Troubleshooting
（Side cutter arbor）

	Contents of the trouble	Causes	Pulled out of holder. Unable to attach fast to spindle or holder in case of MT shank.
1	Tool will not fit.	① Wrong in-low and key dimension	① Check in-low and key dimension.
2	Unable to fix cutter	① Clearance between tool end face and ring as well as side cutter arbor end face	① Use of ring attached with no clearance with end face
3	Looseness of ring tightening nut during machining	① Chip and dust biting and adhesion in clearance between tool and side cutter arbor (ring) ② Looseness due to machining vibration ③ Arbor resonance	① Cleaning of attachment part of tool and side cutter arbor ② Revision of cutting conditions (Decrease cutting resistance.) a : Higher rotation speed or lower feed rate (Approx. 20%) b : Lower cutting depth ③ ・Shift rotation speed (more than 10%) ・Use of tool at below recommended rotation speed
4	Key breakage	① Cutting resistance is too high in comparison with key's shear strength. ② ・Wrong key width. ・Rotation rattle is too large.	① Revision of cutting conditions (Increase cutting resistance.) a : Higher feed rate or lower rotation (Approx. 20%) b : Higher cutting depth ② Check key dimension
5	Key is pulled out.	① Key's abrasion and deformation	① Replacement of key
6	Machining dimension will become larger.	① Bit chip and dust in clearance between tool end face and ring as well as side cutter arbor caused cutter to be attached in a tilted position. ② Cutting resistance is too high.	① Cleaning of tool, ring and side cutter arbor. ② Revision of cutting conditions (Decrease cutting resistance.) a : Higher rotation speed or lower feed rate (Approx. 20%) b : Lower cutting depth
7	Poor runout of cutter edge (side edge)	① Bit chip and dust in clearance between tool end face and ring as well as side cutter arbor caused cutter to be attached in a tilted position.	① Cleaning of tool, ring and side cutter arbor.
8	Unable to grind	① Tool's key groove is not in alignment with key ② Tool is attached reversely	① Bring tool's key groove into alignment with key. ② Attach tool correctly.
9	Chattering	① Cutting resistance is too small in comparison with arbor's rigidity. ② Cutting resistance is too high in comparison with arbor's rigidity. ③ Bending moment is too large. ④ Mischoice of retention stud ⑤	① Revision of cutting conditions (Increase cutting resistance.) a : Higher feed rate or lower rotation (Approx. 20%) b : Higher cutting depth ② Revision of cutting conditions (Decrease cutting resistance.) a : Higher rotation speed or lower feed rate (Approx. 20%) b : Lower cutting depth ③ Shorter tool projection length ④ Use designated retention stud for the machine ⑤

		Expansion of BT shank because of over-tightening retention stud.	Keep recommended torque valuefor tightening retention stud.
		⑥ Low taper contact of interface ・Poor taper contact from expanded spindle nose ・Dust, scratch or dent in the taper part or end face (in the case of two-face contact)	⑥ ・Regrinding and correction of machine spindle ・Cleaning of taper and end face (in the case of two-face contact) , touching up of scratch or dent.
		⑦ Chattering from arbor's resonance	⑦ Shift rotation speed (more than 10%)
10	Damaged cutter attachment part	① Cutting resistance is too high in comparison with arbor's shear strength.	① Revision of cutting conditions (Decrease cutting resistance.) a : Higher rotation speed or lower feed rate (Approx. 20%) b : Lower cutting depth