

# Troubleshooting

## ("R" Zero holders)

	Details of the trouble	Cause	Pulled out of holder. Unable to attach fast to spindle or holder in case of MT shank.
1	Immovable ring Slow ring movement	<p>① Adjusting screws are not loose enough.</p> <p>② Adhesion caused by coolant</p> <p>③ Parts friction caused by biased force during ring rotation</p>	<p>① Loosen all four adjusting screws.</p> <p>② Ask NT for repair.</p> <p>③ Greasing sliding portion</p>
2	Unable to adjust runout	<p>① Screw abrasion (screw, screw hole)</p> <p>② Weak adjusting force of large-diameter screw with short protrusion</p> <p>③ Improper adjustment  <ul style="list-style-type: none"> <li>• Adjusting screws other than at runout adjustment portion are fastened too tight.</li> <li>• Runout is out of adjustment range before adjustment.</li> <li>• Inaccurate measurement due to flexure caused by measurement pressure of small-diameter tool</li> <li>• Inaccurate runout adjustment due to double-blade edge</li> </ul> </p>	<p>①  <ul style="list-style-type: none"> <li>• Ask NT for repair.</li> <li>• Runout adjustment at other adjusting screw portions as an intermediate procedure</li> </ul> </p> <p>② Fasten adjusting screw tighter than in the case of small-diameter screw.</p> <p>③  <ul style="list-style-type: none"> <li>• Tighten all four adjusting screws lightly before adjustment.</li> <li>• See problem "Inaccurate runout during use".</li> <li>• Adjustment at the bottom of cylinder shank portion</li> <li>• Runout adjustments both at blade edge and at a spot with phase shifted by 90 degrees with the blade edge</li> </ul> </p>
3	Reversion of runout adjustment during machining or when the unit is unattended	<p>① Adjusting screws other than at adjustment portions are not tightened.</p>	<p>① Tighten all four adjusting screws lightly before runout adjustment.</p>
4	Poor machining accuracy	<p>① Large runout of tool.</p> <p>② Poor concentricity of drill. (regrinding error)</p> <p>③ Poor accuracy of cutting tool. (diameter, runout or shapness etc.)</p> <p>④ Improper cutting conditions.</p> <p>⑤ Dust seizing in surface and taper portion</p> <p>⑥ Runout accuracy is good when holder is set outside the unit but bad when amounted with spindle.</p> <p>⑦ Runout at the face of cutting tool is too large.</p>	<p>① Readjustment of runout</p> <p>② Replacement with new tool.</p> <p>③ Tool replacemen.</p> <p>④  <ul style="list-style-type: none"> <li>• Check recommended cutting conditions by tool maker.</li> <li>• Lower feed per tooth</li> </ul> </p> <p>⑤ Cleaning of spindle face and taper portion</p> <p>⑥  <ul style="list-style-type: none"> <li>• Check spindle runout accuracy.</li> <li>• Consult the machine manufacturer.</li> <li>• Make runout adjustment on the unit as an intermediate procedure.</li> </ul> </p> <p>⑦ Improvement of accuracy before adjustment.</p>
5	Poor runout accuracy during cutting	<p>① Adjusting screws other than at adjustment portions are not tightened.</p> <p>② Insufficient chucking length</p> <p>③ Dust seizing in collet insertion area</p> <p>④ Dust seizing in cap nut thread</p> <p>⑤ Malfunction of rotor ring of cap nut (Rotor ring will not rotate smoothly.)</p>	<p>① Tighten all four adjusting screws lightly before runout adjustment.</p> <p>② Keep minimum insertion length. (collet ID length must be filled.)</p> <p>③ Cleaning of collet insertion area</p> <p>④ Cleaning of thread part, applying grease</p> <p>⑤  <ul style="list-style-type: none"> <li>• Cleaning of cap nut (so that rotor ring will rotate smoothly)</li> <li>• Replacement of cap nuts</li> </ul> </p>

		<p>⑥ Expansion of BT shank because of over-tightening retention stud.</p> <p>⑦ Deteriorated accuracy of tool interface</p> <ul style="list-style-type: none"> <li>• Large runout (2 micrometers and above) of spindle ID or end face (in the case of two-face contact)</li> <li>• Dust, scratch or dent on taper area or end face (in the case of two-face contact)</li> </ul>	<p>⑥ Keep recommended torque value for tightening retention stud. See <b>【Pull Stud (Manual)】</b>.</p> <p>⑦</p> <ul style="list-style-type: none"> <li>• Regrinding or correction of machine spindle</li> <li>• Cleaning of taper and end face (in the case of two-face contact), touching up of scratch or dent</li> </ul>
6	Poor chucking accuracy * Guidelines AA grade collet 20 micrometers and more at 4D	<p>① Insufficient chucking length</p> <p>② Dust seizing in collet insertion area</p> <p>③ Dust seizing in cap nut thread</p> <p>④ Malfunction of rotor ring of cap nut (Rotor ring will not rotate smoothly.)</p> <p>⑤ Poor chucking accuracy of collet</p> <p>⑥ Scratch or dent in holder ID</p> <p>⑦ Scratch or dent on collet ID and OD</p> <p>⑧ Elasticity of preset screw is lost.</p> <p>⑨ Poor accuracy of tool</p>	<p>① Keep minimum insertion length. (collet ID length must be filled.)</p> <p>② Cleaning of collet insertion area</p> <p>③ Cleaning of thread part, applying grease</p> <p>④</p> <ul style="list-style-type: none"> <li>• Cleaning of cap nut (so that rotor ring will rotate smoothly)</li> <li>• Replacement of cap nuts</li> </ul> <p>⑤ Replacement of collets</p> <p>⑥ Replacement of holder</p> <p>⑦ Replacement of collets</p> <p>⑧</p> <ul style="list-style-type: none"> <li>• Chuking too with its tail detached from holder body</li> <li>• Replacement of preset screws</li> </ul> <p>⑨ Replacement of tools</p>
7	Chattering	<p>① Cutting resistance is too small in comparison with holder's rigidity.</p> <p>② Cutting resistance is too high in comparison with holder's rigidity.</p> <p>③ Bending moment is too large.</p> <p>④ Mischoise of retention stud</p> <p>⑤ Low taper contact of interface</p> <ul style="list-style-type: none"> <li>• Poor taper contact from expanded spindle nose</li> <li>• Dust, scratch or dent in the taper part or end face (in the case of two-face contact)</li> </ul> <p>⑥ Expansion of BT shank because of over-tightening retention stud.</p> <p>⑦ Chattering from holder's resonance</p>	<p>① Revision of cutting conditions (Increase cutting resistance.)</p> <ul style="list-style-type: none"> <li>a : Higher feed rate or lower rotation (Approx. 20%)</li> <li>b : Higher cutting depth</li> </ul> <p>See <b>【Cutting force】</b>.</p> <p>②</p> <p>② Revision of cutting conditions (Decrease cutting resistance.)</p> <ul style="list-style-type: none"> <li>a : Higher rotation speed or lower feed rate (Approx. 20%)</li> <li>b : Lower cutting depth</li> </ul> <ul style="list-style-type: none"> <li>• Use bigger tool holder</li> </ul> <p>See <b>【Cutting force】</b>.</p> <p>③</p> <ul style="list-style-type: none"> <li>• Use bigger tool holder</li> <li>• Shorter tool projection length</li> <li>• Shorter holder length</li> </ul> <p>④ Use designated retention stud for the machine</p> <p>⑤</p> <ul style="list-style-type: none"> <li>• Regrinding and correction of machine spindle</li> <li>• Cleaning of taper and end face (in the case of two-face contact), touching up of scratch or dent.</li> </ul> <p>⑥ Keep recommended torque value for tightening retention stud. See <b>【Pull Stud (Manual)】</b>.</p> <p>⑦ Shift rotation speed (more than 10%)</p>
8	Tool is pulled out during operation	<p>① Insufficient tightening of cap nut</p> <p>② Insufficient tightening of cup nut from rotor ring's malfunction</p>	<p>①</p> <ul style="list-style-type: none"> <li>• Keep recommended torque value for tightening cap nut. See of &lt;A&gt; <b>【Manual】</b>.</li> <li>• Use torque wrench. See <b>【Torque wrench (Catalog)】</b>.</li> </ul> <p>② Replacement of cap nut</p>

		<p>③ Insufficient tightening of cup nut because of increased friction. (Collapse of collet is not big enough.)</p> <p>④ Cutting resistance is too large. (Pull out of tool because of pestle-like movement.)</p> <p>⑤ Insufficient rigidity of holder</p> <p>⑥ Cutting tool shank portion has flat portion</p>	<p>③ Apply oil (grease) on the thread part.</p> <p>④ Cutting resistance should be lowered. a : Shorter tool protruding length b : Higher rotation or lower feed rate (Approx. 20%) c : Lower cutting depth See 【Cutting force】.</p> <p>⑤ •Use bigger tool holder. •Recommendation of milling chuck or shrinker chuck instead.</p> <p>⑥ Selection of straight shank without flat portion</p>
9	Cap nut is loosened during operation	<p>① Insufficient tightening of cap nut</p> <p>② Insufficient tightening of cap nut because of increased friction in the thread part</p> <p>③ Dust seizing in screw portion</p> <p>④ Chip intrusion into slotted collet portion</p> <p>⑤ Cap loosening due to holder's resonant oscillation</p>	<p>① •Keep recommended torque value for tightening cap nut. See of &lt;A&gt; 【Manual】. •Use torque wrench. See 【Torque wrench (Catalog)】.</p> <p>② Apply oil (grease) on the thread part after cleaning it.</p> <p>③ Removal of dirt and dust</p> <p>④ Removal of chips and dust in slotted portion before cutting tool chucking</p> <p>⑤ Change of rotation number (more than 10%)</p>
10	Cap nut will not rotate be loosened generate noise	<p>① Seizing of foreign matters in thread area</p> <p>② Seizing of thread because of over-tightening cap nut.</p> <p>③ Increased friction of thread part of cap nut due to insufficient lubrication</p>	<p>① Cleaning of thread part</p> <p>② •Keep recommended torque value for tightening cap nut. See of &lt;A&gt; 【Manual】. •Use torque wrench.</p> <p>③ Apply oil (grease) on the thread part.</p>
11	Collet will not be removed from holder body	<p>① Wrong installation of collet</p> <p>② Use out of chucking range of collet</p> <p>③ Adhesion due to slip</p>	<p>① •Secure installation of collet in cap nut before tightening it. See of &lt;B&gt; 【Manual】.</p> <p>② Change of collet size See 【Catalog】.</p> <p>③ •Revision of cutting conditions (Decrease cutting resistance.) a : Higher rotation speed or lower feed rate (Approx. 20%) b : Lower cutting depth •Use bigger tool holder See 【Cutting force】.</p>
12	Coolant leakage	<p>① OH or C type collet is not in use.</p> <p>② Insufficient tool chucking length</p> <p>③ Tool shank diameter is too small. (Smaller than collet ID by 0.2mm and more.)</p> <p>④ Cutting tool shank portion has flat machining</p>	<p>① Selection of FDC-OH or FDC-C</p> <p>② Keep minimum insertion length of tool (collet's ID length must be filled.)</p> <p>③ Selection of right collet for tool shank diameter</p> <p>④ Selection of straight shank without flat portion</p>

13	Deformation of cover ring (preventing adjusting screw from popping)	① Too loose adjusting screw	① Make sure not to loosen the screw too much.
14	Preset screw will not move smoothly.	① Seizing of dust on thread part  ② Adhesion caused by coolant	① Cleaning of thread part after removing preset screw  ② Removal of preset screw to clean screw portion