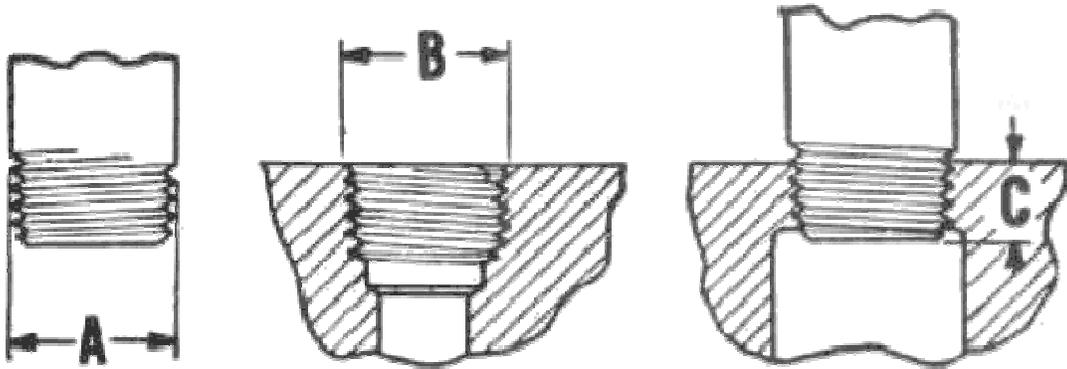


Pipe sizes do not refer to any physical dimensions. To determine the size of a pipe, the outside diameter of each pipe or fitting must be measured and compared to the table for size identification. For example, a 3/4" NPT pipe thread has an outside diameter of 1.050 inches. Each thread size has a defined number of threads per inch (TPI). The 3/4" NPT pipe thread has 14 threads per inch. Both the TPI (threads per inch) and OD (outside diameter) of the thread are required for positive identification of thread size because several sizes have the same TPI.



Male threads: Measure the outside diameter of the large portion of the thread at "A"; Find figure nearest this dimension in column 1 or 2 of chart. The dimension in column 3 will be your nominal pipe thread size.

Female Threads: Measure top diameter of thread at "B"; Find figure nearest this dimension in column 1 or 2 of chart. The dimension in column 3 will be your nominal pipe thread size.

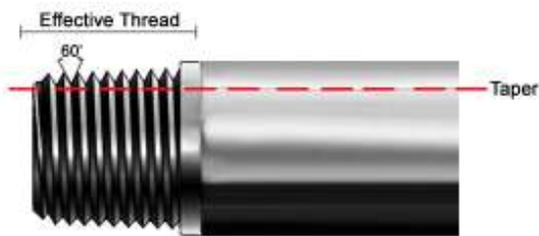
Column 1	Column 2	Column 3	Column 4	Column 5
OD Fraction Inch (for quick reference only)	OD Actual (Inches)	Pipe Thread Size	Normal engagement for tight joint (dimension "C")	Threads per Inch
5/16	0.3125	1/16	0.2611	27
13/32	0.405	1/8	0.2639	27
35/64	0.540	1/4	0.4018	18
43/64	0.675	3/8	0.4078	18
27/32	0.840	1/2	0.5337	14
1-3/64	1.050	3/4	0.5457	14
1-5/16	1.315	1	0.6828	11-1/2
1-21/32	1.660	1-1/4	0.7068	11-1/2
1-29/32	1.900	1-1/2	0.7235	11-1/2
2-3/8	2.375	2	0.7565	11-1/2
2-7/8	2.875	2-1/2	1.1375	8
3-1/2	3.5	3	1.2000	8
4	4.0	3-1/2	1.2500	8
4-1/2	4.5	4	1.3000	8

All pipe thread types used in plumbing are specified by the American National Standard for pipe as accredited by the American National Standards Institute (ANSI).

National Pipe Threads (NPT) have tapered threads. These are the most common threads used for general purposes. NPT threads are designed with a 60 degree thread angle, and are used for joining and sealing pipe to fittings in low pressure air or liquids and also mechanical applications. The tapered thread is 3/4" over one foot of length. Tapered threads are deeper at the end of the pipe and are increasingly shallower the further they are from the end of the pipe. The taper on the pipe only allows the pipe to screw inside the fitting until it is forced to stop because of the taper. The distance the pipe can be screwed into the fitting is specified by the ANSI standard. After tightening with a wrench the threads may have slight spaces between the pipe and fitting which could cause a leak so a pipe sealant must be used to ensure any gaps are filled.

The Dry-seal thread (NPTF) also have tapered threads. NPTF threads are used when the application is such that pipe sealing compounds may fail due to higher heat or pressure than normal NPT threads can withstand. The threads are designed to seal mechanically by slightly, but sufficiently, crushing the threads when tightened with a wrench. This allows for joining the pipe and fitting without sealants.

The NPT and NPTF threads are interchangeable with sealants such as PTFE tape or suitable pipe joint compounds. None of the other thread standards are interchangeable. Female NPT threads can be designated as "FPT" and male NPT threads can be designated as "MPT."



NPT sample (tapered threads)

data courtesy: plumbingsupply.com