

Tapping Problems

Tapping problems encountered are often the fault of the tapping machine, tap holding devices and conditions of the hole to be tapped. The tapping machine should be checked for spindle, fixture and work alignment; for slipping belts, wear and power. The tap holding device should be checked as to correct type, for wear and alignment with the hole. The drilled hole should be checked for diameter, trueness in round and axis to assure correct percentage of thread engagement. Blind holes must have sufficient chip room at the bottom.

Tapping Trouble	Possible Cause
Chips clogging flutes	Wrong type of tap, insufficient chamfer, incorrect cutting-face angle, rough flutes, flutes improperly reground, lack of or wrong type of lubrication or insufficient chip space.
Stripped or chipped tap thread	Misalignment, careless handling, dull tap, tap too hard, improper application of surface treated taps, improper sharpening of tap.
Torn threads in tapped part	Incorrect cutting-face angle (usually too small), tap drill too small, chips clogging flutes, broken threads on taps, improper sharpening of tap, lack of lubrication or wrong type.
Tap sticking or binding	Tap drill too small, tap lands too wide, incorrect cutting-face angle, lack of or wrong type of lubrication, surface treatments (lubricant) needed
Excessive tap wear	Material is abrasive or inclusions are present (surface treated or premium grade of HSS-E tap required), misalignment or insufficient lubrication.
Cutting-face breakdown	Incorrect cutting-face, surface treatment needed.
Overheating of tap	Excessive land width, lack of or wrong type of lubrication, dull tap, excessive flank contact (pitch diameter relief required), excessive tapping speed.
Poor finish on thread in tapped part	Incorrect cutting-face angle (usually too small), tap drill too small, insufficient number of chamfered threads, dull tap, lack of or wrong type of lubrication.
Excessive frictional drag and power requirement	Point size on tap too large, dull tap, incorrect cutting-face angle, incorrect tapping speed, lack of or wrong type of lubrication, incorrect or inadequate equipment, misalignment.
Tap breakage	Wrong type of tap, dull tap, tap incorrectly ground, tap drill too small, drilled hole too shallow, misalignment of tap and hole, wrong machine, incorrect fixture or tap holding device, work hardened material, lack of or wrong type of lubrication.
Tap failure on reversal	Tap cutting too tightly (increase cutting-face angle), tap galling (increase face angle on back of land), chips wedged between the flutes.
Edge Chipping	Reversing or backing off when using HSGT Taps in hand tapping application should be avoided as it can cause chipping. HSGT Taps are designed for machine use primarily and when used as hand taps, should be driven straight through without any backing off.