

NPT TAPER PLUG AND RING GAUGES

Gauges for testing threads to American National Standard ANSI/ASME B1.20.1 - 1983.

This standard covers dimensions and gauging of pipe threads for general purpose applications.

The main types of threads designated are NPT, NPSC and NPSM.

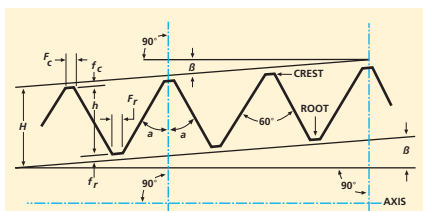
The significance of each letter is as follows:

- N** = National (American) Standard
- P** = Pipe
- T** = Taper
- C** = Coupling
- S** = Straight
- M** = Mechanical

NPT Threads

Threaded fittings made to this standard consist of an external taper and an internal taper to form a joint having general purpose applications. These threads are intended to be made up wrench-tight, with a sealant whenever a pressure-tight joint is required.

The taper of the thread is 1:16 on diameter, normal to the axis. The pipe fittings range in size from 1/16 inch to 24 inch.



Notation

- $H = 0.866025p$ = height of 60deg. sharp V thread
- $h = 0.800000p$ = height of thread on product
- $p = 1/n$ = pitch (measured parallel to axis)
- n = number of threads per inch
- $a = 30\text{deg.}$ = thread flank angle
- $\beta = 1\text{deg. } 47\text{min.}$ = thread taper angle for 1/16 taper
- f_c = depth of truncation at crest
- f_r = depth of truncation at root
- F_c = width of flat at crest
- F_r = width of flat at root

Provision is made for two types of gauge.

Master gauges: used to check working gauges. **Working gauges:** used to check product threads during and after manufacture.

A set of master gauges consists of a taper plug with a gauging notch located at L1 distance from the small end. The ring gauge has an overall length equal to the L1 dimension. This ring is fitted to its mating plug seating flush at the gauging notch. It should be understood that only a specifically matched set of masters (L1 plug and L1 ring) can be expected to assemble together within a stand off tolerance of +/- 0.002 inch as specified.

A set of working gauges consists of a taper plug gauge having a basic step at L1 distance from the small end, and a taper ring having an overall length equal to the L1 dimension. Plug and ring gauges can be supplied with limit steps to indicate the minimum and maximum diametral condition of the product. These gauges are known as MIN/MAX. The basic steps can be included or omitted as requested.

The L1 dimension is the axial distance from the small end of the pipe to the plane of handtight engagement.

NPSC Threads

These are parallel internal threads only in pipe couplings, and have the same thread form as the NPT thread. They are used to form pressure tight joints when assembled with NPT external threads, and made up wrench-tight with a sealant.

The threads range in size from 1/8 inch to 4 inch.

Go/Not Go parallel plug gauges can be supplied to test the diametral limits of these threads, although the standard states that NPT taper plug gauges should be used to test the internal product thread where the mating external threads are tapered, and a pressure tight joint is required.

NPSM Threads

These are parallel threads, internal and external. The basic thread details correspond with the NPT threads at the plane of handtight engagement.

Free fitting mechanical joints are used for special applications where there are no internal pressures. NPSM threads range in size from 1/8 inch to 6 inch.

SIZE	NPT ANSI B1.20.1-1983			
	BASIC		MIN/MAX	
	PLUG	RING	PLUG	RING
1/16"	0510M	0572	0510N	0573
1/8"	0511M	0521	0511N	0522
1/4"	0512M	0527	0512N	0528
3/8"	0513M	0532	0513N	0533
1/2"	0514M	0537	0514N	0538
3/4"	0515M	0542	0515N	0543
1"	0516M	0547	0516N	0548
1 1/4"	0517M	0552	0517N	0553
1 1/2"	0518M	0557	0518N	0558
2"	0519M	0562	0519N	0563



Calibration Services available on all our products.

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