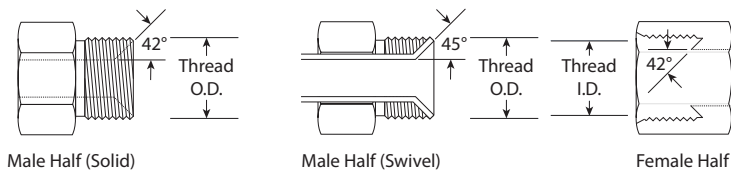


Tube O.D. (T)	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
1/8"	02	5/16 - 24	5/16 (.31)	9/32 (.27)
3/16"	03	3/8 - 24	3/8 (.38)	11/32 (.34)
1/4"	04	7/16 - 20	7/16 (.44)	13/32 (.39)
5/16"	05	1/2 - 20	1/2 (.50)	15/32 (.45)
3/8"	06	9/16 - 18	9/16 (.56)	17/32 (.51)
1/2"	08	3/4 - 16	3/4 (.75)	11/16 (.69)
5/8"	10	7/8 - 14	7/8 (.88)	13/16 (.81)
3/4"	12	1 1/16 - 12	1 1/16 (1.06)	1 (.98)
7/8"	14	1 3/16 - 12	1 3/16 (1.19)	1 1/8 (1.10)
1"	16	1 5/16 - 12	1 5/16 (1.31)	1 1/4 (1.23)
1 1/4"	20	1 5/8 - 12	1 5/8 (1.63)	1 9/16 (1.54)
1 1/2"	24	1 7/8 - 12	1 7/8 (1.88)	1 13/16 (1.79)
2"	32	2-1/2 - 12	2-1/2 (2.50)	2 7/16 (2.42)



## Inverted Flare

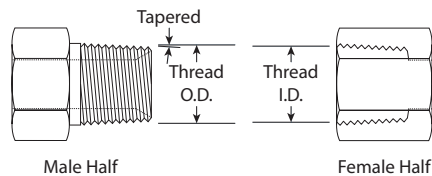
This connection is frequently used in automotive systems. The male connector can either be a 45° flare in the tube fitting form or a 42° seat in the machined adapter form. The female has a straight thread with a 42° inverted flare. The seal takes place on the flared surfaces. The threads hold the connection mechanically.



Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
1/8	02	5/16 - 28	5/16 (.32)	9/32 (.28)
3/16	03	3/8 - 24	3/8 (.38)	11/32 (.34)
1/4	04	7/16 - 24	7/16 (.44)	13/32 (.40)
5/16	05	1/2 - 20	1/2 (.50)	15/32 (.45)
3/8	06	5/8 - 18	5/8 (.63)	9/16 (.57)
7/16	07	11/16 - 18	11/16 (.69)	5/8 (.63)
1/2	08	3/4 - 18	3/4 (.75)	23/32 (.80)
5/8	10	7/8 - 18	7/8 (.88)	13/16 (.82)
3/4	12	1 1/16 - 16	1 1/16 (1.06)	1 (1.00)

## British Standard Pipe Tapered (BSPT) & JIS Tapered Pipe (PT)

The BSPT (tapered) connection is similar to North American NPTF, except that the thread pitches are different in most sizes. The thread form and O.D.'s are close but not the identical. Sealing is accomplished by distorting the threads. A properly chamfered BSPT male will also seal with a BSPP female swivel. A thread sealant is recommended.

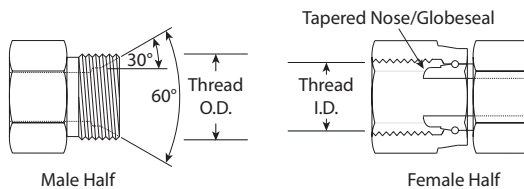


Note: British Standard Pipe Tapered threads are sometimes preceded by the letter "R." For example, BSPT 1/2 - 14 may be expressed as R1/2.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
1/8	02	1/8 - 28	3/8 (.38)	11/32 (.35)
1/4	04	1/4 - 19	33/64 (.52)	15/32 (.47)
3/8	06	3/8 - 19	21/32 (.65)	19/32 (.60)
1/2	08	1/2 - 14	13/16 (.82)	3/4 (.75)
5/8	10	5/8 - 14	7/8 (.88)	13/16 (.80)
3/4	12	3/4 - 14	1 1/32 (1.04)	31/32 (.97)
1	16	1 - 11	1 5/16 (1.30)	1 7/32 (1.22)
1 1/4	20	1 1/4 - 11	1 21/32 (1.65)	1 9/16 (1.56)
1 1/2	24	1 1/2 - 11	1 7/8 (1.88)	1 25/32 (1.79)
2	32	2 - 11	2 11/32 (2.35)	2 1/4 (2.26)

## British Standard Pipe Parallel (BSPP) & JIS 30° Male Inverted Seat

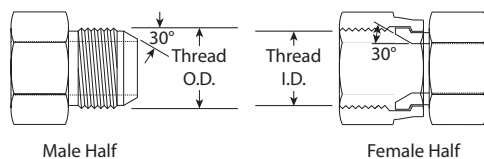
The BSPP (parallel) male connection is similar to the North American NPSM male except the thread pitches are different in most sizes. The female swivel BSPP has a tapered nose/Globeseal which seals on the cone seat of the male.



Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
1/8	02	1/8 - 28	3/8 (.38)	11/32 (.35)
1/4	04	1/4 - 19	33/64 (.52)	15/32 (.47)
3/8	06	3/8 - 19	21/32 (.65)	19/32 (.60)
1/2	08	1/2 - 14	13/16 (.82)	3/4 (.75)
5/8	10	5/8 - 14	7/8 (.88)	13/16 (.80)
3/4	12	3/4 - 14	1 1/32 (1.04)	31/32 (.97)
1	16	1 - 11	1 5/16 (1.30)	1 7/32 (1.22)
1 1/4	20	1 1/4 - 11	1 21/32 (1.65)	1 9/16 (1.56)
1 1/2	24	1 1/2 - 11	1 7/8 (1.88)	1 25/32 (1.79)
2	32	2 - 11	2 11/32 (2.35)	2 1/4 (2.26)

## JIS 30° Flare (JIS B 0202)

The Japanese JIS 30° flare is similar to the American JIC 37° flare connection in application as well as sealing principles. However, the flare angle and dimensions are different. The seat angle for JIS is 30° and threads are the same as BSPP.

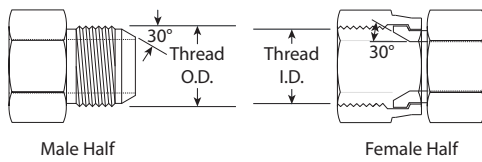


Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
1/8	02	1/8 - 28	3/8 (.38)	11/32 (.35)
1/4	04	1/4 - 19	33/64 (.52)	15/32 (.47)
3/8	06	3/8 - 19	21/32 (.65)	19/32 (.60)
1/2	08	1/2 - 14	13/16 (.82)	3/4 (.75)
5/8	10	5/8 - 14	7/8 (.88)	13/16 (.80)
3/4	12	3/4 - 14	1 1/32 (1.04)	31/32 (.97)
1	16	1 - 11	1 5/16 (1.30)	1 7/32 (1.22)
1 1/4	20	1 1/4 - 11	1 21/32 (1.65)	1 9/16 (1.56)
1 1/2	24	1 1/2 - 11	1 7/8 (1.88)	1 25/32 (1.79)
2	32	2 - 11	2 11/32 (2.35)	2 1/4 (2.26)



## Komatsu 30° Flare (JIS Metric)

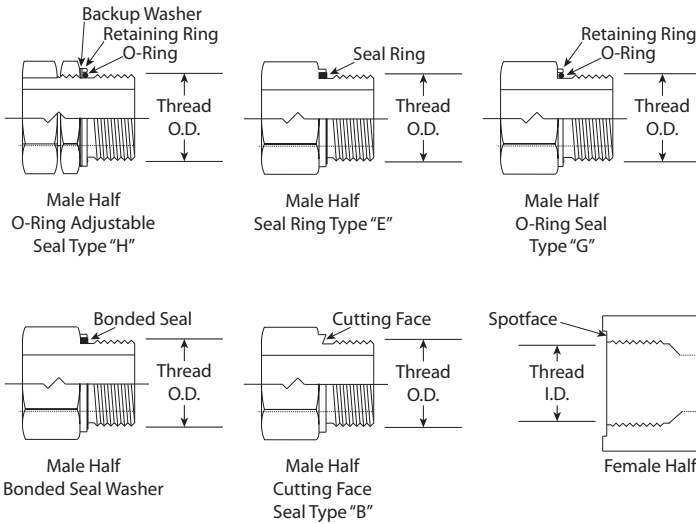
Used primarily on Komatsu equipment, this connection has a 30° seat and parallel metric threads. It is also referred to as JIS Metric. Komatsu fittings are sometimes confused with JIS 30° flare which has BSPP thread dimensions.



Dash Size	Metric Size Equivalent	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
06	9	M18 X 1.5	18 mm	16.5 mm
08	12	M22 X 1.5	22 mm	20.5 mm
10	16	M24 X 1.5	24 mm	22.5 mm
12	19	M30 X 1.5	30 mm	28.5 mm
16	25	M33 X 1.5	33 mm	31.5 mm
20	32	M36 X 1.5	36 mm	34.5 mm
24	38	M42 X 1.5	42 mm	40.5 mm

## Flat Face Port with BSPP Threads (ISO 1179-1, DIN 3852 Part 2)

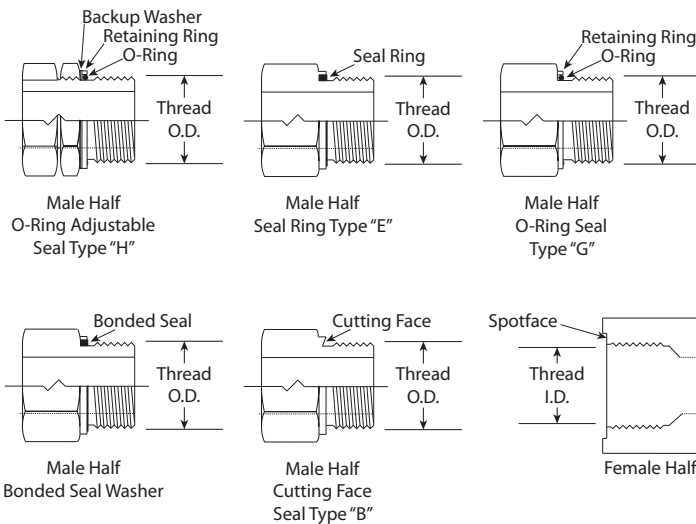
Parallel threads seal utilizing various sealing methods such as rings, washers, o-rings, bonded seals or metal to metal seals. The female port has a machined spotface or flat surface which the male seals against.



Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
1/8	02	1/8 - 28	3/8 (.38)	11/32 (.35)
1/4	04	1/4 - 19	33/64 (.52)	15/32 (.47)
3/8	06	3/8 - 19	21/32 (.65)	19/32 (.60)
1/2	08	1/2 - 14	13/16 (.82)	3/4 (.75)
5/8	10	5/8 - 14	7/8 (.88)	13/16 (.80)
3/4	12	3/4 - 14	1 1/32 (1.04)	31/32 (.97)
1	16	1 - 11	1 5/16 (1.30)	1 7/32 (1.22)
1 1/4	20	1 1/4 - 11	1 21/32 (1.65)	1 9/16 (1.56)
1 1/2	24	1 1/2 - 11	1 7/8 (1.88)	1 25/32 (1.79)
2	32	2 - 11	2 11/32 (2.35)	2 1/4 (2.26)

## Flat Face Port with Metric Threads (ISO 9974-1, DIN 3852 Part 1)

This connection is similar to ISO 1179-1 except the threads are metric. Parallel threads seal utilizing various sealing methods such as rings, washers, o-rings, bonded seals or metal to metal seals. The female port has a machined spotface or flat surface which the male seals against.



Metric Thread Size	Male Thread O.D.	Female Thread I.D.
M8 X 1.0	8 mm	7 mm
M10 X 1.0	10 mm	9 mm
M12 X 1.5	12 mm	10.5 mm
M14 X 1.5	14 mm	12.5 mm
M16 X 1.5	16 mm	14.5 mm
M18 X 1.5	18 mm	16.5 mm
M20 X 1.5	20 mm	18.5 mm
M22 X 1.5	22 mm	20.5 mm
M24 X 1.5	24 mm	22.5 mm
M26 X 1.5	26 mm	24.5 mm
M27 X 2.0	27 mm	25 mm
M33 X 2.0	33 mm	31 mm
M36 X 2.0	36 mm	34 mm
M42 X 2.0	42 mm	40 mm
M45 X 2.0	45 mm	43 mm
M48 X 2.0	48 mm	46 mm

