Bag full of wisdom when you are in trouble

No.182

【Question】

I am looking at YAMAWA's general catalog. In the dimensional table for the "ANSI Standard NPT Tap Series," what does **"Projection"** refer to?

【Answer】

In the tap standards, unlike JIS, ANSI does not have an item for "ℓg - basic diameter position."Instead, they list "Projection."In NPT, the "L1 (thread length at hand-tight engagement)" is specified, and the position of the basic diameter is determined by adding the values of "L1 ring gauge" and "Projection."

【Explanation】

In YAMAWA's general catalog, the dimensional tables for the ANSI-standard NPT series do not include the item "ℓg basic diameter position" that appears in the JIS-standard NPT series. Instead, they list "Projection."

Since ANSI tap standards do not define a basic diameter position, it is instead calculated by adding "L1 Ring gauge" (which checks L1: thread length at hand-tight engagement) and Projection.

Note: The "basic diameter position" for JIS-standard NPT taps is based on values calculated from the ANSI standard.

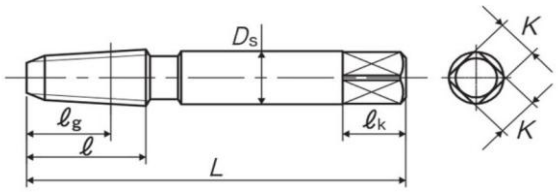
JIS

Size	Class	Code	Chamfer	Basic major dia (mm)	L (mm)	ℓ (mm)	ℓg (mm)	Ds (mm)
1/4-18 NPT	ANSI G	TNPT04O	3P	13.426	62	28	17.45	11

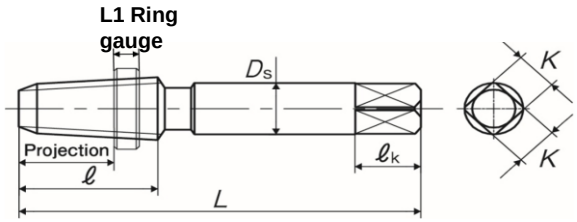
ANSI

Size	Class	Code	Chamfer	L (inch)	ℓ (inch)	Projection (inch)	Ds (inch)
1/4-18 NPT	ANSI G	Y83103	3P	2.437	1.062	0.459	0.562

JIS NPT



ANSI NPT



Projection＋L1 Ring gauge＝ Basic diameters(ℓg)

The **"basic diameter position"** for NPT (JIS) is calculated using the following method:

Basic diameter position (ℓg) for NPT (ANSI) = Projection length (①) + L1 Ring gauge thickness (②)

① According to ASME B94.9_2008 standard, **Projection = 0.459 inch**

② According to ANSI/ASME B1.20.1_1983 standard, **L1 Ring gauge thickness = 0.2278 inch**

Example: 1/4-18 NPT

1/4-18 NPT Projection: 0.459 inch = **11.66 mm**

L1 Ring gauge: 0.2278 inch = **5.79 mm**

Basic diameter position (ℓg) = 11.66 + 5.79 = **17.45 mm**

For NPT (JIS), the value calculated in this way is listed as **ℓg**.