

Troubleshooting

(Milling chucks)

	Details of the trouble	Cause	Pulled out of holder. Unable to attach fast to spindle or holder in case of MT shank.
1	Tool cannot be held after tightening	① Tool diameter is too small.	① •Tool shank diameter should be h7. •Use h7 shank tool instead.
2	Tool insertion is hard (not possible)	① Scratch or dent exists in chuck ID or tool shank. ② Tool diameter is too big. ③ Clamping ring is not fully returned.	① •Replacement of chuck or tool •Touching up of area in question (rubbing off with sand paper #1000 and above) Correction (grinding) by NT TOOL is not possible. ② Use h7 tool shank. ③ Rotate clamping ring counterclockwise one complete turn after removing cutting tool. See <A> of 【manual】.
3	Clamping ring will not be loosened.	① Deformation of roller guide because clamping ring has not returned enough after removing tool. ② Rust inside ③ Flaking on sliding surface.	① •Ask NT for repair. (In some cases, irreparable.) •Rotate clamping ring counterclockwise one complete turn after removing cutting tool. See <A> of 【manual】. ② Ask NT for repair. (In some cases, irreparable.) ③ Ask NT for repair. (In some cases, irreparable.)
4	Tool cannot be pulled out.	① Seizing caused by tool slippage (Seizing caused by impact when tool gets broken) ② Fretting corrosion of ID and tool shank (Seizing caused by rust) •Insufficient clamping •Insufficient tool insertion length •Tool shank diameter is smaller than h7. •Cutting resistance is too large. (Pull-out by pestle-like movement) ↓ Bending moment is too large.	① •Ask NT for repair. (Tool and tool chuck cannot be restored.) •Check if clamping is completed. See of 【manual】. ② •Keep minimum insertion length. See <C> of 【manual】. •Use h7 shank tool instead. •Cutting resistance should be lowered. a : Lower feed rate or higher rotation (Approx. 20%) b : Lower cutting depth •Bending moment should be lowered. c : Shorter tool projection length See 【Cutting force】
5	Rotation of tightening ring is not smooth.	① Deformation of needle rollers because tool is kept chucked for long.	① •First loosening may not be felt smooth. •Loosen clamping ring and give it a few more counterclockwise rotations. (Rough touch will not be a problem in practice. If tightening is very difficult, however, return it to NT TOOL.)
6	Tool is pulled out during cutting.	① Insufficient clamping ② Insufficient tool insertion length ③ Tool shank diameter is smaller than h7. ④ Cutting resistance is too large. (Pullout by pestle-like movement.) ↓ Bending moment is too large. ⑤ Chuck rigidity is too low.	① Check if clamping is completed. See of 【manual】. ② Keep minimum insertion length. See <C> of 【manual】. ③ Use h7 shank tool instead. ④ Cutting resistance should be lowered. a : Higher rotation or lower feed rate (Approx. 20%) b : Lower cutting depth c : Shorter tool projection length See 【Cutting force】 ⑤ Use another type of tool holder. (such as side locl endmill holders)

7	Chattering	<p>① Chattering by chuck's resonance</p> <p>② Insufficient clamping</p> <p>③ Insufficient tool insertion length</p> <p>④ Tool shank diameter is smaller than h7.</p> <p>⑤ Cutting resistance is too small compared with the chuck's rigidity.</p> <p>⑥ Cutting resistance is too high in comparidon with the chuck's rigidity.</p> <p>⑦ Insufficient chcking force at nose because of using MC collet (mainly 12mm and below)</p> <p>⑧ Mischoice of retention stud</p> <p>⑨ Expansion of BT shank because of over-tightening retention stud</p>	<p>① Shift rotation speed to vary resonance frequency. ($\pm 10\%$ and above)</p> <p>② Check if clamping is completed. See of 【manual】.</p> <p>③ Keep minimum insertion length. See <C> of 【manual】.</p> <p>④ Use h7 shank tool instead.</p> <p>⑤ Revision of cutting conditions (Higher cutting resistance) a : Higher feed rate or lower rotation (Approx. 20%) b : Higher depth of cut See 【Cutting force】</p> <p>⑥ • Revision of cutting conditions (Lower cutting resistance) a : Lower feed rate or higher rotation (Approx. 20%) b : Lower depth of cut • Use bigger tool chuck. • Shorter tool projection length • Shorter tool chuck length See 【Cutting force】</p> <p>⑦ Recommendation of collet chucks instead</p> <p>⑧ Use designated retention stud for M/C.</p> <p>⑨ Keep recommended torque value for tightening retention stud. See 【Pull Stud (Manual)】.</p>
8	Falling off of tool chuck during ATC	<p>① Interference with ATC arm</p> <p>② Overload for ATC capacity</p> <p>③ Maximum allowable moment for the M/C is exceeded.</p> <p>④ Clamp movement of ATC is not synchronized.</p>	<p>① • Check L0 dimension on our catalog and maximum tool dimension for the M/C. See 【Catalog】. • Revision of tool chuck size.</p> <p>② Check maximum load for ATC. See 【Catalog】.</p> <p>③ Check maximum allowable moment for M/C.</p> <p>④ Consult with the machine tool builder.</p>
9	Deteriorated runout accuracy Guidelines for chucking accuracy Direct: 30 micrometers and above at 100mm With MC collet: 50 micrometers and above at 4D	<p>① Rust, damage or deformation of chuck ID and collet.</p> <p>② Insufficient tool insertion length</p> <p>③ Scratch or dent on tool shank</p> <p>④ Notch or flat on tool shank</p> <p>⑤ Expansion of BT shank because of over-tightening retention stud.</p> <p>⑥ Poor accuracy of tool</p>	<p>① • Replacement of chuck or tool • Touching up of area in question (rubbing off with sand paper #1000 and above) Correction (grinding) by NT TOOL is not possible.</p> <p>② Keep minimum insertion length. See <C> of 【manual】.</p> <p>③ Touching up of scratch or dent</p> <p>④ Use tool without notch or flat.</p> <p>⑤ Keep recommended torque value for toghtening retention stud. See 【Pull Stud (Manual)】.</p> <p>⑥ Replacement of tools.</p>

		⑦ Dust seizing in the chucking part ⑧ Deteriorated accuracy of tool interface • Large runout (2 micrometers and above) of spindle ID or end face (in the case of two-face contact) • Dust, scratch or dent on taper area or end face (in the face of two-face contact)	⑦ Cleaning of chuck ID and collet ⑧ • Regrinding or correction of machinespindle • Cleaning of taper and end face (in the case of two-face contact), touching up of scratch or dent
10	No click sound is generated (CTA). (Tight-up ring's failure)	① • Rollers for tight-up ring are worn or broken. • Tight-up ring is worn or broken.	① • Ask NT for repair. No over-tightening or additional turn after a click sound is generated. See of 【manual】 .