NPSM
60°

Table 5: American National Standard Straight Pipe Threads for Mechanical Joints, NPSM and NPSL (ANSI B2.2-1968)

Nominal Pipe Size	Threads per Inch	External Thread					Internal Thread			
		Allowance	Major Diameter		Pitch Diameter		Minor Diameter		Pitch Diameter	
			Max.[2]	Min.	Max.	Min.	Min.[2]	Max.	Min.[1]	Max.
Free-fitting Mechanical Joints for Fixtures — NPSM										
1/8	27	0.0011	0.397	0.390	0.3725	0.3689	0.358	0.364	0.3736	0.3783
1/4	18	0.0013	0.526	0.517	0.4903	0.4859	0.468	0.481	0.4916	0.4974
3/8	18	0.0014	0.662	0.653	0.6256	0.6211	0.603	0.612	0.6270	0.6329
1/2	14	0.0015	0.823	0.813	0.7769	0.7718	0.747	0.759	0.7784	0.7851
3/4	14	0.0016	1.034	1.024	0.9873	0.9820	0.958	0.970	0.9889	0.9958
1	11½	0.0017	1.293	1.281	1.2369	1.2311	1.201	1.211	1.2386	1.2462
1¼	11½	0.0018	1.638	1.626	1.5816	1.5756	1.546	1.555	1.5834	1.5912
1½	11½	0.0018	1.877	1.865	1.8205	1.8144	1.785	1.794	1.8223	1.8302
2	11½	0.0019	2.351	2.339	2.2944	2.2882	2.259	2.268	2.2963	2.3044
2½	8	0.0022	2.841	2.826	2.7600	2.7526	2.708	2.727	2.7622	2.7720
3	8	0.0023	3.467	3.452	3.3862	3.3786	3.334	3.353	3.3885	3.3984
3½	8	0.0023	3.968	3.953	3.8865	3.8788	3.835	3.848	3.8888	3.8988
4	8	0.0023	4.466	4.451	4.3848	4.3771	4.333	4.346	4.3871	4.3971
5	8	0.0024	5.528	5.513	5.4469	5.4390	5.395	5.408	5.4493	5.4598
6	8	0.0024	6.585	6.570	6.5036	6.4955	6.452	6.464	6.5060	6.5165
Loose-fitting Mechanical Joints for Locknut Connections — NPSL										
1/8	27	...	0.409	...	0.3840	0.3805	0.362	...	0.3863	0.3898
1/4	18	...	0.541	...	0.5038	0.4986	0.470	...	0.5073	0.5125
3/8	18	...	0.678	...	0.6409	0.6357	0.607	...	0.6444	0.6496
1/2	14	...	0.844	...	0.7963	0.7896	0.753	...	0.8008	0.8075
3/4	14	...	1.054	...	1.0067	1.0000	0.964	...	1.0112	1.0179
1	11½	...	1.318	...	1.2604	1.2523	1.208	...	1.2658	1.2739
1¼	11½	...	1.663	...	1.6051	1.5970	1.553	...	1.6106	1.6187
1½	11½	...	1.902	...	1.8441	1.8360	1.792	...	1.8495	1.8576
2	11½	...	2.376	...	2.3180	2.3099	2.265	...	2.3234	2.3315
2½	8	...	2.877	...	2.7934	2.7817	2.718	...	2.8012	2.8129
3	8	...	3.503	...	3.4198	3.4081	3.344	...	3.4276	3.4393
3½	8	...	4.003	...	3.9201	3.9084	3.845	...	3.9279	3.9396
4	8	...	4.502	...	4.4184	4.4067	4.343	...	4.4262	4.4379
5	8	...	5.564	...	5.4805	5.4688	5.405	...	5.4884	5.5001
6	8	...	6.620	...	6.5372	6.5255	6.462	...	6.5450	6.5567
8	8	...	8.615	...	8.5313	8.5196	8.456	...	8.5391	8.5508
10	8	...	10.735	...	10.6522	10.6405	10.577	...	10.6600	10.6717
12	8	...	12.732	...	12.6491	12.6374	12.574	...	12.6569	12.6686

All dimensions are given in inches.

Notes for Free-fitting Fixture Threads:

[1] This is the same as the pitch diameter at end of internal thread, E_1 *Basic*. (See Table 3.)

The minor diameters of external threads and major diameters of internal threads are those as produced by commercial straight pipe dies and commercial ground straight pipe taps.

The major diameter of the external thread has been calculated on the basis of a truncation of 0.10825*p*, and the minor diameter of the internal thread has been calculated on the basis of a truncation of 0.21651*p*, to provide no interference at crest and root when product is gaged with gages made in accordance with the Standard.

Notes for Loose-fitting Locknut Threads:

[2] As the ANSI Standard Straight Pipe Thread form of thread is maintained, the major and the minor diameters of the internal thread and the minor diameter of the external thread vary with the pitch diameter. The major diameter of the external thread is usually determined by the diameter of the pipe. These theoretical diameters result from adding the depth of the truncated thread (0.666025 × *p*) to the maximum pitch diameters, and it should be understood that commercial pipe will not always have these maximum major diameters.

The locknut thread is established on the basis of retaining the greatest possible amount of metal thickness between the bottom of the thread and the inside of the pipe.

In order that a locknut may fit loosely on the externally threaded part, an allowance equal to the "increase in pitch diameter per turn" is provided, with a tolerance of 1½ turns for both external and internal threads.

Threads Per Inch	Height of Sharp V Thread (H)
27	0.03208
18	0.04811
14	0.06180
11½	0.07531
8	0.10825

All dimensions are gi

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Thread

NPTF Threads: suitable for pipe join NPTF external and strength and seal si interference (sealing internal threads, su having thin sections

There are two c (seal) at root and cr required. Conseque control of tooling is complished by mea