Willrich Precision offers both standard and custom tapered pipe thread gauges including NPTF, BSPT, NPT, ANPT, NGT and API working gauges.. We offer Tapered pipe thread gauges in various styles to gage size and taper.

NPT Thread Gauges

L1 tapered pipe thread plug gauges are screwed up tight by hand into the internal pipe thread of the product. The thread is within the permissible tolerance when the gaging notch of the working L1 thread plug gauge is not more than plus or minus one turn from being flush with the end of the thread.

L1 tapered thread ring gauges are screwed up hand tight on the external thread of the product. The product thread is within tolerance when the gaging face of the working ring gauge is plus or minus one turn from being flush with the end of the thread.

Limit type plug and ring gauges are used to eliminate counting turns by which the gauge over or under travels to the basic surface. The gauges include the basic notch on the plug gauge and the basic surface on the ring gauge and in addition include two notches or steps on both the plug and ring gauge. The one notch is considered the minimum and the other the maximum. The basic step on the gauge provides a means for checking against the master and reference gauges as well as a means for checking the maximum and minimum steps

ANPT and NPTF Thread Gauges

The internal thread is first gauged with the L1 tapered thread plug gauge and the gauging notch which most closely represents the size of the thread is noted. The three product threads beyond the L1 are called the L3 length and are the additional threads which will be engaged when the pipe is tightened with a wrench or "wrench tight". These threads are next gauged with a L3 tapered thread plug gauge. This is also considered a limit type gauge with the length equal to L1 plus the L3 but which has four threads at the small end only. For the products threads to be qualified on the L3 thread plug gauge, the position of the gauging notch must coincide within a ½ turn of the position previously noted on the L1 thread plug gauge. The L1 and L3 together check the lead, taper, pitch diameter, and major diameter.

The minor diameter of internal tapered threads is determined by the amount of truncation of the thread crest. As the truncation and pitch diameter varies within the limits, so will the minor diameter vary and for this reason it is customary to refer to the minor diameter as at maximum truncation or minimum truncation. There are also 3 pitch diameter gaging positions: basic, minimum, and maximum which requires three pairs of maximum and minimum truncation steps, or a total of 6 positions.

To gauge the minor diameter, a 6 step plain plug gage is always used in connection with the L1 tapered thread plug gage. The L1 gage is used as a guide to determine the gaging position. If the basic gage notch is flush with the end of the product, the threads are considered to be basic. The plain plug gage used on the same fitting should show the end of the product at or between basic maximum and minimum notches.

ANPT and NPTF external threads are first gaged with a thin L1 taper thread ring gage. Observe the small end of the gauging face of the ring to the small end of the pipe. The L2 tapered thread ring gauge is used to gauge the effective external threads beyond the L1 location length. The gauge is relieved by counter boring at the small end to a depth equal to L1 minus 1P. The L2 is used like the L1 gage is used, by counting the number of turns by which the product threads over travel or fail to reach basic. The two gages together inspect the lead, pitch diameter, taper and minor diameter. When both the L1 and L2 ring gauges are used, the relative position at the small end of the pipe and the basic gauging face of the rings may not vary more the ½ turn.

The 6 step taper plain ring gauge checks the truncation of the crest at the major diameter. Three of the steps represent the minimum truncation for the basic maximum and minimum thread sizes - B, MN, MX. The other three represent the corresponding maximum truncation.

The 6 step plain ring is used similar to the 6 step plain plug. The ring is always used with a limit type thin L1 ring gage.

Willrich Precision Instrument Company, Inc

Ph 866-945-5742

Email: sales@willrich.com

Web: www.willrich.com