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How to ID British (BSP) Threads

British Pipe Standard fittings are amongst the most popular of all foreign threads in the world today. These threads come in two versions: parallel (BSPP), and tapered (BSPT). The thread flank angle for both tapered and parallel British threads is 55°. NOTE: It is a fairly common mistake to identify a BSPT (tapered) as an NPT. Always remember that NPT threads have a 60° thread flank angle, and BSPT has a 55° angle (this can be verified with a thread gauge). Although BSP is a foreign thread, it isn't actually metric. This is why it comes in imperial sizes: 1/8, 1/4, 1/2, 3/4, and so on.

BSP parallel threads commonly seal via a 30° chamfer on the male thread to a 30° recessed cone inside the female thread (swivel only). If it is a port application, an O-ring and washer or a bonded washer are needed to achieve a proper seal for parallel threads. For tapered BSP threads, a seal is acquired via thread wedging with additional support from thread dope or Teflon tape. As previously mentioned, it is possible for a male BSPT (tapered) to thread into a female BSPP (parallel), so long as the female thread is fixed and not swivel (this is because of the recessed cone seat).

BSP *parallel* fittings and their specifications can be identified by a completing few calculations. To find the thread size:

- 1)** Measure the O.D (outer diameter) of the BSP thread.
- 2)** Take the O.D measurement (in inches) and subtract 1/4 inch (.25").

For example, a BSP parallel male thread measures out to O.D 1". Subtracting 1/4 gives a thread size of 3/4, also known as "dash" 12.

Once you have the thread size, you then need to determine the number of threads per inch to verify that it is a BSP fitting. You can do this by counting the number of thread crests over a 1/4" length, then multiply it by 4 to get the number of threads/inch. For example, if over a 1/4" distance you find 3.5 thread crests:

- 1)** Multiply 3.5 by 4 to get 14. This is the number of threads per inch.
- 2)** Combine the thread size with the number of threads per inch and refer to the following chart to find your desired size and its related specifications.

British Standard Pipe Thread - Parallel (BSP/BSPP)

Nominal Size	Dash Size	Outer Diameter (mm)	Inner Diameter Male Thread (mm)	Pitch (mm)	Threads per inch	Pitch Diameter (mm)	Thread Height (mm)	Tap Drill Diameter (mm)
1/8"	02	9.728	8.566	0.907	28	9.147	0.581	8.7
1/4"	04	13.157	11.445	1.337	19	12.301	0.856	11.6
3/8"	06	16.662	14.95	1.337	19	15.806	0.856	15
1/2"	08	20.955	18.631	1.814	14	19.793	1.162	19
5/8"	10	22.911	20.587	1.814	14	21.749	1.162	20.75
3/4"	12	26.441	24.117	1.814	14	25.279	1.162	24.5
7/8"	14	30.201	27.877	1.814	14	29.039	1.162	28
1"	16	33.249	30.291	2.309	11	31.77	1.479	30.5
1 1/8"	18	37.897	34.939	2.309	11	36.418	1.479	35
1 1/4"	20	41.91	38.952	2.309	11	40.431	1.479	39.5
1 3/8"	22	44.323	41.365	2.309	11	42.844	1.479	41.5
1 1/2"	24	47.803	44.845	2.309	11	46.324	1.479	45
1 3/4"	28	53.746	50.788	2.309	11	52.267	1.479	51
2"	32	59.614	56.656	2.309	11	58.135	1.479	57
2 1/4"	36	65.71	62.752	2.309	11	64.231	1.479	63
2 1/2"	40	75.184	72.226	2.309	11	73.705	1.479	72.5
2 3/4"	44	81.534	78.576	2.309	11	80.055	1.479	79
3"	48	87.884	84.926	2.309	11	86.405	1.479	85.5

For British tapered threads (BSPT), the process is almost the same. To determine the threads per inch count, you would undergo the same steps as for a parallel thread. Using the O.D to identify a tapered fitting is not recommended for the reason that the outer diameter changes throughout the length of the taper. However, the I.D (inner diameter) is a good reference point to start from. To determine the I.D of a BSP tapered fitting, simply obtain a caliper reading from inside the bore of the fitting. You can cross-reference the bore size on the following chart with thread pitch and threads per inch to find your desired size and its related specifications.

British Standard Pipe Thread - Tapered (BSPT)

Nominal Size	Dash Size	Outer Diameter (mm)	Inner Diameter Male Thread (mm)	Pitch (mm)	Threads per inch	Pitch Diameter (mm)	Thread Height (mm)	Tap Drill Diameter (mm)	Thread Crest Rounding
1/16"	01	7.723	6.561	0.907	28	7.142	0.581	6.4	0.125
1/8"	02	9.728	8.566	0.907	28	9.147	0.581	8.4	0.125
1/4"	04	13.157	11.445	1.337	19	12.301	0.856	11.2	0.184
3/8"	06	16.662	14.95	1.337	19	15.806	0.856	14.75	0.184
1/2"	08	20.955	18.631	1.814	14	19.793	1.162	18.25	0.249
3/4"	12	26.441	24.117	1.814	14	25.279	1.162	23.75	0.249
1"	16	33.249	30.291	2.309	11	31.77	1.479	30	0.317
1 1/4"	20	41.91	38.952	2.309	11	40.431	1.479	38.5	0.317
1 1/2"	24	47.803	44.845	2.309	11	46.324	1.479	44.5	0.317
2"	32	59.614	56.656	2.309	11	58.135	1.479	56	0.317
2 1/2"	40	75.184	72.226	2.309	11	73.705	1.479	71	0.317
3"	48	87.884	84.926	2.309	11	86.405	1.479	85.5	0.317
4"	64	113.03	110.072	2.309	11	111.551	1.479	110.5	0.317
5"	80	138.43	135.472	2.309	11	136.951	1.479	136	0.317