How to Prevent Chipping and Breakage of Point Taps

No. 054

【Question】

**I am experiencing chipping and breakage problems with a Point Tap.
I have heard that Point Taps push chips forward, making them less likely to break.
However, I am still encountering chipping and breakage issues during operation.
Could you please advise me on possible countermeasures or solutions to prevent these problems?**

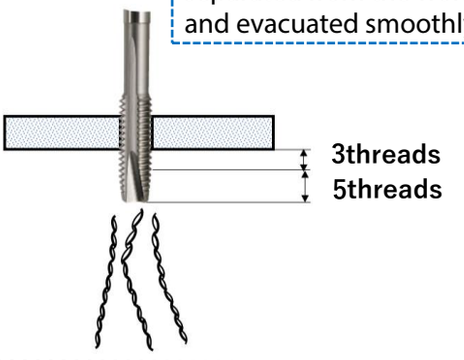
【Answer】

**The primary cause of cutting edge chipping and breakage in Point Taps is insufficient chip discharge.
Please see the explanation below for more information.**

【Explanation】

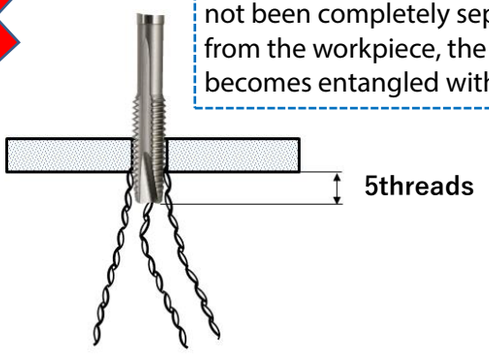
① When reverse rotation is performed with a projection length equal to the chamfer length (5 threads) plus an extra allowance of 3 threads.

The chips are completely separated from the workpiece and evacuated smoothly.



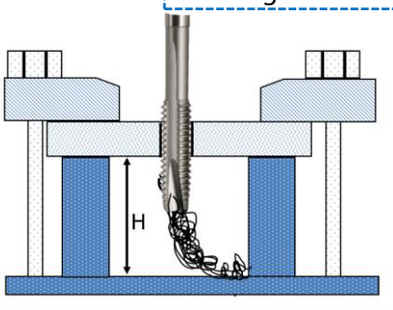
② When reverse rotation starts before the chips have been completely separated, with the projection length limited to the chamfer length (5 threads).

Because the root of the chip has not been completely separated from the workpiece, the chip becomes entangled with the tap.

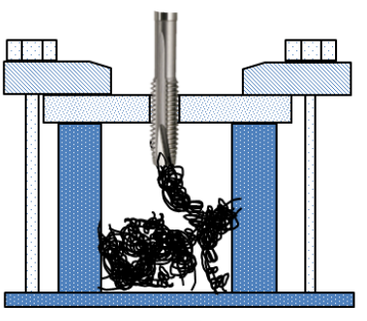


③ When the fixture provides inadequate clearance (Dimension H) for proper chip evacuation.

Chips strike the bottom of the fixture, resulting in poor chip discharge.



④ Chips are piling up beneath the work area, causing newly generated chips to be discharged inefficiently.



When the tap projection length is insufficient, the chips may not completely separate from the workpiece. During reverse rotation, the tap can catch and pull the chips back into the cutting area, which may result in **cutting edge chipping** or **tap breakage**.
To prevent this, try extending the tapping stroke by at least **three threads beyond the chamfer length**.
In addition, if the chips produced by a Point Tap strike the bottom of the fixture or accumulated chips, proper chip evacuation may be hindered, leading to cutting edge chipping or tap breakage.

【Advice】

The YAMAWA Z-PRO Series with a Semi-Long design provides superior chip evacuation and coolant delivery performance, contributing to more stable tapping operations and reducing the risk of cutting edge chipping and tap breakage.
For further information, please refer to Tips No.130: Advantages of the Semi-Long Design.