Think threads with YAMAWA

No.024

# Torn Taper Pipe Threads

Pipe Taps

【Question】

I have a torn thread problem when tapping a taper thread with a SP-PT tap while using a fully synchronous feed on a machining center. The tap is held in a solid rigid type holder, but the problem occurs when I tap at the recommended speed.

【Answer】

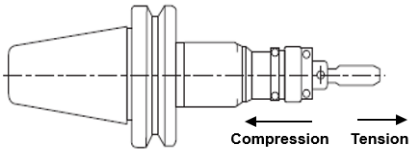
You can solve your problem by replacing the solid type holder with a tension/compression type tap holder.

【Improvement】

Type of tap：SP-PT1/4-19
(Spiral Fluted Tap for Taper Pipe Threads)

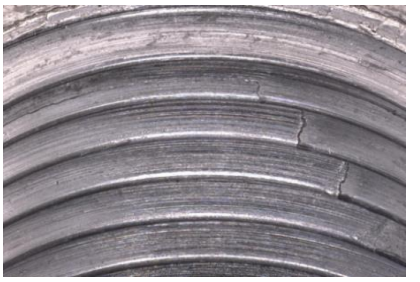

【Before】
Workpiece material：SS400
M/C：Machining Center
Holder：Solid Type
Feed：Fully synchronous
Tapping Fluid：Water soluble
Tapping Speed：2.5m/min
(RPM: 60min$^{-1}$ )

Internal Thread Surface



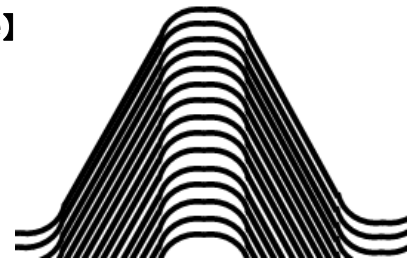

To improve the threads surface finish, Yamawa recommends using a tension/compression type holder with a synchronous feed that creates more cutting on one side of the Taper Pipe Threads. This produces better threads and a better surface finish.

【After】
Workpiece material：SS400
M/C：Machining Center
Holder：Tapper
Feed：Fully synchronous
Tapping Fluid：Water soluble
Tapping Speed：2.5m/min
(RPM: 60min$^{-1}$ )



Internal Thread Surface

【Guide】



1) Surface finish tapped with a fully synchronous feed condition and a solid rigid holder.

2) Surface finish tapped with a fully synchronous feed condition and tension/compression type holder.

1) The average chip thickness is distributed over the taps form evenly causing the chips to build up in the threads and galling.
2) One side of the taps thread form does most of the cutting with a thicker chip.
In terms of taper taps, you will produce an improved surface finish when the metal removal from the thread form is not evenly balanced. The threads surface finish improves with an alternating metal removal rate created by a tension/compression holder with a synchronous feed.