How to Use API Plug Gage to Measure API Tubing, Casing & Line Pipe Couplings?

FYOU PMEC , One Stop Shopping for Threading and Gauging Solutions. The premier leader in providing the highest quality of API Oil Country Gauges, including API Working Gauges, API Master Gauges. But How to USE API Plug Gauges to Measure API Tubing &API Casing & API Line Pipe Couplings?

Any question and request about the API Gauges Please contact: edwin@szfyou.com

It is common to find two gage designs throughout the industry. One is known as "Shoulder Design", and one is known as "Removable Keys Design". Both designs have their benefits, and both get the job done, which one you use is purely a matter of preference. Both designs provide Basic, Minimum and Maximum scribe lines for visual verification of standoff; physical measurements may also be taken when necessary. API Specification 5B states that the required standoff between the plug gage and a coupling is:

8TPI Tubing & Casing = A ± 1P

10TPI Tubing = A ±1 - 1/2P

Line Pipe (All Pitches) = A ± 1P

API Specification 5B defines "A" by the number of turns. Since each turn is 1P, we can break "A" down to a decimal value that is more useful when gaging. For example, a 4" - 8 External Upset Tubing has an "A" value of 2 Turns. Since each turn is 1P, and 1P for 8TPI is 0.125" (1/8), the decimal equivalent of "A " is 2 x 0.125" = 0.250". Since this has a tolerance of ±1P, we know that the standoff for a 4" - 8 External Upset Tubing is 0.250" ± 0.125"

When gaging the coupling, the plug gage should screw into the coupling until hand tight; at that point the face of the coupling must fall in between the Minimum and Maximum scribe lines in order to pass as a good part. If required, a direct measurement can also be taken. Using the "Shoulder Design" plug, the standoff can be measured between the face of the coupling and the shoulder, this dimension should be "A" with a tolerance of ±1P (8 TPI Tubing and Casing and All Line Pipe) or ±1 - 1/2P (10 TPI Tubing). Using the "Removable Keys Design", the standoff can be measured from the back face of the plug gage to the face of the coupling. When using this method, it is important to note the dimension scribed onto the back face of the plug gage "Distance from back face to V.P.". The required standoff from the back face of the plug gage to the face of the coupling should be "A" + "Distance from Back Face to V.P." with a tolerance of ±1P (8 TPI Tubing and Casing and All Line Pipe) or ±1 - 1/2P (10 TPI Tubing)

Non-Upset Tubing

Size Designation D	Threads per in. TPI	Standoff Turns A (Turns)	Standoff Decimal A (Decimal)
1.050	10	2	0.2000
1.315	10	2	0.2000
1.660	10	2	0.2000
1.900	10	2	0.2000
2-3/8	10	2	0.2000
2-7/8	10	2	0.2000
3-1/2	10	2	0.2000
4	8	2	0.2500
4-1/2	8	2	0.2500

External-Upset Tubing

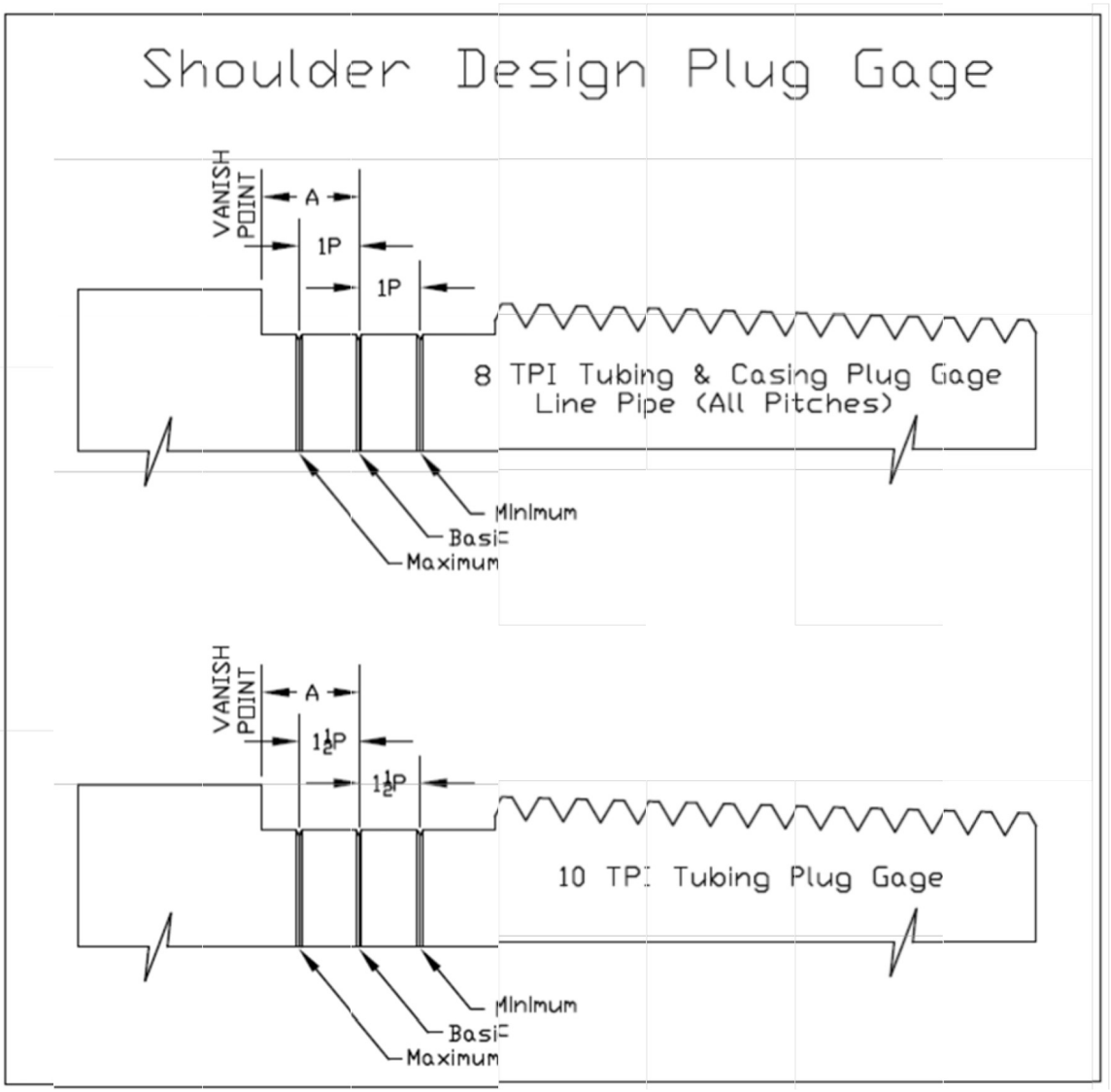
Size Designation D	Threads per in. TPI	Standoff Turns A (Turns)	Standoff Decimal A (Decimal)
1.050	10	2	0.2000
1.315	10	2	0.2000
1.660	10	2	0.2000
1.900	10	2	0.2000
2-3/8	8	2	0.2500
2-7/8	8	2	0.2500
3-1/2	8	2	0.2500
4	8	2	0.2500
4-1/2	8	2	0.2500

Casing

Size Designation D	Threads per in. TPI	Standoff Turns A (Turns)	Standoff Decimal A (Decimal)
4-1/2	8	3	0.3750
5	8	3	0.3750
5-1/2	8	3	0.3750
6-5/8	8	3	0.3750
7	8	3	0.3750
7-5/8	8	3.5	0.4375
8-5/8	8	3.5	0.4375
9-5/8	8	3.5	0.4375
10-3/4	8	3.5	0.4375
11-3/4	8	3.5	0.4375
13-3/8	8	3.5	0.4375
16	8	3.5	0.4375
18-5/8	8	3.5	0.4375
20	8	3.5	0.4375

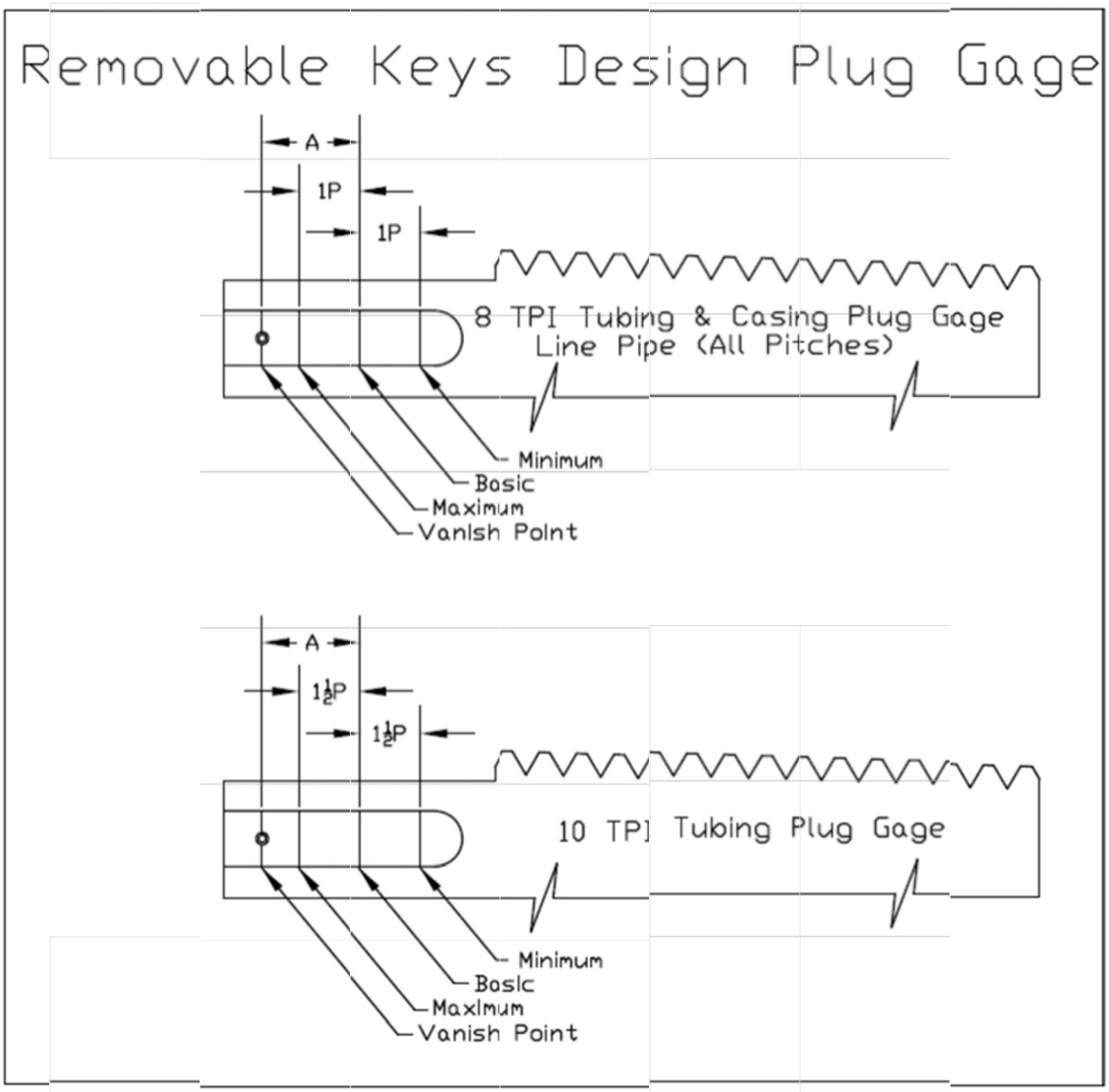
Line Pipe

Size Designation D	Threads per in. TPI	Standoff Turns A (Turns)	Standoff Decimal A (Decimal)
1/8	27	3	0.1111
1/4	18	3	0.1667
3/8	18	3	0.1667
1/2	14	3	0.2143
3/4	14	3	0.2143
1	11.5	3	0.2609
1-1/4	11.5	3	0.2609
1-1/2	11.5	3	0.2609
2	11.5	3	0.2609
2-1/2	8	2	0.2500
3	8	2	0.2500
3-1/2	8	2	0.2500
4	8	2	0.2500
5	8	2	0.2500
6	8	2	0.2500
8	8	2	0.2500
10	8	2	0.2500
12	8	2	0.2500
14	8	2	0.2500
16	8	2	0.2500
18	8	2	0.2500
20	8	2	0.2500



Note: Standoff information provided is based on nominal condition and is for reference only. API 5B requires that standoff to the coupling is calculated using actual size of working and master gages; using the formula A + (S1 – S). These values can be located on the certification received for each gage, S is the required standoff listed for the work plug to master ring, and S1 is the actual standoff for the work plug to master ring. When available, these values should be used in order to properly adjust

the gage standoff in order to maintain compliance to API 5B.



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