

No.063

The difference between UNJF and UNF Thread specification

【Consultation】



This time I need to work on aircraft parts and I plan to produce a 1/4-28 UNJF internal thread. What is the difference between a standard Unified 1/4-28 UNF internal thread and a Unified 1/4-28 UNJF internal thread?

【Answer】

The 1/4-28 UNJF is a Unified fine pitch UNJ inch thread for aerospace. There are other Unified UNJ threads such as UNJC coarse pitch threads and UNJEF ultra fine pitch threads. The thread accuracy is referred to as a 3B class of fit or a 2B class of fit. A 3B class of fit is considered a precision internal thread with a tighter accuracy. The 2B class of fit is considered an intermediate class of fit for an internal screw thread. The dimensions of the pilot hole diameter or minor diameter for a 3B and 2B class of fit will differ.



【Description】

Comparison of an internal thread size for a 1/4-28 UNJF 3B class of fit and a 1/4-28 UNF 2B class of fit.

Unit:mm

Reference Dimension of Minor Diameter	1/4-28UNJF 2B Internal Thread		1/4-28UNF 2B Internal Thread	
	Tolerance of Major Diameter		Tolerance of Major Diameter	
	Max	Min	Max	Min
6.350	~	6.350	~	~
Reference Size of Pitch Diameter	Pitch Diameter Tolerance		Pitch Diameter Tolerance	
	Max	Min	Max	Min
5.761	5.842	5.761	5.869	5.761
Reference Dimension of Inner Diameter	Tolerance of Minor Diameter		Tolerance of Minor Diameter	
	Max	Min	Max	Min
5.367	5.661	5.467	5.588	5.360

- Specific comparison for standard dimensions are shown in the table to the left.
- As you can see, an inch size Unified tap can be used to process a 3B class of fit UNJ type internal thread but the minor diameter needs to be adjusted to a larger size to accommodate the larger root radial of the UNJ threads minor diameter.



A point of advice:

- As mentioned above, a Unified 1/4-28 UNJF 3B class of fit internal thread is considered to be of precision accuracy.
- Since the tolerance accuracy of the standard SP, PO or HT tap used in Japan is a P2, I think processing a 3B class of fit internal thread with these taps will prove to be a little difficult.
- The YAMAWA products for the USA market have a large assortment of taps with a GH3 thread limits that is suitable for tapping a Unified 3B class of fit internal thread. Please consider using the standard YAMAWA inch Unified taps for Unified UNJ threads.

*It's possible to search for the corresponding tap using the pages of the YAMAWA products for the USA in the general catalog or at "search by product" of YAMAWA website → "tap" → "search condition designation screen (tap)" of YAMAWA.

