Troubleshooting
(Tapping chuck)

	Contents of the trouble	Causes	Pulled out of holder. Unable to attach fast to spindle or holder in case of MT shank.
1	Thread gauge (stop) can go through. （Enlarged thread diameter）	① Lean threads because of excessive compression （Tapping chuck's compression works.） ※Reason for lean threads For the compression of tapping chuck, a strong spring is used to resist the pressure when a tap starts to cut. This compression should not be used for normal tapping, but with tap adaptor with safety clutch to prevent tap breakage.Strong compression will result in lean threads. ② Sharpness of tap is low and compression of tapping chuck works. ③ Malfunction of tension/compression ④ Malfunction of clutching mechanism of tapping chucks with auto-depth control or self-reversing function. ⑤ Mischoice of tap	① ・Decrease feed rate more than tap pitch. （85-95% of tap pitch） ・In case there is no improvement; Feed for forward movement : 85-95% Feed for backward movement :100% ・In case feed mechanism of spindle is master feed, → Use tapping chuck with compression zero. ・In case tapping chuck with compression zero is in use, → Check feed mechanism of the machine. ② ・Larger chamfering for the entrance of prepard hole ・Use tap with more threads for chamfering.（2.5 threads and more） ・Weakened compression spring of tapping chuck → Return it to NT TOOL for repair ③ Check if the chuck returns to its original length after pulling and pushing bu hand. ④ Pull the chuck and turn right by hand to check if the clutch gets disengaged and turn left by hand to see if the clutch gets engaged. → Return it to NTTOOL if malfunction of the clutch is found. ⑤ ・Tapping chuck with length compensation is not suitable for synchro tap (eccentric relief). ・Use normal tap (concentric relief) which has self-advancing action.
2	Thread gauge (through) cannot go through. （Thread diameter is small.）	① Warpage of burr has been generated at the entrance of tap hole. ② Burr at the entrance of tap hole due to the reaction to compression. ③ Damage at the entrance of tap hole ④ Tap wear	① ・Return timing is premature (before tap is pulled out) → Revision of approach point Guidelines：maximum tension + 5㎜ ・Too much tension → Increase feed rate. Must be lower than tap pitch. ② Check if the compression of tapping chuck is working during operation. → Decrease feed rate less than tap pitch （85-95% of tap pitch） → If the problem is not fixed, Feed for forward movement：85-95% Feed for backward movement：100% ③ ・Misalignment between tap and prepared hole → Correction of misalignment → Use tapping chuck with radial float ・Chamfering at the hole entrance is too small. → Larger chamfering diameter ④ Replacement of tap
3	Thread is not deep enough. （Variation of thread depth）	① Cutting to prepared hole is difficult and compression of tapping chuck works. ② Torque clutch of tap adapter (type WES) works. ③ Variation caused by large inertia of machine spindle ④ Decreased preset length of tap ・Malfunction of tapping chuck	① ・Check the diameter of prepared hole. →（Refer to table of prepared holes） ・Small chamfering and large cutting resistance → Larger chamfering diameter ② Accumulated chips or dust at the bottom of the hole → Use spiral tap for evacuating chips. （Point tap tends to push out chips.） ③ ・Lower rotation speed（500rpm and below） ・Check the "stationary" position of the spindle (Z-axis) ④ ・Tapping chuck will not return to the original length. → Check tension/compression of tapping chuck.

		・Malfunction of tap adaptor with length adjustment (type WEN and WESN)	・Length adjustment screw is not back to the locking position. → Check that adjustment screw will not turn after adjustment is completed.
4	Thread is too deep. (Variation of thread depth)	① Increasesd preset length of tap ・Malfunction of tapping chuck ・Chucking error of tap adaptor ・Malfunction of tap adaptor with length adjustment (WEN and WESN) ② Variation caused by large inertia of machine spindle	① ・Tapping chuck will not return to its original length. → Check tension/compression of tapping chuck. ・Tap has been pulled out of tap adaptor. → Check tap adaptor's locking mechanism.(if tap cannot be pulled out by hand.) ・Length adjustment screw is not back to the locking position (lowest psition). → Check if adjustment screw will not turn after length adjustment ② ・Lower rotation speed(500rpm and below) ・Check machine spindle's stationary position (in Z-axia).
5	Breakage of tap at the hole entrance	① Cutting by tap is difficult.	① ・Enlarge chamfering diameter of prepared hole. ・Use tap with more threads for chamfering
6	Breakage of tap in the middle	① Diameter of prepared hole is too small and excessive torque is applied. ② Incompatibility of tap adaptor ③ Insufficient compression of tapping chuck when tap adaptor with torque clutch (WES) is in use.	① Optimization of prepared hole diameter → Refer to table of prepared hole diameters ② Tap adaptor with torque clutch (type WES) is not suitable for tapping chuck with compression 1mm and below. ③ ・Use tapping chuck with more compression. ・Adaptor with torque clutch (type WES) cannot be used. (Type WE or WEN is recommneded instead.)
7	Breakage of tap at the regular bottom	① Tap hits the bottom of prepared hole and excessive torque is applied. ② Accumulated chip or dust at the bottom of the hole ③ Increased preset length of tap ・Malfunction of tapping chuck ・Chucking error of tap adaptor ・Malfunction of tap adaptor with length adjustment (WEN and WESN) ④ Variation caused by large inertia of amchine spindle	① ・Check NC program ・Check the clerance between tap's chamfering threads and prepared hole. → If there is not enough clearance, decrease the number of chamfering threads. ・Deepen prepared hole. ・Shallow thread depth. ② Use spiral tap to evacuate chips. (Point tap tends to push out chips forward.) ③ ・Tapping chuck will not return to its original length. → Check tension/compression of tapping chuck. ・Tap has been pulled out of tap adaptor. → Check the locking mechanism of tap adaptor. (See if tap cannot be pulled out by hand.) ・Length adjustment screw has not been returned to the locking position (lowest position). → Check if adjustment screw will not turn after adjustment is completed. ④ ・Lower rotation speed (500rpm and below) ・Check the stationary position of machine spindle (in Z-axis).
8	Tap is pulled out.	① Too much drawing force for tap ② Deformation or breakage of steel balls in tap adaptor ③ Ball locking mechanism of tap adaptor does not work (in the case of carbide tap)	① ・Check if tapping chuck's tension is exceeded → Increase feed per rotation (must be less than tap pitch.) ・Return timing is premature. → Approach point should be distanced. (Guidelines:Tapping chuck's maximum tension+5mm) ② Tap adaptor should be replaced. ③ Use collet type tap adaptor.