

Thank you for your purchase of NIKKEN products. We can recommend our products with our confidence, however, please read this manual for long terms. And, please keep it where the operator can refer to it whenever necessary. NC5 tooling consists of a main body with taper cone and disc springs, not a solid shank like BT/IT/CAT ordinary tooling. This means that the condition of the shank cannot be identified externally. For new specification NC5 tooling there are now certain improvements, e.g. lapping and RP (Rust Proof) treatment has been introduced on the parallel shank of the main body. This provides further durability against damage and wear for high speed machining applications, high pressure coolant supply, and the use of large diameter and heavy weight tooling. However, in order to maintain further stable machining quality, please make sure that regular maintenance checks are recommended to be carried out. In the case of extreme frequent use, we would recommend an inspection is carried out every 6 months. The same would apply if a period of little or no usage was anticipated.

■ Inspection of Pull Stud

Please check the appearance of the pull stud for any signs of damage. Especially if the machine tool magazine pot is of ball type. This type may cause damage to the square angle of the pull stud due to high speed ATC or the strong spring which is pushing the balls. Also when ATC (Automatic Tool Change) of large diameter or heavy weight tooling, the tool may not be put into the magazine pot exactly square, thus damage may be caused on one corner of the pull stud. If any damage causes concern, then please change for a new pull stud. As a guide line ;
 Pull studs without hole : every 3 years or at 150,000 times use.
 Pull studs with a centre hole : every 2 years or 100,000 times use.
If the sealing for the coolant at the pull stud top face is not functioned properly, the life time of the pulling mechanism such as NIKKEN POWER5 unit will be shorten. Please check the pull stud ;
 - No damage of the O-ring.
 - The O-ring is set properly in the groove of the pull stud top face.
 If the problem is found, please replace the O-rings or exchange the pull studs.

■ Removal of Pull Stud

The pull stud is fitted to the tooling using Locktite when shipping. To remove the pull stud from the tooling, grip the pull stud across the flats in the jaw of a bench vice. Insert the correct NIKKEN spanner (optional accessory) into the drive key slot around the V flange and undo the body. Please do not remove the spacer, taper cone, thin plate (s) or disc springs.

■ Lubrication at main body

All NIKKEN NC5 tooling is assembled one by one under strictly quality controlled conditions, care must therefore be taken to avoid any error when re-assembly procedures are carried. This can result in a performance which is less than the tools capability. Please break down the NC5 tooling starting with the pull stud carefully positioning each part in the order they were removed, e.g. spacer, taper cone, disk springs and thin plate (s). This will allow correct re-assembly. Please do not mix the parts together with the parts of other NC5 tools.
 If the rubber in the taper cone slot is worn out or damaged. The tooling must be returned to NIKKEN for overhaul. It is important that the rubber is replaced correctly avoiding contamination between the taper cone and the main body shank.
 For the extreme and frequent user, a detail inspection program could be prepared and carried out. Please contact with us.
The special NC5 shank, in which the grease up operation can be done without disassembling the NC5 shank, is available as an option. Please contact with us.

■ Assemble of Pull Stud

Please use pull stud.

Otherwise, NC5 tooling can not perform 100% at its capability.

- Wipe the threads of both the pull stud and tooling with clean cloth.
- Put Locktite (UK made, Locktite 603) on the threads of pull stud as shown in right hand side.
- Screw the pull stud into the back end of the shank until hand tight.
 Grip the pull stud across the flat in the jaws of a bench vice. Insert the NIKKEN spanner into the drive key slot around the V flange and tighten using constant force.

- Guidelines for the tightening torque are ;
- NC5- 46 : 25 ~ 30N·m
 - NC5- 53 : 50 ~ 60N·m
 - NC5- 63 : 60 ~ 80N·m
 - NC5- 85 : 180 ~ 200N·m
 - NC5-100 : 180 ~ 200N·m

- Please leave for approx. 30 min. until the locktite is dried out.

■ TOOL CLAMPER

Clamper Head **TCL-HD**



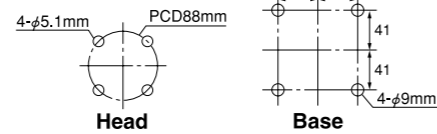
TCL-GH



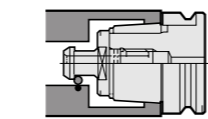
Changeable Lever
Clamp/
Neutral/
Unclamp



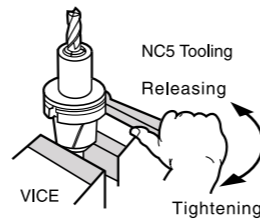
Clamper Base
TCL-BD



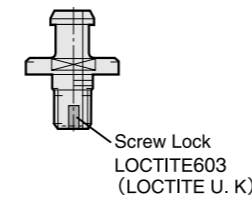
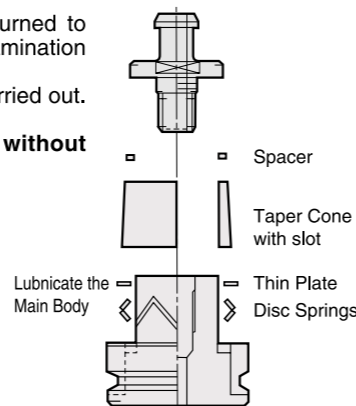
| Clamper Code No. | Base Code No. | Head Code No. | Applicable Shank |
|------------------|---------------|---------------|---------------------------------|
| TCL- 32GH | TCL-BD | TCL- 32HD | HSK 32E |
| TCL- 40GH | | TCL- 40HD | HSK 40A, 40E |
| TCL- 46GH | | TCL- 46HD | BT30, NC5-46 |
| TCL- 50GH | | TCL- 50HD | HSK 50A, 50E |
| TCL- 63GH | | TCL- 63HD | HSK 63A, 63E, 63F, BT40, NC5-63 |
| TCL-100GH | | TCL-100HD | HSK100A, BT50, NC5-100 |



The tool pot mechanism on a tool carousel. The ball clamping force is holding the NC5 tooling in place.



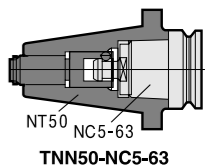
NIKKEN Spanner Code No.
 9HC16 : NC5-46, 53
 9HC22 : NC5-63, 85
 9HC42 : NC5-100



Tool Presetter

■ To preset NC5 toolings on the existing BT/IT/CAT tool presetter.

- The reduction sleeve is required.
- The reduction sleeve for NIKKEN 50# NMP tool presetter, please add "NC5 No." after "TNN50-" e.g. TNN50-NC5-63
- The reduction sleeve for NIKKEN 50# NTP tool presetter, please add "NC5 No." after "T50-" e.g. T50-NC5-53



■ The tool presetter for NC5 toolings

- The Code No. of NMP tool presetter for NC5 toolings, please add "NC5 No." after "NMP-" e.g. NMP-NC5-63
- The Code No. of NTP tool presetter for NC5 toolings, please add "NC5 No." after "NTP ○○○○○○ -" e.g. NTP400XZ-NC5-63

Photo shows NMP-NC5-63 with pneumatic clamp unit. Base is an optional accessory.



■ Tool Wagon & Changeable Sleeve.

- TW40, TW50 tool Wagon for BT tooling can be used for NC5 toolings with changing the sleeve to suits.
- Tool Wagon dedicated to NC5 toolings is available. TW-NC5-46, -53, -63, -85, -100

| Wagon | Sleeve |
|-------|----------------------|
| TW40 | TWP-NC5-46, -53, -63 |
| TW50 | TWP-NC5-85, -100 |



Changeable Sleeve
TWP-NC5

⚠ Caution

- NC5 tooling is assembled under strictly quality controlled conditions, therefore, please do not disassemble by yourselves unless it is for lubrication purposes.
- All NC5 tooling is RP treated except the taper cone as standard. If your machine is fitting with a tool identification detector inside the machine tool magazine which uses an optical detector system, it might not be able to identify the tooling existence in the magazine due to the RP treatment (black).
- Always ensure that swarf can't attach at the spindle flange surface of the double contact system. Generally the inside of the machining envelope is always covered with swarf. This means that there is a possibility that the flange of the tooling may collect swarf easily at the ATC. It is therefore important that the machine envelope is regularly cleaned (Clean the ATC arm, the route through which the tooling passes, the tool pot, and the spindle surfaces etc.) at least every 3 months.
- Always insert a dummy tool into the vacant tool pot not to attach the swarf around the tool pot, in case that the tool magazine control of your machine is random tool pot control.
- Always ensure that the limitation of the tooling (weight, moment etc.) is within the specified tolerance. Especially at the ATC on the horizontal machine, extended length tooling or tooling of excessive weight at the front end can cause deflection with centrifugal force. If the tool is clamped in this condition the collets hold the pull stud at one corner causing durability wear, damage to the internal mechanism, or wear at one corner of the machine flange.
- Centre through coolant supply:
 In the case of machines fitted with the NIKKEN POWER5 SYSTEM, please make sure that finest coolant filter (5 microns is recommended) is fitted to prevent fine cutting swarf or dust coming through the inside of the spindle. Please carry out regular inspections. A magnet can also be positioned in the coolant tank to remove the fine chips.
- Without centre through coolant supply ;
 In the case of machines fitted with the NIKKEN POWER5 SYSTEM, please lubricate the collets to pull the pull stud periodically for the stability of the pulling force.
- NC5 tooling provides excellent cutting capability compared with ordinary BT/IT/CAT tooling, however, please do attempt to use the tooling to exceed the capabilities of the machine tool (e.g. Rough milling by the insert tip type end mill with extremely extended tool length). This may lead to concerns at the spindle of the machine (fretting corrosion can occur at the spindle taper and flange). Please use reasonable cutting operations and data for speeds & feeds, this will provide better machine and tool life.
- Deformation of the spacer and damage of taper cone:
 At the high speed ATC, when the tool taper is inserted into the spindle while oscillating. The top of the taper may touch the drive key, this can deform the spacer into the taper shape or cause the damage to the taper cone. Therefore, please make sure that there is no tool interference at the ATC by checking with the machine tool builder.
- If the pulling force of machine spindle decreases substantially, the NIKKEN NC5 tooling cannot perform 100% at its capability.
 We would recommend that regular inspection of the pulling force is carried out to prevent any reduction in the pulling force at an early stage. For the pulling force measurement, please use the NIKKEN CLP pulling force measuring tool.
- For further information about front end chucks, please refer individual instruction manuals of each toolings.



| TAPER | Code No. |
|---------|----------------------|
| NC5- 46 | NC5- 46-CLP-D30, D35 |
| - 53 | NC5- 53-CLP-D40 |
| - 63 | NC5- 63-CLP-D40, D45 |
| - 85 | NC5- 85-CLP-D50 |
| -100 | NC5-100-CLP-D55 |

The Code No. differs depending on POWER5 SYSTEM.

⚠ - Quotation fee of the repair is always necessary whether repair or not.

This manual is for basic instruction and information for safety use of our product. Please contact with us for the further details. Please note that we could not take a responsibility of the accidental damage on our product which is modified the specifications by the customer without our approval.

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