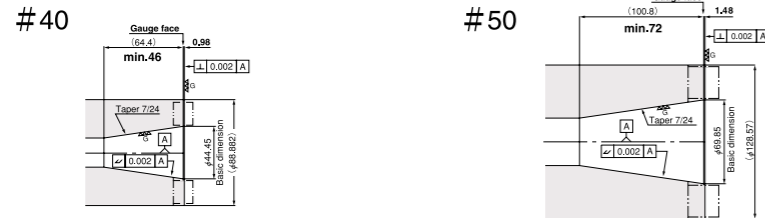


Thank you for your purchase of NIKKEN products. We can recommend our products with our confidence, however, please read this manual for long terms. And, please keep it where the operator can refer to it whenever necessary.

**■ On the machine with the BT double face contact spindle, the NIKKEN 3LOCK tooling can be used without fitting a spacer.**

- What is the BT double face contact spindle ?  
On the #40 taper, the spindle flange location is extended 0.98mm from the gauge line. On the #50 taper, the spindle flange location is extended 1.48mm from the gauge line. (The tolerance of the extension is differ according to the amount that the tool is drawn into.)
- The run-out accuracy of flange surface to the flange is less than 0.002mm.
- The cleansing mechanism of the spindle flange should be provided.
- Please provide the mechanism to confirm the face contact such as the position detection of the draw bar at tool clamp position.
- #40 taper requires 0.5mm or more, and #50 taper requires 0.8mm or more of ejection travel for unclamping operation.
- The internal taper length of #40 taper and #50 taper must be at least 46mm and 72mm respectively. And, it must be all taper area contact without middle recess.



**■ On the existing BT/IT/CAT standard machine, the spacer with a suitable thickness must be fitted.**

The NIKKEN 3LOCK SYSTEM can also be adapted to your existing BT/IT/ CAT spindle M/C. The gap between the machine spindle flange and the gauge line of the 3LOCK tooling has to be measured with the plug gauge for 3LOCK SYSTEM. A suitable spacer is then fitted on the spindle face - this is provided by NIKKEN. The new method to fit the spacer with the screws onto machine spindle flange will be available. In this case, the tapped holes (e.g. to fix the face mill cutter directly) on the spindle flange will be used to fix the screws. Please contact with us. This does not prevent the use of existing BT/IT/ CAT standard tools. The process to fit a suitable spacer is not standard for every type of M/C and the following points must be checked before carrying out any modification;

- It is not suitable for machine with poor run-out accuracy of the spindle taper.
- It is not suitable for machines with poor run-out accuracy of the flange to the spindle taper. The simple grinding unit to improve the run-out accuracy of the spindle flange will be provided. Please contact with us.
- For the machine spindle which has solid type drive keys, the small radius portion could interfere with the spacer which can not be fitted properly, and this may result in no good run-out accuracy of the flange contact to the spindle taper.
- For the machines with flange through coolant spindle, which have coolant adapters on the flange, there may not be enough room to fit the spacer.
- For machines with a labyrinth mechanism fitted on the outside of the machine spindle, interference may occur once a spacer has been fitted.
- For the machines with large corner radius at spindle taper entrance, there is no room to fitted a spacer inside the drive key slots.
- For the machines with tapped holes for balancing at the spindle flange, these tapped holes are interrupted in a spacer area to be fitted.
- The installation of the 3Lock spacer can be done on the machine which spindle taper length of #40 taper and #50 taper is longer than 46mm and 72mm respectively. If the internal taper length is shorter than the above figures or there is the middle recess in the internal taper, the installation can not be done.

**■ Spindle taper cleaner and spindle flange cleaner.**



**● Spindle taper cleaner**  
Clean your spindle taper just before the fine machining.

Rotate your spindle at 50min<sup>-1</sup>, then the spindle cleaner will rotate to clean your spindle taper.

**MBT40-CLE-75**  
**MBT50-CLE-92**

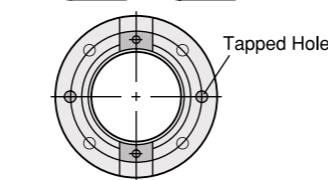
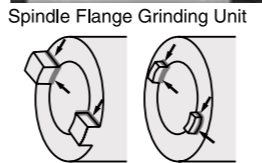
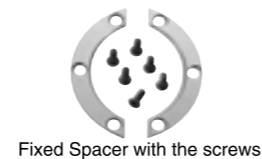


**● Spindle flange cleaner for 3LOCK tooling and NC5 tooling**  
Clean your spindle flange to keep ATC repeatability accuracy higher.

Do not rotate your spindle, just supply the 0.5Mpa dry air from the stopper block in about 30sec., then the intermittent jet air blow from the spindle flange cleaner will clean your spindle flange surface.

**MBT40-CLEF- 92**  
**MBT50-CLEF-113**

Stopper Block must be installed on the M / C. Please advice name of M / C builder, model No. and the drawing of the spindle flange.

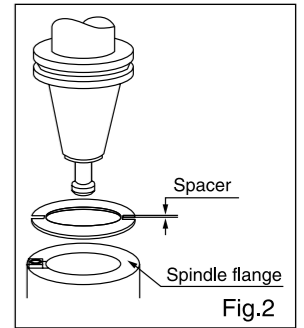
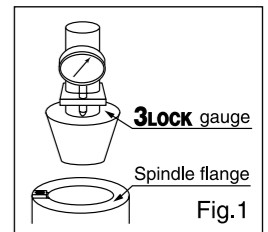


**<Tool Presetter>**

**■ To preset 3LOCK Tooling on your existing BT / IT / CAT Presetter.** For the presetting and measuring operation of 3LOCK tooling on your existing tool presetter, a suitable spacer need to be fitted on the spindle flange as per the following procedures:

- In order to find the suitable thickness:
  - Please use NIKKEN 3LOCK gauge kit (MBT40-SGT.D or MBT50-SGT.D). Insert the Plug Gauge into the Ring Gauge and preset the dial gauge to "0". Insert the Plug Gauge into the presetter spindle and measure the gap of presetter spindle flange. (Fig.1)
  - Select a suitable spacer as per the following parameter:  
For #40 : The gap measured (readout on the gauge) + 0.15mm  
For #50 : The gap measured (readout on the gauge) + 0.4 mm  
e.g. MBT50 measured with MBT50-SGT.D gauge kit, if the gap measured (readout on the gauge) is 1.6mm, 1.6mm + 0.4mm = 2.0mm  
2.0mm thickness spacer is required.
- Put the spacer onto the spindle flange.
- Pull the 3LOCK tool on the above spindle flange with spacer and make sure the followings;
  - The tool and the spindle flanges perfectly contact each other, when the tool is clamped.
  - There is a gap between the presetter spindle flange and the tool flange, when the tool is unclamped.

The pulling force to make the perfect contact is approximately 5~6.5KN as guide line, however, the force might be affected by type of the pulling mechanism or pulling speed. (Fig.2)



**■ The tool presetter for 3LOCK Tooling**

- The Code No. of NMP tool presetter for 3LOCK toolings, please add "MBT No." after "NMP-". e.g. NMP-MBT50
- The Code No. of NTP tool presetter for 3LOCK toolings, please add "MBT No." after "NMP○○○○○". e.g. NTP400XZ-MBT50
- The special tool wagon for NMP presetter with tool clamp unit is available.
- Please add "-BT No." at the end of "NTP-CLE" for the taper cleaner. e.g. NTP-CLE-BT50 (can be used for MBT50 spindle.)

Photo shows NMP-MBT50 with pneumatic clamp unit. Base (NMP-TRD) is an optional accessory.

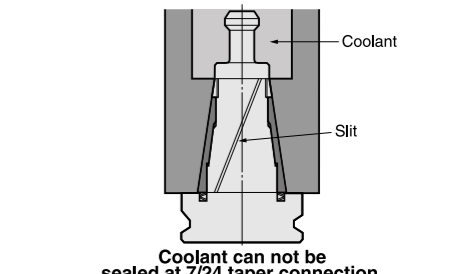
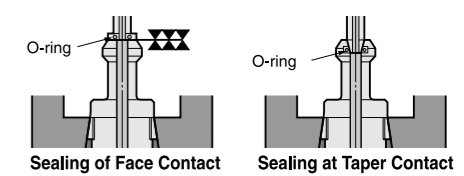


Taper Cleaner NTP-CLE  
Photo. shows for NC5 tool.

TW Tool Wagon

**⚠ Caution**

- 3LOCK tooling except the tape cone is RP treated 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). Please check your machine specifications carefully, and if the RP treatment is not required, please specify the tooling "without RP treatment" when you place order with us.
- Please make sure that the suitable spacer is fitted on the machine spindle flange when the 3LOCK tooling is used on the standard BT / IT / CAT spindle machine. Please do not use the 3LOCK tooling on the standard machine without the spacer.
- 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.
- 3LOCK tooling provides excellent cutting capability compared with ordinary BT/IT/CAT tooling, however, please do attempt to use the tooling not 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 cutting tool life.
- Caution for centre through tool coolant application  
There are 2 types of the sealing method of the coolant at pull stud, sealing of face contact and sealing of taper contact, please choose the proper pull stud for your M/C.
- If your center through tool coolant M/C does not have the sealing mechanism at pull stud, the coolant stays inside the spindle and is sealed at BT/IT taper connection. 3LOCK tool can not seal the coolant at taper connection, because the taper cone of 3LOCK tool has the slit.
- If the pulling force of machine spindle decreases substantially, the NIKKEN 3LOCK 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.
- 3LOCK tooling is assembled under strictly quality controlled conditions, therefore, please do not disassemble by yourselves.
- For further information about front end chucks, please refer individual instruction manuals of each toolings.



Taper	Code No.
BT30	BT30-CLP
BT40	BT40-CLP
BT50	BT50-CLP

For the Code No. of the tool without load cell, please add "-BD".  
e.g. BT40-CLP-BD

**⚠ - 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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