

**【Question】**

We are processing a screw thread with a roll tap. We've been using a GP and NP thread plug gage for inspecting the internal thread function and fit, but I am worried about the minor diameter of the thread created with a roll tap. I need to know if the thread's minor diameter is within the tolerance of the 6H standard. Is there any tool to check the bored hole after using a roll tap?

**【Answer】**



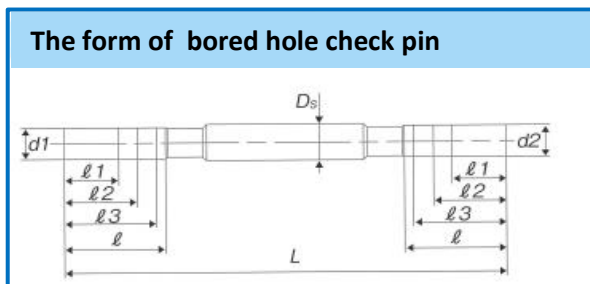
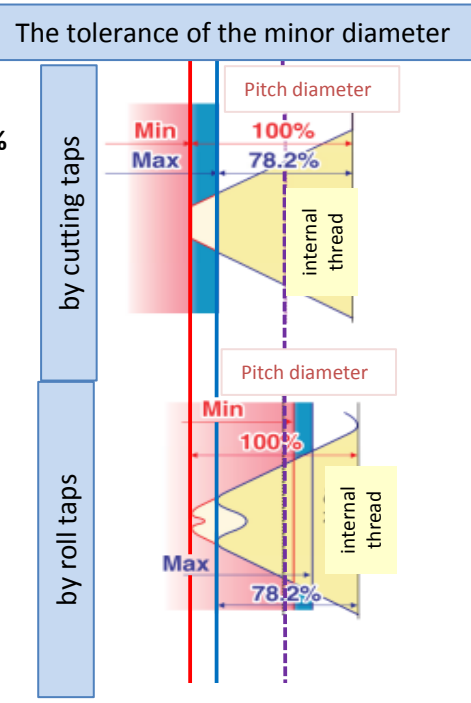
You can check the minor diameter of an internal thread created with a roll tap and check the amount of material deformation that is formed into the minor diameter from rolling the thread by using the check pin CPC - S.

- 【Description】**
- 1, When an internal thread is machined with a cutting tap, the minor diameter of the thread becomes equal to the bored hole diameter of the internal thread.
  - 2, When creating an internal thread with a roll tap, the bored hole diameter and the minor diameter of the internal thread are different. The tolerance of an internal thread's minor diameter is the same regardless of the style of tap used, a cutting tap or a roll tap for processing.
  - 3, In other words, the check pin CPC - S used for a measuring the Max. and Min. range of an internal thread's minor diameter when using a cutting tap can also be used to check those that was created with a roll tap.

The bottom tolerance of a hole diameter for a cutting tap = the tolerance of the minor diameter = the tolerance of the minor diameter created with a roll tap

<Ex, M6X1 6H internal screw thread>

The tolerance of the hole diameter (internal thread minor diameter) of a cutting tap and the internal diameter of the thread machined with a roll tap is the same. (see figure on the right) The tolerance of the minor diameter of a M6X1 is stated as 78.2% to 100% and is expressed as a percentage of the thread height. By using the check pin CPC - S Min. hole tolerance for a cutting tap you can check the amount of material deformation into the minor diameter when using a roll tap at the intersection rate of 5%. So, whether the minor diameter satisfies the 6 H standard or not, it will help establish the hole diameter of a good thread.



	Tolerance of minor diameter	min.		max		L	ℓ	Ds	ℓ1 (1.5D)	ℓ2 (2D)	ℓ3 (2.5D)
		d1 (Tolerance of hole diameter)	(%)	d2 (Tolerance of hole diameter)	(%)						
M6 x 1	CPC-S	4.917	(100%)	5.026	(90%)	73	16.5	6.0	9.0	12.0	15.0
		4.972	(95%)	5.080	(85%)						
		5.026	(90%)	5.134	(80%)						
		5.080	(85%)	5.188	(75%)						
		5.134	(80%)	5.242	(70%)						
		5.188	(75%)	5.296	(65%)						

\* Cutting tap hole check pin CPC - S is available for metric thread "M2 ~ M12".