【Question】
I occasionally have torn threads when I'm tapping on a machining center with a SP-PT (Spiral Fluted Tap for Taper Pipe Threads). Can you recommend a solution?

【Answer】
Chip jamming is one of the reasons for torn threads. This could be avoidable by changing from a SP-PT tap to a SP-S-PT tap.

【Example: Before and After improvement】

**Before**
- Tap: SP-PT 1/4 (Long Thread Type)
- Workpiece material: SS400
- Machine: Machining Center
- Feed: Fully synchronous
- Holder: Tapper
- Tapping fluid: Water Soluble

Torn internal threads surface after being tapped by a SP-PT 1/4 tap.

**After**
- Tap: SP-S-PT 1/4 (Short thread type)
- Workpiece material: SS400
- Machine: Machining Center
- Feed: Fully synchronous
- Holder: Tapper
- Tapping fluid: Water Soluble
- Cutting speed: 3m/min (Revolution: 159RPM)

Smooth internal threads surface after being tapped by a SP-S-PT 1/4 tap.

I'll check the insertion length of the external pipe thread as instructed below to see whether I can solve the torn thread problem while using a SP-S-PT tap.

Position of the pitch diameter at the hand tight plane against notch.

The SP-PT 1/4 tap and the SP-S-PT 1/4 tap are considerably different in length when measuring the length from A to B.

Try SP-S-PT 1/4 to solve the torn thread problem. (Check the insertion length of the external pipe thread as well.)

In other words;
- You can finish the PT1/4-19 internal thread with a SP-PT 1/4-19 tap feed to a length of 21mm from the end of the workpiece material.
- You can finish the PT1/4-19 internal thread with a SP-S-PT 1/4-19 tap feed to a length of 12.5mm from the end of the workpiece material.

If chip jamming is causing the torn internal pipe threads then tapping with a SP-S-PT tap will produce fewer chips and have better chip ejection than a PT thread tapped with a SP-PT tap. The chip jamming problem will significantly decrease using a SP-S-PT tap. The PT1/4-19 external pipe thread insertion length is usually defined as 4.67mm to 7.35mm. The SP-S-PT1/4-19 meets the standard specifications of a Pressure Tight Joint for JIS B 0203, ISO 7/1 or DIN 2999.