

### **Thread identification**

There are numerous types of thread and connectors available in the hydraulic industry. Sometimes you may be required to identify these for the purposes of hose making & port to port connecting.

To correctly identify threads you will need a Vernier gauge and a set of thread gauges and a thread identification chart.

We are going to concentrate initially on

- BSP = British Standard Pipe
- BSPT = British Standard Pipe Tapered
- JIC = Joint Industrial Council
- Metric Light & Heavy Series

#### Vernier

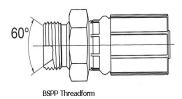


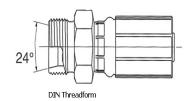
#### Thread Gauges

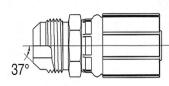


## How to Identify Male Threads

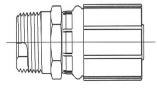
11.1   7/16" UNF   JIC     12.0   M12 x 1.5   DIN     12.5   1/2" UNF   JIC     13.1   1/4" BSPP   BSP     13.6   1/4" BSPT   BSP     13.6   1/4" BSPT   BSP     14.0   M14 x 1.5   DIN     14.2   9/16" UNF   JIC     16.0   M16 x 1.5   DIN     16.6   3/8" BSPT   BSP     17.1   3/8" BSPT   BSP     18.0   M18 x 1.5   DIN     19.0   3/4" UNF   JIC     20.0   M22 x 1.5   DIN     21.5   1/2" BSPT   BSP     22.0   M22 x 1.5   DIN     22.2   7/8" UNF   JIC     22.4   5/8" BSPT   BSP     23.4   5/8" BSPT   BSP     27.0   3/4" BSPT   BSP     30.1   13/16" UNF   JIC     33.2   1" BSPP   BSP     36.0   M36 x 2   DIN	Thread Diameter (mm)	Size	Туре	
12.0 M12 x 1.5 DIN   12.5 $1/2"$ UNF JIC   13.1 $1/4"$ BSPP BSP   13.6 $1/4"$ BSPT BSP   14.0 M14 x 1.5 DIN   14.2 9/16" UNF JIC   16.0 M16 x 1.5 DIN   16.6 3/8" BSPT BSP   17.1 3/8" BSPT BSP   18.0 M18 x 1.5 DIN   19.0 3/4" UNF JIC   20.0 M20 x 1.5 DIN   21.5 1/2" BSPP BSP   22.0 M22 x 1.5 DIN   22.2 7/8" UNF JIC   22.2 7/8" UNF JIC   22.4 5/8" BSPT BSP   23.4 5/8" BSPT BSP   26.4 3/4" BSPT BSP   30.0 M30 x 2 DIN   30.1 13/16" UNF JIC   33.2 1" BSPP BSP   36.0 M36 x 2 DIN   41.2 15/16" UNF JIC   41.2 15/1	11 1	7/16" LINE	JIC	]
12.5 1/2" UNF JIC   13.1 1/4" BSPP BSP   13.6 1/4" BSPT BSP   14.0 M14 x 1.5 DIN   14.2 9/16" UNF JIC   16.0 M16 x 1.5 DIN   14.2 9/16" UNF JIC   16.0 M16 x 1.5 DIN   16.6 3/8" BSPP BSP   17.1 3/8" BSPT BSP   18.0 M18 x 1.5 DIN   19.0 3/4" UNF JIC   20.0 M20 x 1.5 DIN   21.5 1/2" BSPT BSP   22.0 M22 x 1.5 DIN   22.2 7/8" UNF JIC   22.4 M26 x 1.5 DIN   26.0 M26 x 1.5 DIN   26.1 3/4" BSPT BSP   30.0 M30 x 2 DIN   30.1 13/16" UNF JIC   33.2 1" BSPT BSP   33.9 1" BSPT BSP   36.0 M36 x 2 DIN   41.9 1/4" BSPT <td></td> <td></td> <td></td> <td></td>				
13.1 $1/4"$ BSPP BSP   13.6 $1/4"$ BSPT BSP   14.0 M14 x 1.5 DIN   14.2 9/16" UNF JIC   16.0 M16 x 1.5 DIN   16.6 3/8" BSPP BSP   17.1 3/8" BSPT BSP   18.0 M18 x 1.5 DIN   19.0 3/4" UNF JIC   20.0 M20 x 1.5 DIN   21.0 1/2" BSPT BSP   22.0 M22 x 1.5 DIN   22.2 7/8" UNF JIC   22.9 5/8" BSPT BSP   23.4 5/8" BSPT BSP   24.0 M24 x 1.5 DIN   26.0 M26 x 1.5 DIN   26.0 M26 x 1.5 DIN   30.1 13/16" UNF JIC   30.1 13/16" UNF JIC   33.9 1" BSPT BSP   36.0 M36 x 2 DIN   41.2 15/8" UNF JIC   41.9 11/4" BSPT BSP   45.0 M				
13.6 1/4" BSPT BSP   14.0 M14 x 1.5 DIN   14.2 9/16" UNF JIC   16.0 M16 x 1.5 DIN   16.6 3/8" BSPT BSP   17.1 3/8" BSPT BSP   18.0 M18 x 1.5 DIN   19.0 3/4" UNF JIC   20.0 M20 x 1.5 DIN   21.0 1/2" BSPT BSP   21.5 1/2" BSPT BSP   22.0 M22 x 1.5 DIN   22.2 7/8" UNF JIC   22.9 5/8" BSPT BSP   23.4 5/8" BSPT BSP   24.0 M24 x 1.5 DIN   26.0 M26 x 1.5 DIN   26.4 3/4" BSPT BSP   27.0 11/16" UNF JIC   30.1 13/16" UNF JIC   33.2 1" BSPT BSP   33.9 1" BSPT BSP   36.0 M36 x 2 DIN   41.2 15/8" UNF JIC   41.9 11/4" BS				
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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	14.0	M14 x 1.5	DIN	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	14.2	9/16" UNF	JIC	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	16.0	M16 x 1.5	DIN	
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$\begin{array}{ c c c c c c c c c c c c c c c c c c c$				See thread form pictures
30.0   M30 x 2   DIN     30.1   1 3/16" UNF   JIC     33.2   1" BSPP   BSP     33.2   15/16" UNF   JIC     33.9   1" BSPT   BSP     36.0   M36 x 2   DIN     41.2   1 5/8" UNF   JIC     41.2   1 5/8" UNF   JIC     41.9   1 1/4" BSPP   BSP     42.0   M42 x 2   DIN     42.6   1 1/4" BSPT   BSP     45.0   M45 x 2   DIN     47.6   1 7/8" UNF   JIC     47.8   1 1/2" BSPP   BSP     48.5   1 1/2" BSPT   BSP     52.0   M52 x 2   DIN     58.0   M58 x 2   DIN     59.5   2" BSPP   BSP     60.5   2" BSPT   BSP	27.0			
33.2   1" BSPP   BSP   See thread form pictures to determine type     33.9   1" BSPT   BSP   to determine type     33.9   1" BSPT   BSP   to determine type     36.0   M36 x 2   DIN      41.2   1 5/8" UNF   JIC      41.9   1 1/4" BSPP   BSP      42.0   M42 x 2   DIN      42.6   1 1/4" BSPT   BSP      45.0   M45 x 2   DIN      47.6   1 7/8" UNF   JIC   See thread form pictures to determine type     47.8   1 1/2" BSPP   BSP   to determine type     48.5   1 1/2" BSPT   BSP   to determine type     48.5   1 1/2" BSPT   BSP   to determine type     58.0   M58 x 2   DIN      59.5   2" BSPP   BSP      60.5   2" BSPT   BSP	30.0		DIN	
33.2   1 5/16" UNF   JIC   to determine type     33.9   1" BSPT   BSP     36.0   M36 x 2   DIN     41.2   1 5/8" UNF   JIC     41.9   1 1/4" BSPP   BSP     42.0   M42 x 2   DIN     42.6   1 1/4" BSPT   BSP     45.0   M45 x 2   DIN     47.6   1 7/8" UNF   JIC     47.8   1 1/2" BSPP   BSP     48.5   1 1/2" BSPT   BSP     52.0   M52 x 2   DIN     58.0   M58 x 2   DIN     59.5   2" BSPP   BSP     60.5   2" BSPT   BSP	30.1	1 3/16" UNF	JIC	
1 5/16" UNF   JIC   Id determine type     33.9   1" BSPT   BSP     36.0   M36 x 2   DIN     41.2   1 5/8" UNF   JIC     41.9   1 1/4" BSPP   BSP     42.0   M42 x 2   DIN     42.6   1 1/4" BSPT   BSP     45.0   M45 x 2   DIN     47.6   1 7/8" UNF   JIC     47.8   1 1/2" BSPP   BSP     48.5   1 1/2" BSPT   BSP     52.0   M52 x 2   DIN     58.0   M58 x 2   DIN     59.5   2" BSPP   BSP     60.5   2" BSPT   BSP	33.2	1" BSPP	BSP	See thread form pictures
36.0   M36 x 2   DIN     41.2   1 5/8" UNF   JIC     41.9   1 1/4" BSPP   BSP     42.0   M42 x 2   DIN     42.6   1 1/4" BSPT   BSP     45.0   M45 x 2   DIN     47.6   1 7/8" UNF   JIC     52.0   M45 x 2   DIN     48.5   1 1/2" BSPP   BSP     52.0   M52 x 2   DIN     58.0   M58 x 2   DIN     59.5   2" BSPP   BSP     60.5   2" BSPT   BSP	55.2	1 5/16" UNF	JIC	to determine type
41.2 1 5/8" UNF JIC   41.9 1 1/4" BSPP BSP   42.0 M42 x 2 DIN   42.6 1 1/4" BSPT BSP   45.0 M45 x 2 DIN   47.6 1 7/8" UNF JIC   52.0 M52 x 2 DIN   52.0 M52 x 2 DIN   59.5 2" BSPP BSP   60.5 2" BSPT BSP				
41.9   1 1/4" BSPP   BSP     42.0   M42 x 2   DIN     42.6   1 1/4" BSPT   BSP     45.0   M45 x 2   DIN     47.6   1 7/8" UNF   JIC     47.8   1 1/2" BSPP   BSP     48.5   1 1/2" BSPT   BSP     52.0   M52 x 2   DIN     58.0   M58 x 2   DIN     59.5   2" BSPP   BSP     60.5   2" BSPT   BSP				
42.0 M42 x 2 DIN   42.6 1 1/4" BSPT BSP   45.0 M45 x 2 DIN   47.6 1 7/8" UNF JIC   47.8 1 1/2" BSPP BSP   48.5 1 1/2" BSPT BSP   52.0 M52 x 2 DIN   58.0 M58 x 2 DIN   59.5 2" BSPP BSP   60.5 2" BSPT BSP				
42.6   1 1/4" BSPT   BSP     45.0   M45 x 2   DIN     47.6   1 7/8" UNF   JIC   See thread form pictures to determine type     47.8   1 1/2" BSPP   BSP   to determine type     48.5   1 1/2" BSPT   BSP   to determine type     52.0   M52 x 2   DIN   58.0     59.5   2" BSPP   BSP   BSP     60.5   2" BSPT   BSP   BSP				
45.0   M45 x 2   DIN     47.6   1 7/8" UNF   JIC   See thread form pictures to determine type     47.8   1 1/2" BSPP   BSP   to determine type     48.5   1 1/2" BSPT   BSP   to determine type     52.0   M52 x 2   DIN   58.0   M58 x 2   DIN     59.5   2" BSPP   BSP   BSP   60.5   DIN				
47.6   1 7/8" UNF   JIC   See thread form pictures to determine type     47.8   1 1/2" BSPP   BSP   to determine type     48.5   1 1/2" BSPT   BSP   to determine type     52.0   M52 x 2   DIN   58.0   M58 x 2   DIN     59.5   2" BSPP   BSP   BSP   60.5   2" BSPT   BSP				
47.8   1 1/2" BSPP   BSP   to determine type     48.5   1 1/2" BSPT   BSP   52.0   M52 x 2   DIN     58.0   M58 x 2   DIN   59.5   2" BSPP   BSP     60.5   2" BSPT   BSP   50.5   50.5   50.5   50.5				
447.6   11/2 BSPT   BSP     48.5   1 1/2" BSPT   BSP     52.0   M52 x 2   DIN     58.0   M58 x 2   DIN     59.5   2" BSPP   BSP     60.5   2" BSPT   BSP				
52.0   M52 x 2   DIN     58.0   M58 x 2   DIN     59.5   2" BSPP   BSP     60.5   2" BSPT   BSP				
58.0   M58 x 2   DIN     59.5   2" BSPP   BSP     60.5   2" BSPT   BSP				
59.5   2" BSPP   BSP     60.5   2" BSPT   BSP				
60.5 2" BSPT BSP				1
63.3 2 1/2" UNF JIC				1







JIC Threadform



BSPT Threadform

# How to Identify Female Threads

Thread Diameter (mm)	Size	Туре	]	
			1	
9.9	7/16" UNF	JIC		
10.5	M12 x 1.5	DIN		
11.5	1/2" UNF	JIC		$\frown$
11.7	1/4" BSPP	BSP		
12.5	M14 x 1.5	DIN		
12.9	9/16" UNF	JIC		
14.5	M16x 1.5	DIN		
15.2	3/8" BSPP	BSP		BSP Threadform
16.5	M18 x 1.5	DIN		
17.5	3/4" UNF	JIC		
18.5	M20 x 1.5	DIN		
18.9	1/2" BSPP	BSP		-
20.5	M22 x 1.5	DIN	See thread form pictures to	
20.5	7/8" UNF	JIC	determine type	
20.9	5/8" BSPP	BSP		
22.5	M24 x 1.5	DIN		
24.4	3/4" BSPP	BSP		
24.5	1 1/16" UNF	JIC	See thread form pictures to	
24.5	M26 x 1.5	DIN	determine type	
28.0	M30 x 1.5	DIN		
28.1	1 3/16" UNF	JIC		DIN Threadform
28.5	M30 x 2	DIN		
30.6	1" BSPP	BSP		
31.3	1 5/16" UNF	JIC		
31.5	M33 x 1.5	DIN		
34.0	M36 x 2	DIN		
39.2	1 5/8" UNF	JIC		
39.3	1 1/4" BSPP	BSP		
43.0	M45 x 1.5	DIN		
43.5	M45 x 2	DIN		
45.2	1 1/2" BSPP	BSP		
50.0	M52 x 1.5	DIN		
50.5	M52 x 2	DIN		
56.0	M58 x 2	DIN		
57.0	2" BSPP	BSP		
61.4	2 1/2" UNF	JIC	]	JIC Threadform

BSP = British standard pipe, this is one of the more common thread types and can be identified by a 60 degree sealing cone on Male and Female fittings.

Sometime the female fitting will be fitted with an O-ring seal but this is not always the case.

To identify the size of the thread you would first measure the OD of the male or ID of the female once you have established the size you can then consult a thread chart.

BSP threads are normally referred to imperially for example

1/4" would also be referred to as dash 4

3/8" would also be referred to as dash 6

1/2" would also be referred to as dash 8

BSPT – A Tapered version of a BSP fitting no sealing cone but formed in the same way as a standard BSP thread, the OD of the thread will taper down to be smaller at one end and will require P.T.F.E. tape to help with sealing.

JIC = Joint industrial council the threads on JIC fittings are not JIC but UNF (Unified National Fine Thread).

JIC refers to the method of sealing on an angle of 37 degrees for the male and female fittings.

To identify the size of the thread you would first measure the OD of the male or ID of the female once you have established the size you can then consult a thread chart.

JIC Fittings are also referred to in dash size example.

7/16 = 049/16 = 06

Metric - Uses a 24mm coned seat sometimes with an O-ring seal

To identify the size of the thread you would first measure the OD of the male or ID of the female once you have established the size you can then consult a thread chart.

Metric sizes are indicated by tube size the most common used are as detailed below.

Tube	Size	Туре	Thread	W.P
LL	4	M4LL	M8X1.0	100
	6	M6LL	M10X1.0	100
	8	M8LL	M12X1.0	100
L	6	M6L	M12X1.5	500
	8	M8L	M14X1.5	500
	10	M10L	M16X1.5	500
	12	M12L	M18X1.5	400
	15	M15L	M22X1.5	400
	18	M18L	M26X1.5	400
	22	M22L	M30X2.0	250
	28	M28L	M36X2.0	250
	35	M35L	M45X2.0	250
	42	M42L	M52X2.0	250
S	6	M6S	M14X1.5	800
	8	M8S	M16X1.5	800
	10	M10S	M18X1.5	800
	12	M12S	M20X1.5	630
	14	M14S	M22X1.5	630
	16	M16S	M24X1.5	630
	20	M20S	M30X2.0	400
	25	M25S	M36X2.0	400
	30	M30S	M42X2.0	400
	38	M38S	M52X2.0	400

Special attention needs to be taken when measuring the tube size this will point you in the right direction but on M6, M8,M10 M12 ensure that you cross check the thread pitch.