NT Smart X

Intelligent System

Evolution of User Interface for Improved Support

NAKAMURA-TOME
PRECISION INDUSTRY CO.,LTD.

Advanced Production System
NT Smart X

Easy, Fast and Accurate
for Everyone

Setup Support

- Status Screen
- Setup Screen
- Geometry Navigator (op.)
- Path Checker
- Simple Call
- One Touch Production (op.)
- Digital Chuck Interlock

Maintenance

- ATC Maintenance Navigator
- Regular Maintenance Function
- Productivity Monitoring Function
- Operation Level Management Function
- Trouble Guidance
- Drive recorder

Programming Support

- Smart Support
- 3D Smart Pro AI
- 3D Smart Pro
- NT Manual Guide i
- Drop Converter

Machining Support

- NT Thermo Navigator AI
- Warm-Up Function
- NT NURSE
- Program Optimizer
- Chatter Canceller
- Oscillation Cutting (op.)
- Smart Tuning (op.)
- NT WORK NAVIGATOR

Dual Safety

- Airbag
- NT Collision Guard
- NT Machine Simulation

Customer Support

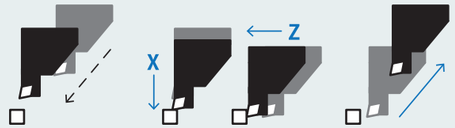
- NT Update

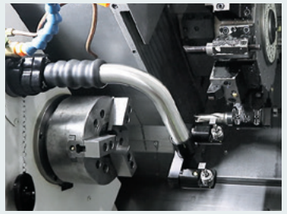
Setup Support

Geometry Navigator (op.)

Semi-automated Measurement System of Geometry offset

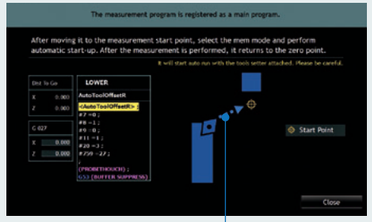
This is a support function that automates all measurement operations except the approach.
Guidance displays the procedure for obtaining geometry offset using the tool setter.
With guidance, anyone can get the job done quickly and easily.



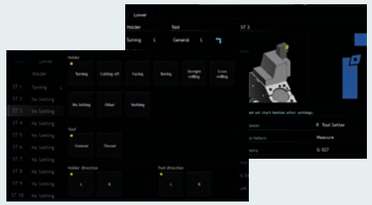


Tool setter(left figure)

When acquiring the tool geometry offset value, this function automatically inputs that value simply by making contact with the sensor.
Geometry Navigator automates the acquisition of offset values and turret indexing operations using a tool setter.



Safe because approaches where adjacent tools or cutting edges may interfere with the chuck or tool setter are performed manually.



To set up Geometry Navigator, simply select a station, then select the shape of the holder, type of tool, and direction using the buttons.

Setup Support

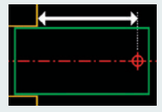
Path Checker

Real-time Checking of the Tool Path

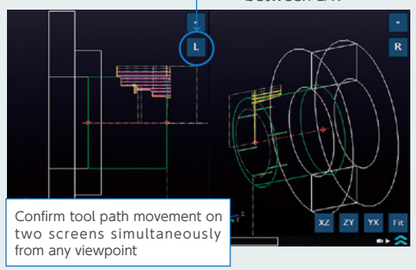
This function allows the operators to check the tool path in real-time and to confirm interference between the cutting edge, workpieces, and jaws even while the program is being created.
Pre-checking prevents interference, thus reducing downtime and maintenance costs.
The material model used for simulation is taken from the material definition G code in the program, and the tools are taken from the NC tool information.

Setting

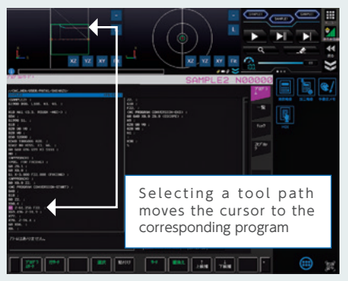
Displays guidance for setting items



Switching display between L/R



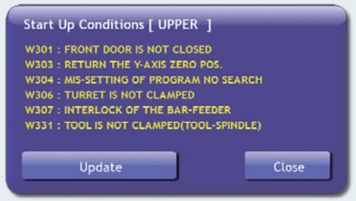
Confirm tool path movement on two screens simultaneously from any viewpoint



Selecting a tool path moves the cursor to the corresponding program

Tool path of completed programs can be viewed at any speed and timing

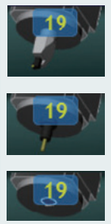
Status Screen



Cycle start condition display pop up by pressing axis reference mark.

Spindle Status

(Selected head shown in blue color)



Spindle Mode During (M41/M441)

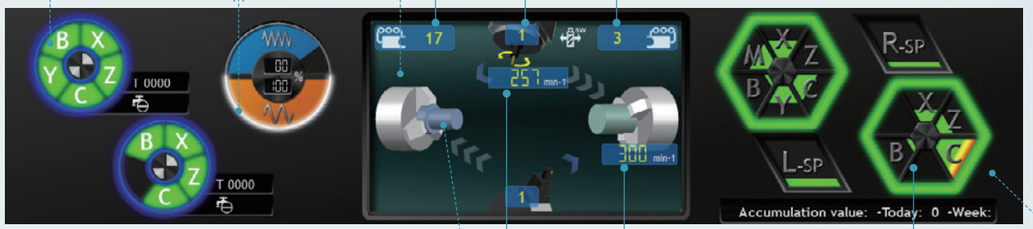
Milling Mode During (M91/M491)

Tool is not existed

Waiting tool on Left side ATC magazine

Waiting tool on Right side ATC magazine

Color of perimeter becomes white when override setting is 100%.



Spindle RPM

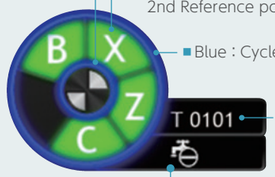
Tool Spindle RPM

Operating status display

- Green : Automatic operation
- White : Feed hold
- Yellow : Warning
- Red flashing : Alarm

Reference position LED

- Blue : Index ready
- Green : Reference position return
- Green Flashing : 2nd Reference position return
- Blue : Cycle start ready



Tool number is displayed during automatic cycle.

Coolant status | Automatic mode | Manual mode | OFF mode

Blank

Middle of process

Part complete

Remnant

Quill

Load meter

- Red : 120%
- Yellow : 100% -120%
- Green : 0 -100%

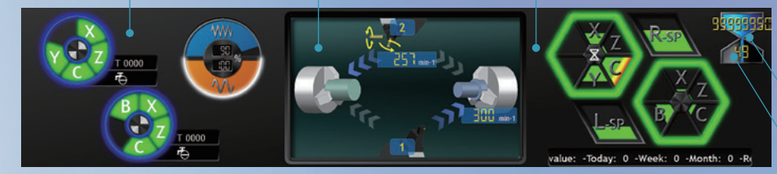
Spindle load meter

- Red : 120% -
- Yellow : 100% -120%
- Green : 0 -100%

Turret status display area

Machine status display area

Load status display area



Work Counter display

Displayed when using NT NURSE work counter

Remaining number

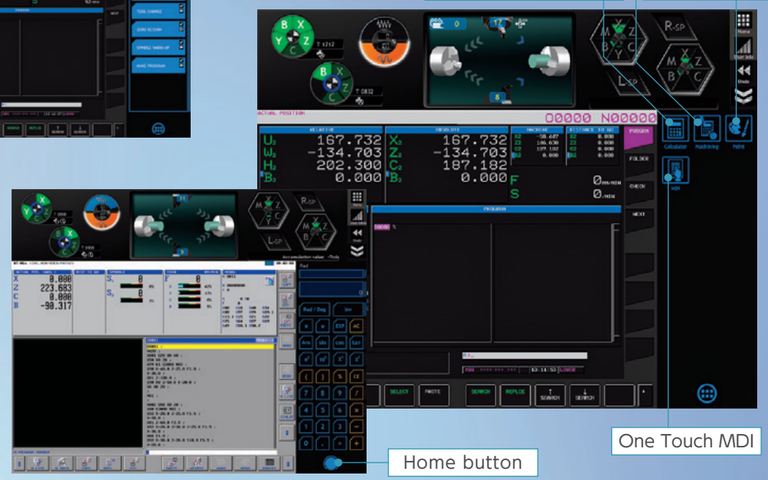
Accumulated number

Simple Call

Cutting Condition Calculator

Scientific Calculator

Handwriting Memo



One Touch MDI

Home button

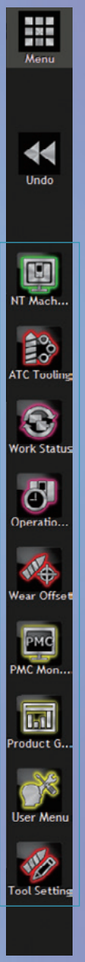
Used to change over this function

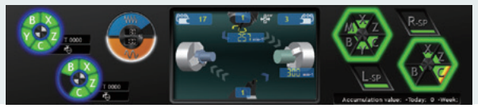
Shortcut bar

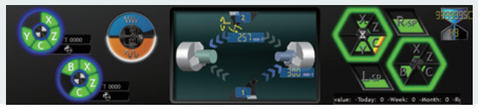
Most used Icons can be registered at right side of display.

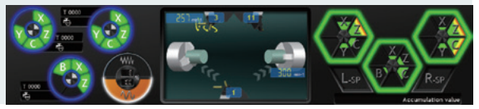
Auxiliary information display

Counter and Remaining counter information are displayed.









Setup Screen

Geometry / Wear Offset Screen

Currently selected tool information and 3D model are automatically displayed and the input field is highlighted. The tool 3D model can be changed and selected from a pre-registered tool 3D Model list if necessary.

By touching the light green cell, Smart Window pops up.

Smart Window

By touching the input field or pressing the keyboard, Smart Window pops up. Tool offset values can be input using the Smart Window +Input and Measurement buttons, eliminating the need for a calculator or for using the keyboard.

Tool Information for Simulation

Tooling information can be confirmed.

LED indicates status of CNC.

Operation messages are displayed.

CNC Status Screen

Machine status is displayed using color icons and messages.
All messages can be read by scrolling down.

Tool Counter Screen

Tool life condition is shown using a bar graph.
Tool life counting method can be set using number of cutting times, cutting time or cutting distance.

Load Monitor Screen

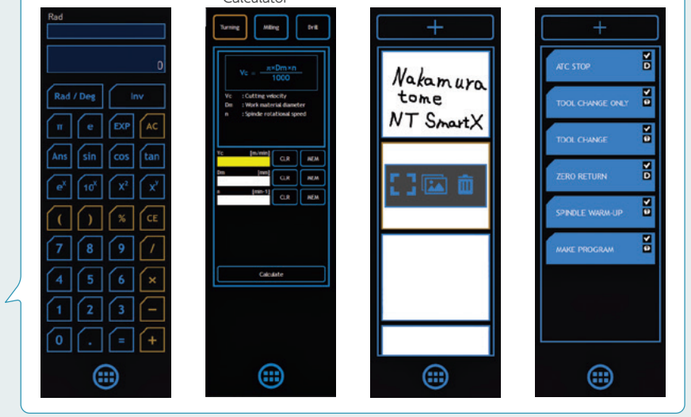
Tool life is managed from the load applied to each axis during the cut.
By touching the axis column, a selection window pops up, making this operation easy.

Simple Call

～ Improve Work Efficiency with One Touch ～

Convenient Icons

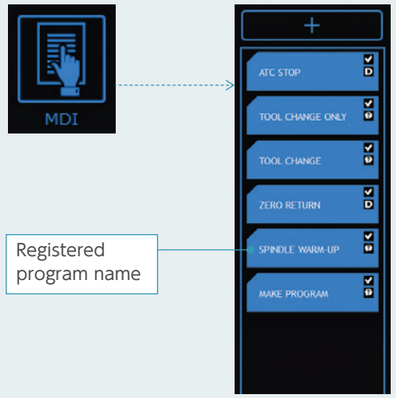
Icons of support functions frequently used by the operator are displayed together on the right side of the CNC screen for easy access.
These icons are always displayed as long as the CNC screen is on, so they are accessible with One Touch to support the operator.



1 Scientific Calculator : Calculator to perform normal and mathematical function calculations
2 Cutting Condition Calculator : Function to calculate cutting conditions according to the machining process
3 Handwriting Memo : Touch Panel Memo Function
4 One Touch MDI : NC fixed form sentence registration/calling function

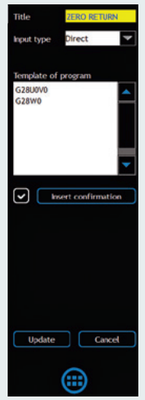
One Touch MDI

Register and call NC fixed form sentences.
Program blocks that are frequently used, can be registered as a fixed form, then called as often as needed, drastically reducing programming time.

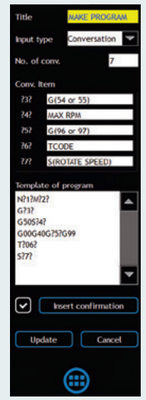


Registered program name

Direct



Interactive



Fixed form sentences can be created as [Direct] or [Interactive] type.

- In [Direct] fixed forms, the memorized program blocks can be input directly in the program.
- [Interactive] is a method in which any item in the fixed forms is entered at the program blocks insertion.

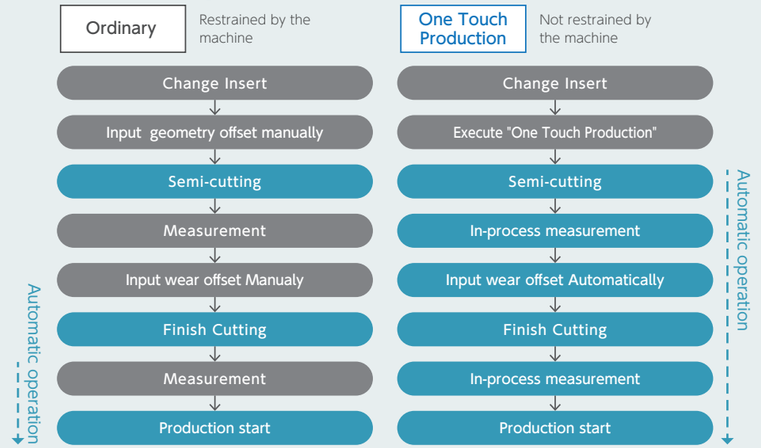
Fixed form sentences can be prepared according to the users programming requirements.

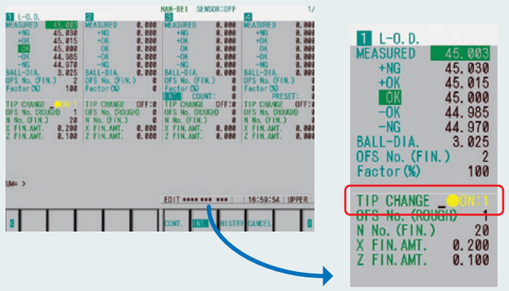
Setup Support

One Touch Production (op.)

Improvement of Work-efficiency by Using In-process Measurement for Tool Offset Adjustment

After the replacement of the insert, the measurement of the first workpiece is automatically adjusted.
Ensure stable machining without dimensional errors of the first workpiece, even from the machine's cold start.

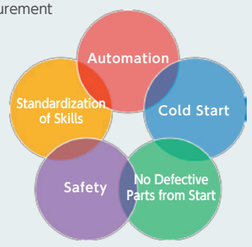


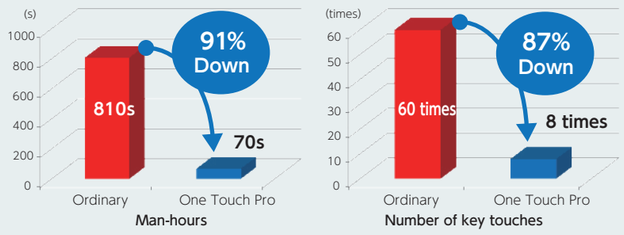


Once enabled with the NC parameter, The HAN-BEI (Touch probe) measurement result screen is displayed as shown on the left figure.
The setting is done on this screen. Tool offset is automatically adjusted by turning the switch ON after replacing the insert.
※One Touch Production requires the machine's internal measurement system "HAN-BEI 8-POINT MEASUREMENT (op.)".

Five Advantages

Five Advantages of One Touch Production
①Automation of first parts machining
②Possible to cold start of machining
③No defective parts from start
④Ensure safety by working outside of machines
⑤Standardization of skills through automatic measurement





* In case of a workpiece with a cycle time of 10 minutes

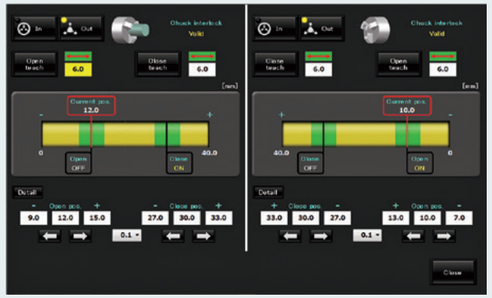
Automation of first parts machining reduces manpower and man-hours, and makes the process more efficient.

Setup Support

Digital Chuck Interlock

New Chuck Interlock System

In the past, the position of two proximity switches for chuck opening and closing confirmation was manually adjusted depending on the chucks and materials.
Adopting a Linear positioning sensor, accurate position adjustment can be done easily and quickly.
The confirmation response time for opening and closing the chuck is shortened and it helps reduce cycle time and set-up time.



* This image is the NT SmartX screen.The screen will differ from machines which are not equipped with NT SmartX.

Features

- No need for mechanical adjustment. Minimum range of the adjustment is 0.1mm.
- Settings can be saved and recalled. Eliminate the need for setup in case of repeatedly recurring parts.
- Set on NT setting or NT NURSE screen.
- The time required for the process shown at right, which involves opening and closing the chuck, is reduced.

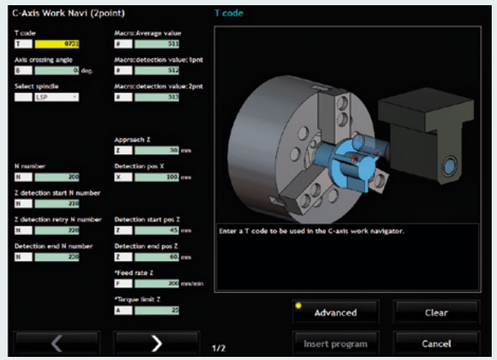
- Bar stopper
- Work pusher
- Pull-out the workpiece
- Work rest
- Tailstock
- Parts catcher type A/G
- Gantry loader

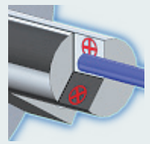
Programming Support

Smart Support

Sustainable High Programming Skills

Processes using original Nakamura-Tome G-codes were registered as fixed forms. Programs can be easily created by inputting data through an interactive 3D guidance window.



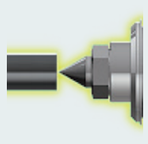


Measurement Cycle

- C-axis Work Navi (1 point)
- C-axis Work Navi (2 points)
- Z-axis Work Navi (1-4points)

Cutting Cycle

- Long-drill Hole
- Gear Hobbing
- Cross-hole Chamfering



Cutting Support Cycle

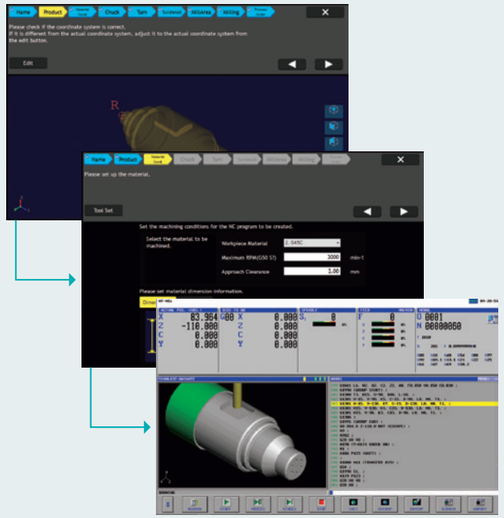
- Spindle Tailstock
- Turret Steady Rest
- Turret Tailstock

Programming Support

3D Smart Pro AI

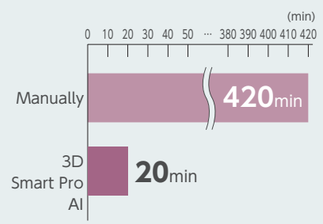
AI Analysis NC Programming Support Function

This function analyzes 3D CAD model data and generates an NC program for processing from blank to finished parts. Simply follow the displayed guidance and enter the required information to create the program.



Operators can also set detailed machining methods.

It drastically reduces man-hours required for creating NC programs and improves set up and production efficiency.



* NC programming level : Beginner engineer

Optimization of Machining Processes

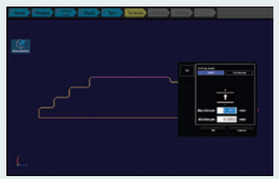
In addition to defining the required machining processes, AI proposes a suitable machining process sequence.

Transfer Setting

Once the transfer position is set, the machining area and transfer program are created.

Tolerance Setting

Once the tolerance value is input, the target value for machining can be set.



Tool Guide

If the tool configuration is incomplete, the AI analyzes the CAD model data and provide the necessary tool information.

Programming Support

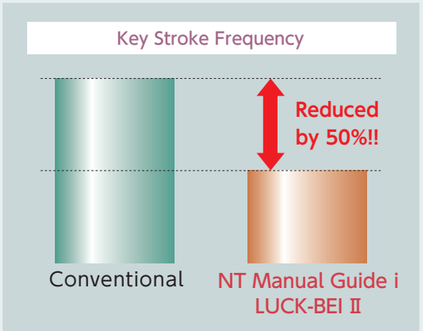
NT Manual Guide i ～LUCK-BEI Ⅱ～

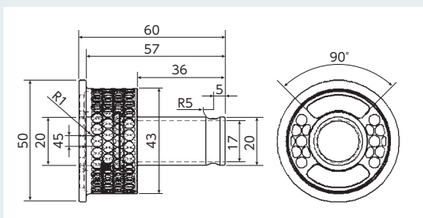
It helps to make NC programs (ISO/EIA G-code programs) used in a machining process program.

A programming guidance system with the ability to generate NC programs (ISO/EIA G-code programs) easily. Processes created in conversational mode can be cut, copied or pasted ensuring flexibility. Additionally, several cycles such as part-transfer cycle, requiring waiting M-codes, are readily made with the "NC program editing support function". The "NC program simulation function" can be used to check created-programs by tool-path simulation or solid-model animation.

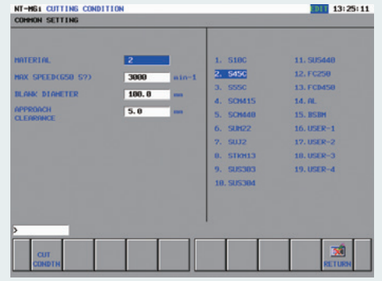
Automatic Cutting-Condition Setting Function

By setting the material type and required surface roughness, cutting conditions are automatically generated. These can be also changed depending on customer's experience.

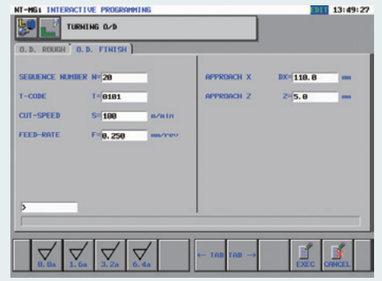




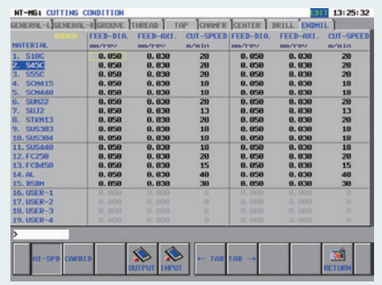
By introducing the "automatic cutting condition setting function", the number of key strokes required to make a program were reduced by 50% reduced, compared with the previous NT-Manual guide version.



By selecting the material, cutting conditions are automatically input.



By selecting the material, cutting conditions are automatically input.

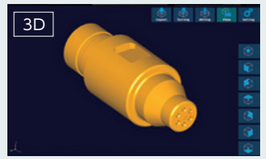


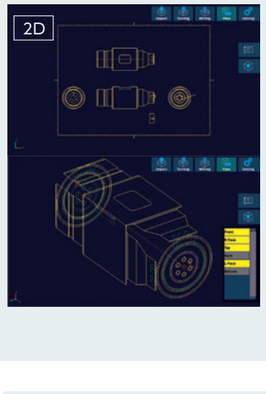
Cutting conditions
End mill

Programming Support

3D Smart Pro

View mode

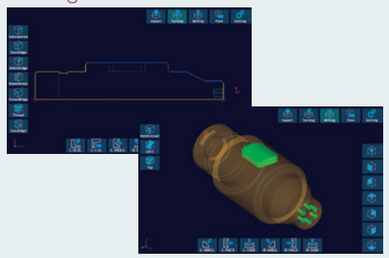




Generate NC Program from 3D/2D CAD

It generates the NC programs based on 3D or 2D CAD model data. *1
Since the CAD model carries the workpiece dimensional data, this software captures the value and creates the NC programs, there is no need to calculate coordinate.
The NC programs are created by selecting the part to be machined from the loaded CAD model. It supports easy, quick, and error-free NC programming.

Turning mode※2



Milling mode※2

NC program creation

*1 The data is limited to a STEP file of 3D models and a DXF file of 2D models.
*2 Drawings will be displayed differently depending on the loaded CAD data.

Programming Support

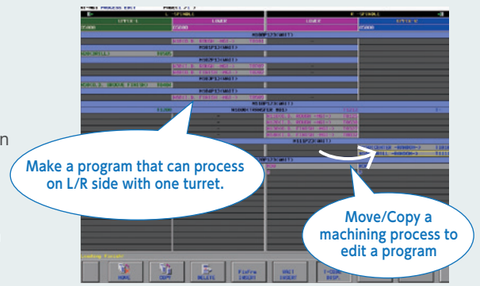
Drop Converter

Easy to Make a Program for Multi-Turret from a Single Turret

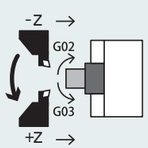
It moves a machining process using the “Process Edit” function with the move/copy feature.
The modifications shown below can be done automatically.

① Z-axis ±reversal
② Change of corresponding G-code and M-code
③ C-axis 180 degrees reversal
④ Change of corresponding T-code
⑤ Delete ATC code
⑥ Copy of sub-program
⑦ Alarm without Y-axis

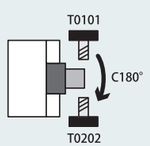
These modifications make it easier to create a multi-turret program.



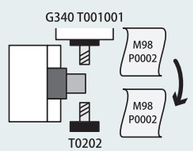
① Z-axis ±reversal.
② Change of corresponding G- code and M-code.



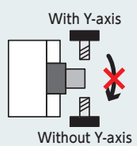
③ Add program for C-axis 180 degrees reversal.
④ Conversion if there is a T-code with same tool information in the destination turret.



⑤ Copy program from ATC tool spindle to turret machine. Delete tool change code for tool spindle.
⑥ If M98 is present in the process, subprograms are also copied.



⑦ Move/Copy are not available when copying from a turret with Y-axis to a turret without Y-axis (Warning at the same time).



Machining Support

NT Thermo Navigator AI

Thermal Growth Compensation Using AI

① Time
② Measured Dimensions
③ Retrieval of Wear Offset Data

Acquired Data analyzed with NT Thermo Navigator AI

Feedback

Compensation model built using AI machine learning.

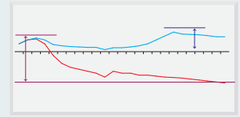
Standard for NT SmartX

Powered by AI

Time and measured dimension data are input into a dedicated AI Learning software, to build an optimized thermal growth compensation model.

High Precision Thermal Growth Compensation

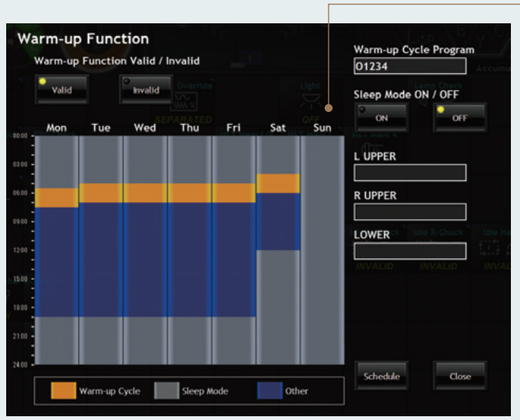
The compensation value is calculated from acquired data.
The more data is input, the more accurate is the compensation value.



Pre-correction thermal displacement data
Thermal displacement data after correction

Machining Support

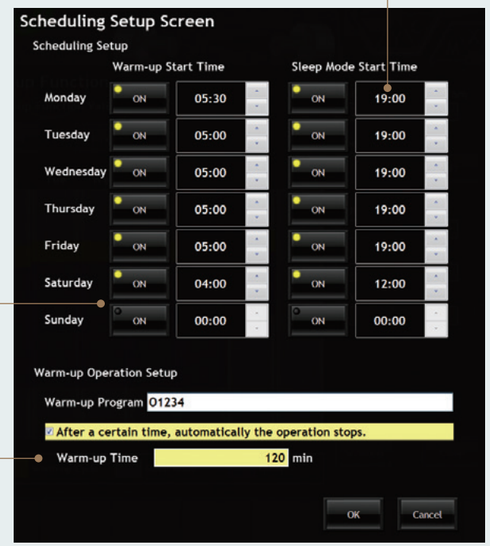
Warm-Up Function



By setting up a warm-up schedule, the machine is automatically powered on to perform warm-up.
It is also possible to set a time for the machine to go into standby mode.

The schedule is displayed as a graph for easy setup.

During standby mode, the following functions are Off: hydraulic unit, servo motors, machine light and display monitor.



Scheduling can be set on a daily or weekly basis.

Warm up time is set. Once the set time is reached, the warm up cycle is stopped.

NT NURSE ～ Generous User-friendly Support System ～

● All-in-one Software Package

NT NURSE is software that provides the operator with user-friendly support for operation, programming and production on the machine. Among vital features are phase recognition (a must for multitasking), direct chucking to prevent positioning error during transfer, and perfect synchronization of the left and right hand spindles.

Among other features, are the load monitor for detecting tool wear and tool breakage, tool life management, operation condition monitoring, in addition to many other features to simplify programming, set up, operation and production, all offered in one single package.

NT NURSE call button

Up to two NT NURSE frequently used functions can be registered, and later called with in one-key stroke.

Offset history

Data input/output to memory card

Cut-in Check

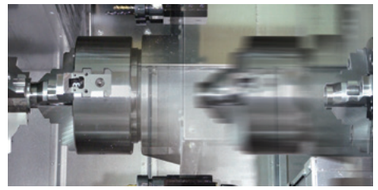
The machine can be stopped immediately while in automatic cycle.
After reading G00 command in the machining program, the Spindle, Tool Spindle, Axis Feeding and Coolant will stop. It is faster than M01 optional stop. After checking the machine internal status, machining can be restarted by pressing "Program restart" button.

● NT NURSE Cycles

G131 Soft work pusher Cycle

This cycle is used during part transfer from L-spindle to R-spindle. Once part contact with the jaws or stopper of R-spindle has been confirmed, the R-spindle servo axis stops.

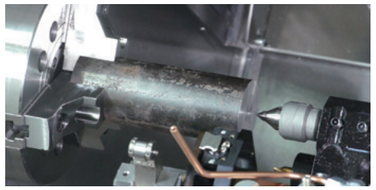
- Contact force can be changed in the program
- It is possible to set OK/NG range as well
- An additional work pusher for the right side is not required and cycle time can be reduced.



G376 Soft quill pusher Cycle

Thrust force of center support can be set in the program by using servo motor technology, which helps keeping a constant pushing thrust during cutting.

- It is available for Z-axis and B2-axis.
- Quill thrust force can be changed in the program.
- It is possible to set OK/NG range as well.



G300 Cut off check Cycle

If cut off operation was not completed due to tool breakage or any other reason, this may result in a collision or production stop. When machining from bar, the cut off confirmation cycle checks whether cut off was completed during transfer, by using B2-axis servo motor thrust detection.

- No need for a mechanical cut off confirmation
- Reduce cycle time and ensure safe operation

G329 Cross hole chamfering Cycle

Programming a cross hole chamfer on a cylindrical surface is complicated, and requires interpolating the X, Y and Z axes simultaneously.
Programming a cross hole chamfering cycle is simple: only basic information is required, such as diameter, shape of tool, ...etc.

G496 C1. / G497

C-axis spindle synchronization mode ON/OFF

This is a high speed C-axis synchronization cycle between L-spindle and R-spindle. When machining parts that are clamped with both chucks (L/R), C-axis positioning accuracy is increased and cycle time is reduced.

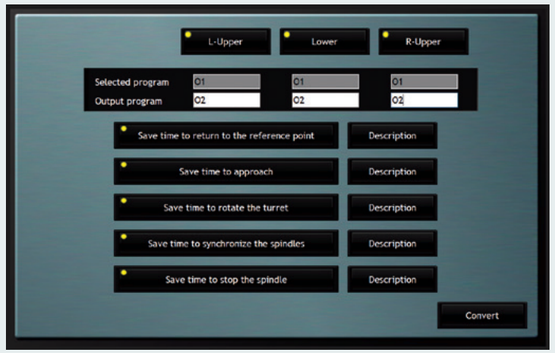
G342

Tool offset conversion Function

For machines with Tilting B-axis, the G342 cycle converts the tool geometry and wear offset data when machining with different B-axis positions, it is only necessary to measure tool geometry offset data at one B-axis position.

Machining Support

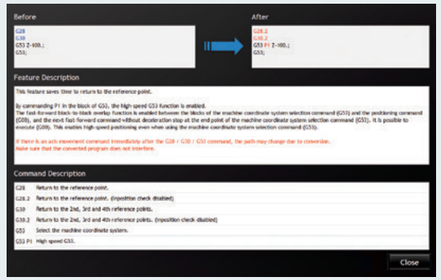
Program Optimizer



Select an item and a turret to optimize and set a program No. after conversion.

Optimize NC Programs and Reduce Cycle Time

It converts NC programs by customized rules and optimizes the idle time in a process. Optimization will reduce the cycle time significantly.



Blue :Sentences to be deleted
Red :Sentences to be added

The way of code conversion in an NC program can be checked.

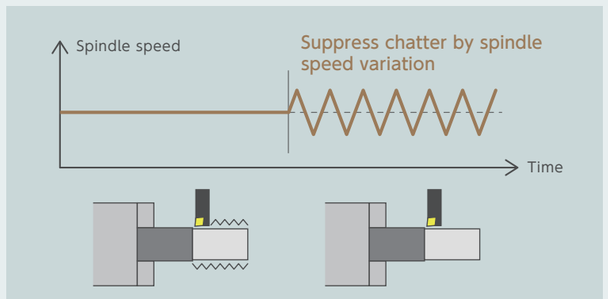
Machining Support

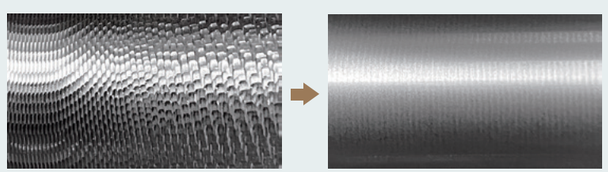
Chatter Canceller

Reduce Chatter by Varying the Spindle Speed

Reduce the chatter and vibration by automatically changing the spindle speed up/down continuously during cutting.
The function can be easily turned on with the M-code, and the amplitude and frequency can be set arbitrarily.

* It does not guarantee that the function works without chatter and vibration.
* Chatter and vibration reduction depend on the setup and the cutting condition.





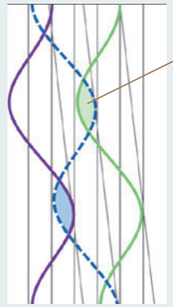
OFF ON

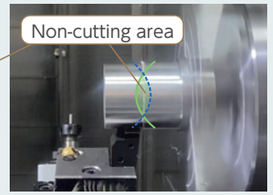
Machining Support

Oscillation Cutting(op.)

By oscillating the tool for a certain period, the chips are cut into small pieces. It can be activated easily by using a simple FANUC G-code and resolve workpiece damage issues caused by chips twined around the part.

Parameters in the Oscillation Cutting (I: Frequency ratio, K: Amplitude ratio) can be set on the screen. Chip breakup, chip length, and theoretical surface roughness can be adjusted by the parameter's settings.

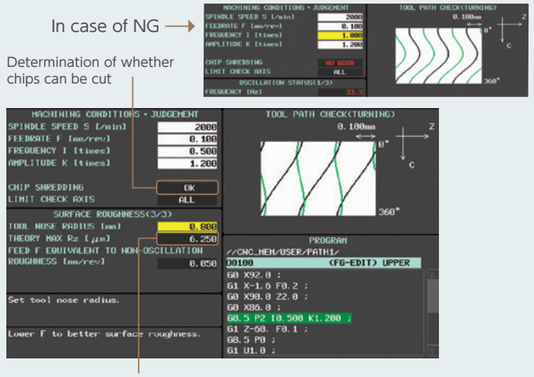




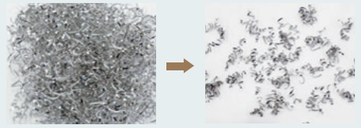
Current tool path
Tool path before one rotation

In case of NG →

Determination of whether chips can be cut



Theoretical surface roughness(Rz)



Material : Aluminum
Cutting speed : 200mm/min
Cutting feed : 0.1mm/rev
Cutting depth : 1.0mm

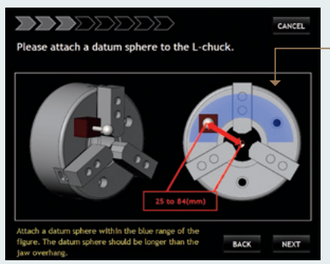
Machining Support

Smart Tuning (op.)

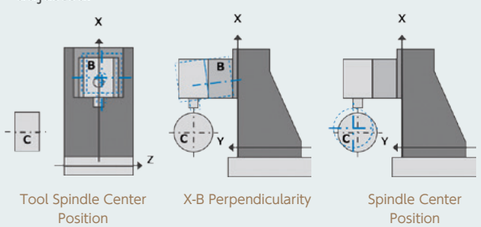
Easy to Correct Burdensome Geometric Errors

This function enables the compensation for geometric errors quickly and easily in multitasking machines.

Easy to follow operation by simply setting a reference sphere and in-process measurement system and executing the program.
10 types of geometric errors can be adjusted.



Just follow the Guidance



Tool Spindle Center Position | X-B Perpendicularity | Spindle Center Position

Reduced geometric error
High precision machining
Change over the Years

* Geometric error is the static accuracy error due to tool spindle size and shape error, and in this case refers to positioning error.

Machining Support

NT WORK NAVIGATOR

New X and Y axes Navigation Functions!

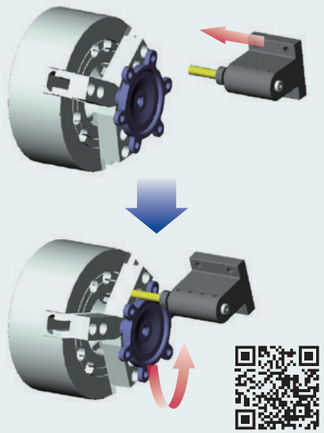
X Y Z B C

Advanced NT WORK NAVIGATOR!

A new upgrade makes it possible to navigate with the X-axis and Y-axis. Many parts with irregular outer surfaces, requiring coordinate recognition with X or Y-axis, become within the range of NT WORK NAVIGATOR.

No fixtures required

Machining parts with non-round shapes, such as forgings or castings require that the raw part coordinates be recognized by the CNC control.
It works just by touching the part with a simple inexpensive probe (mostly a round bar mounted on a tool holder) and using the torque control feature of the servo-motor, which is to record required coordinates in the CNC.
The NT WORK NAVIGATOR is eliminating the need for positioning fixtures and special clamping devices.



▲VTR

Dual Safety

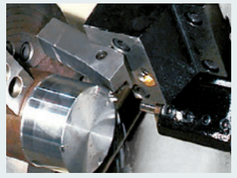
Airbag (Overload detection)

The software's barrier system is not foolproof. Making a data input mistake will result in a machine collision.
However, Nakamura-Tome machines will not break even after the machine collision.

When the machine collides, there is no reason to panic.

The Airbag (Overload detection) of the machine tool significantly reduces the impact of a collision, and protects the machine.

Barrier?
Even with barrier function, machine collisions may occur.



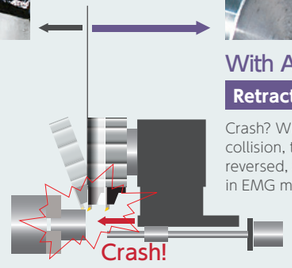
Without Airbag

Machines will not stop immediately.
The slide continues to move even after a collision.

With Airbag

Retraction within 0.001 sec

Crash? Within one millisecond after a collision, the servo motor direction is reversed, and the machine stops in EMG mode.



* It is not a function that guarantees the prevention of machine break.
This function does not eliminate the impact on the machine.

▲Video

Dual Safety

NT Machine Simulation

Simulation is performed while checking the remaining movement amount and modal information.

It is possible to override the settings for rapid and cutting feed individually.
Additionally, simulation by process or by single block is possible.

By process

Single feed

Interference checks can be carried out based on the machining paths obtained from the NC program. By simulating machine operations before starting machining, it is possible to reduce the risk of machining errors and interference.

During part simulation, several display screens are available, such as tool view, turret view or machine view.

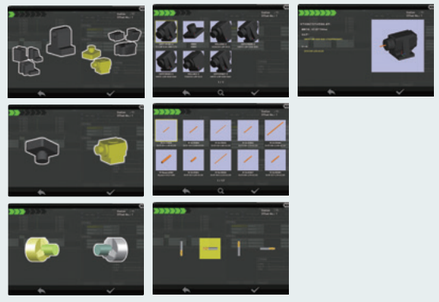
It is possible to show or hide the machining program. In addition, the display of the program is color coded for each word, and this color scheme can be set arbitrarily from the option setting screen.

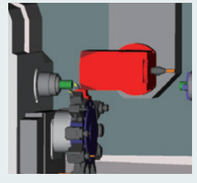
Dual Safety

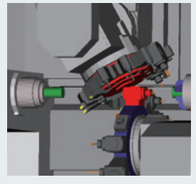
NT Collision Guard

Model setup was simplified.

When performing a program analysis, the required holder and tool models are displayed.







Machine collisions are avoidable with preventive safety technology!

NT Machine Simulation is synchronized with the machine operation, allowing the machine to be operated while performing interference checks. Available in automatic and manual mode. If interference is detected, the machine will stop just before the collision.

Maintenance

Trouble Guidance

Quick Troubleshooting

Detail of alarm information and fixing methods are shown. It is easier to find out cause of alarm and reduce down time of machine.

Procedure how to release alarm is shown.

Alarm details and location are indicated using pictures.

Frequency alarm history is also displayed.

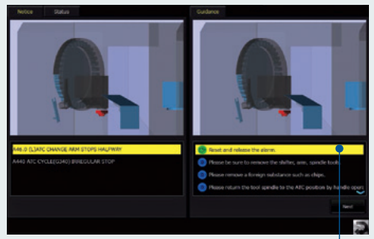
Alarm screen

Maximum 8 alarms are displayed in one screen and maximum 24 alarm messages are recorded.

MACHINE	Machine alarm/warning
NURSE	NT NURSE alarm/warning
NC	NC alarm
GR/PC	Gantry loader or Parts catcher alarm/warning
MACRO	Macro alarm

Maintenance

ATC Maintenance Navigator



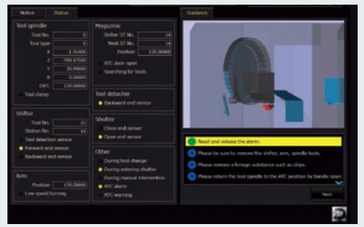
The "ATC Maintenance Navigator" is found in the "Trouble Guidance screen".

: Items with mechanical movement
: Items requesting to check inside the machine

Reduce ATC Alarm Recovery Time

This is an ATC alarm recovery support function. The ATC alarm, alarm recovery guidance, and tool information are displayed.
When an ATC alarm occurs, step-by-step ATC recovery navigation helps the operator reset the alarm quickly and reduces machine downtime.

In addition to the Alarm Recovery function, it is possible to check the status of the tool spindle, magazine, shifter, change arm, tool loading/unloading jig, etc. as shown in the right figure.



Maintenance

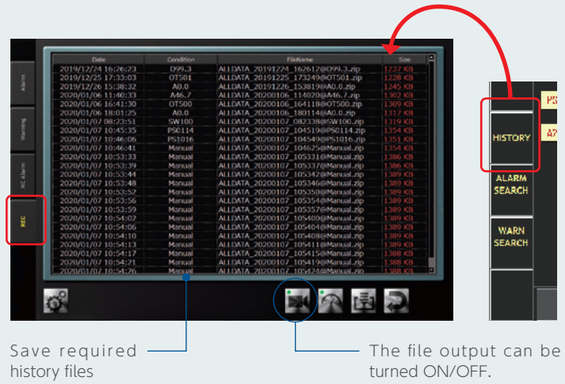
Drive Recorder

Quick Detection of the Alarm Causes

The current machine status can be recorded and output as a history file subject to the occurrence of an alarm or any signal change.

The output history file can be confirmed by opening the REC tab from the HISTORY of the Trouble Guidance screen.

By sending the history file to our service group, we will be able to identify the cause of the problem that has occurred and provide guidance on how to fix it.



Save required history files

The file output can be turned ON/OFF.

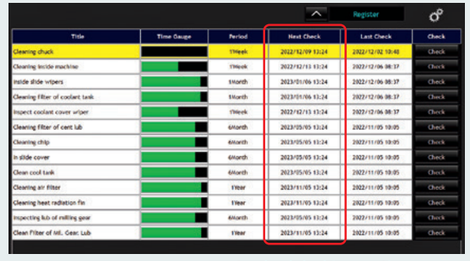
The history file to be output can be set from the settings screen.

Maintenance

Regular Maintenance Function

Automatic Notifications for Periodical Maintenance

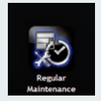
The machine's periodic maintenance is managed, and after inspection, cleaning, or parts replacement, the last inspection time is updated by pressing the inspection button, and the inspection schedule for the hour is displayed.



Next scheduled inspection

From the edit screen, you can add maintenance and inspection items, set inspection periods, notification times, and enable/disable of notifications.

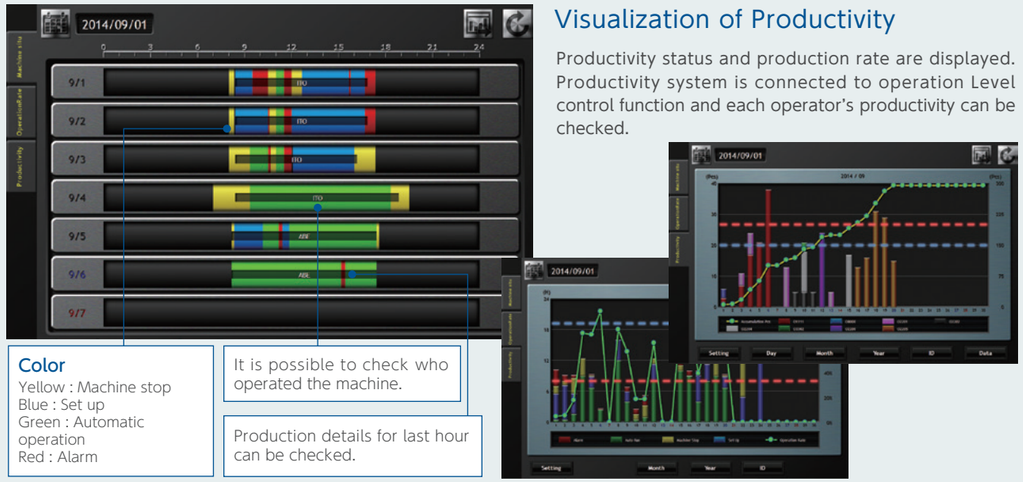
* Only the notification time can be edited for the items set by factory.



When there is an item to be inspected, "!" will be displayed in the scheduled maintenance.

Maintenance

Productivity Monitoring Function

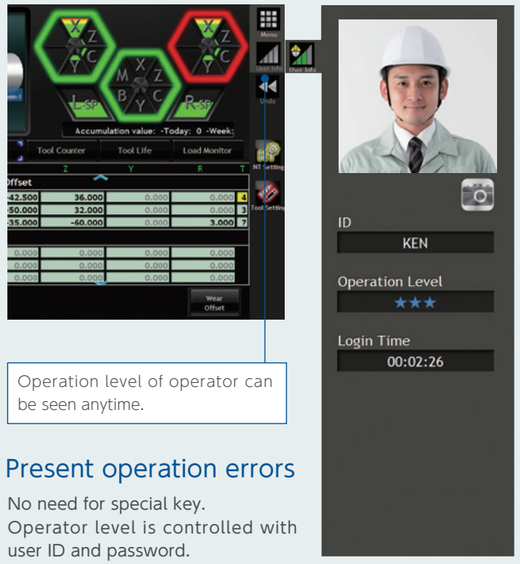


Visualization of Productivity

Productivity status and production rate are displayed. Productivity system is connected to operation Level control function and each operator's productivity can be checked.

Maintenance

Operation Level Management Function



Operation level of operator can be seen anytime.

Present operation errors

No need for special key.
Operator level is controlled with user ID and password.

Icon

Operator level can be confirmed.
Operator level is set from 0 to 4 as shown in the chart below."●" Operation possible for this level.

	level 0	level 1	level 2	level 3	level 4
Cycle start		●	●	●	●
Input wear offset		●	●	●	●
Program output		●	●	●	●
Manual operation			●	●	●
Override change			●	●	●
Input geometry offset			●	●	●
Work coordinate setting			●	●	●
NT NURSE setting			●	●	●
Coolant setting			●	●	●
Modify program				●	●
Input Program				●	●
Macro valuable setting				●	●
Setting date				●	●
NC parameter setting					●
PMC parameter setting					●

Customer Support

NT Update

* Please check Nakamura-Tome website for the countries where this service is provided.

Machines continue to evolve even after installation!

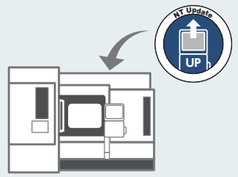
Web site of Nakamura-Tome Exclusive membership.
The necessary software can be downloaded and update your machine's software to the latest version.

How to use?

Just register as a user on the membership website and start using the service right away.

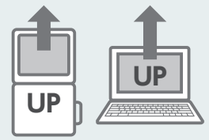
Scan here to register as a user ▶

With NT Update, it's as easy as updating your computer!



Easy download of any software you may need later at any time!

The latest version of the software can be used even after installation of the machine!



"NT Smart Sign" software used in the office can also be updated!

① Registration ▶ **② Download Software** ▶ **③ Software Update**

Enter user and machine information on the membership website.

Enter the issued user ID and password to log in.

Download the software in the membership website.

*1 There are two types of software: one for machines and one for NT Smart Sign. Please confirm the required software before downloading.

Save the installer to USB and insert it into the machine.

Put the machine in emergency stop and execute Setup.bat in the USB to install the following software.

- NT-IPS
- NT Collision Guard
- NT NURSE
- NT Manual Guide i

Software Update for Machines

Many software features that are currently supported by paid updates will be added free of charge.

Example :
・Productivity Monitoring Function
・Alarm/Warning/NC alarm history function
・Smart Support
・Convenient and Easy to Access
・Regular Maintenance Function
・3D Smart Pro/3D Smart Pro AI
・Program Optimizer
・NT Smart Sign
・NT Collision Guard/NT Machine Simulation
・Drive Recorder etc..

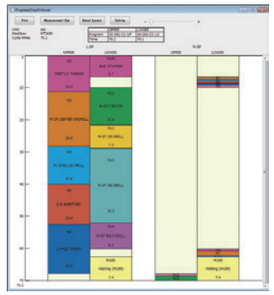
*2 Functions that require separate ladder modification/Parameter/NT Program, will not be added. However, if the machine is already equipped with these features, it will be updated to the latest version.
Example : Operation Level Management Function / Warming up Function / ATC Maintenance Navigator / NT Thermo Navigator AI / One touch Production etc..

NT Multitasking Office (op.)

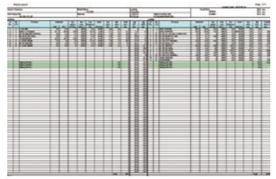
By integrating 3D CAD models of the machine, chucks, tools and part, with the dynamics of the real machine (parameter settings) as well as guided programming, NT Multitasking Office enables virtual planning and verification of the production process.

Efficient Programming for Higher Productivity

Shorter Set-up Times



The cutting time of each process is displayed on the graph.



Machining layout sheet is automatically generated.

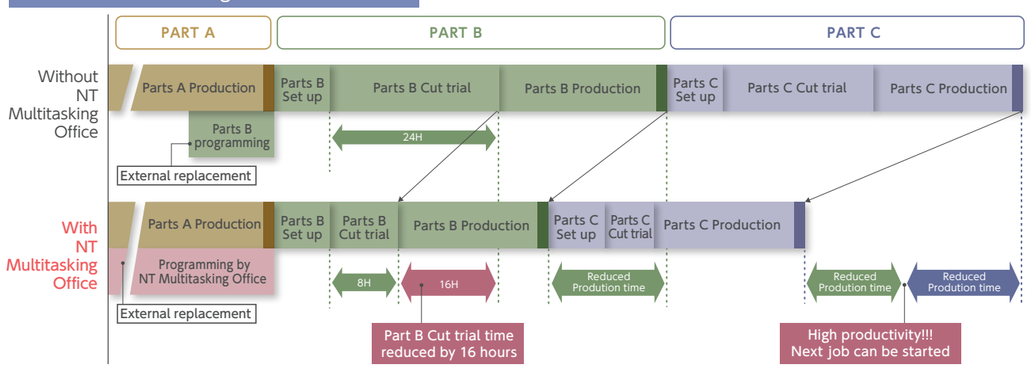
Drastically reducing set-up time leads to higher productivity.

Virtual simulation of the machining processes using 3D solid models of the machine, chucks, tool holders and tools, coupled with all the features of NT Manual Guide i, contribute to not only high efficiency programming and reduced cycle times, but also prevent collisions and reduce set-up time.

Features

1. Simulation is possible either from NT Manual Guide i program (including 4-digit G-codes), or from ISO NC program.
2. Simulation of Canned cycles such as G71, G83 and NT NURSE, NT WORK NAVIGATOR.
3. Simulation of programs using Jump programming function (G411) is available as well.

NT Multitasking Office merit



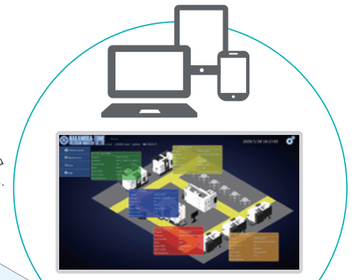
* Windows based PC is required to use "NT Multitasking Office."

Nakamura-Tome IoT software

NT Smart Sign

■ Monitoring

Real-time Monitoring of machine running conditions, in addition to visualizing alarm history and past events.

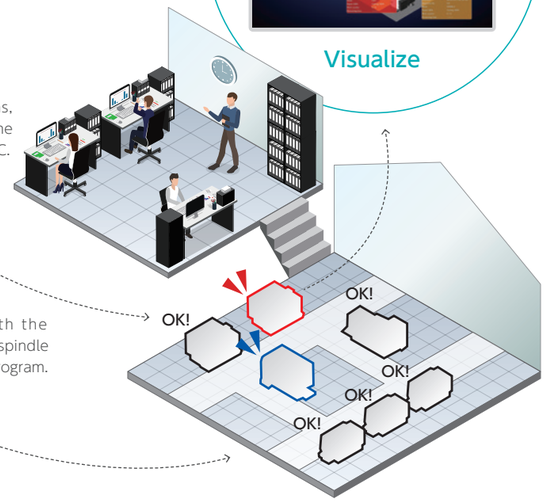


■ Data Input/Output

Input and output programs, tool data and other machine data from the monitoring PC.

■ Diagnosis

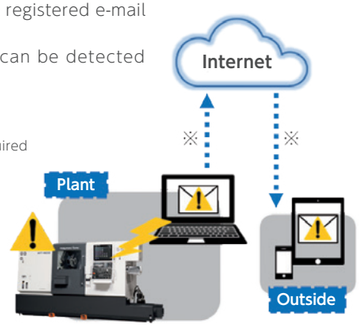
Diagnose problems with the machine servo drives and spindle drives, using a dedicated program.



■ E-mail Notice

When an alarm or warning occurs, an e-mail will be sent to the registered e-mail address.
Machine abnormalities can be detected from anywhere.

* Internet connection required.
A separate access point is required to connect to the Internet.
(Wireless LAN router, etc.)



■ Chat

Communication matters and instructions from the office can be communicated in a chat format between machines connected to a network or between machine and PC. Up to 1000 messages are saved.

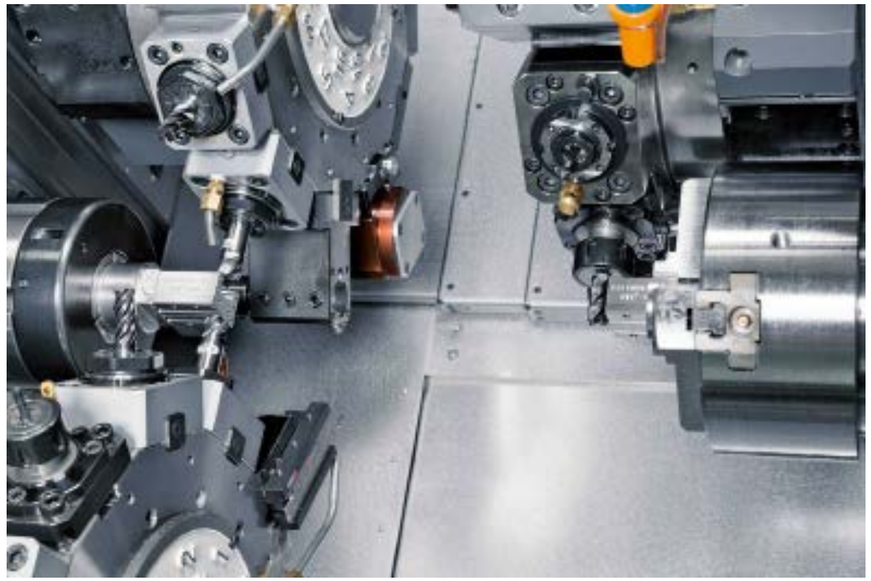
Machine Model/Software Compatibility Table

Page		JX-200	JX-250	MX-100	NTRX-300	NTRX-300L	NTY³-100V	NTY³-150	NTY³-250	WY-100V	WY-150	WY-250L	WT-100	WT-150Ⅱ
3-4	Status Screen	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
5	Setup Screen ※1	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
2	Geometry Navigator ※2	—	—	—	—	—	op.	op.	op.	op.	op.	op.	op.	op.
2	Path Checker ※3	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
6	Simple Call	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
7	One Touch Production ※4	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.
8	Digital Chuck Interlock	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
8	Smart Support	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
9	3D Smart Pro AI	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
11	3D Smart Pro	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
10	NT Manual Guide i	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
11	Drop Converter	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
12	NT Thermo Navigator AI	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
12	Warm-Up Function	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
13-14	NT NURSE	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
15	Program Optimizer	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
15	Chatter Canceller	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
16	Oscillation Cutting ※6	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.
16	Smart Tuning ※7	op.	op.	op.	op.	op.	—	—	—	—	—	—	—	—
17	NT WORK NAVIGATOR	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
17	Airbag	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
18	NT Machine Simulation ※1	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
18	NT Collision Guard	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
19	Trouble Guidance	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
19	ATC Maintenance Navigator	std.	std.	std.	std.	std.	—	—	—	—	—	—	—	—
20	Drive Recorder	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
20	Regular Maintenance Function	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
21	Productivity Monitoring Function	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
21	Operation Level Management Function	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
23	NT Multitasking Office	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.
24	NT Smart Sign	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.

Page		WT-250Ⅱ	WT-300	NTJ-100	Super NTJ	TW-8	NEW TW-30	AS-200	AS-200L	SC-100X²	SC-100	SC-200Ⅱ	SC-200ⅡL	SC-250	SC-300Ⅱ	SC-300ⅡL	SC-450L
3-4	Status Screen	std.	std.	std.	std.	—	std.	—	—	—	—	—	—	—	—	—	—
5	Setup Screen ※1	std.	std.	std.	std.	—	std.	—	—	—	—	—	—	—	—	—	—
2	Geometry Navigator ※2	op.	op.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	Path Checker ※3	std.	std.	std.	—	—	std.	—	—	—	—	—	—	—	—	—	—
6	Simple Call	std.	std.	std.	std.	—	std.	—	—	—	—	—	—	—	—	—	—
7	One Touch Production ※4	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.	op.
8	Digital Chuck Interlock	std.	std.	std.	—	op.	std.	—	—	std.	std.	std.	std.	std.	std.	std.	std.
8	Smart Support	std.	std.	std.	std.	—	std.	—	—	std.	—	std.	std.	—	—	—	—
9	3D Smart Pro AI	std.	std.	std.	—	—	std.	—	—	—	—	—	—	—	—	—	—
11	3D Smart Pro	std.	std.	std.	—	—	std.	—	—	—	—	—	—	—	—	—	—
10	NT Manual Guide i	std.	std.	std.	std.	op.	std.	op.	op.	std.	op.	std.	std.	op.	op.	op.	op.
11	Drop Converter	std.	std.	std.	std.	op.	std.	op.	op.	std.	op.	std.	std.	op.	op.	op.	op.
12	NT Thermo Navigator AI	std.	std.	std.	—	—	std.	—	—	std.	—	std.	std.	—	—	—	—
12	Warm-Up Function	std.	std.	std.	std.	std.	std.	std. ※5	std. ※5	std. ※5	std. ※5	std. ※5	std. ※5	std. ※5	std. ※5	std. ※5	std. ※5
13-14	NT NURSE	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
15	Program Optimizer	std.	std.	std.	—	—	std.	—	—	—	—	—	—	—	—	—	—
15	Chatter Canceller	std.	std.	std.	std.	—	std.	std.	std.	std.	std.	std.	std.	—	std.	std.	—
16	Oscillation Cutting ※6	—	—	op.	op.	—	—	op.	op.	std.	op.	—	—	—	—	—	—
16	Smart Tuning ※7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
17	NT WORK NAVIGATOR	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
17	Airbag	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.
18	NT Machine Simulation ※1	std.	std.	std.	std.	—	std.	—	—	—	—	—	—	—	—	—	—
18	NT Collision Guard	std.	std.	std.	std.	—	std.	—	—	—	—	—	—	—	—	—	—
19	Trouble Guidance	std.	std.	std.	std.	—	std.	—	—	—	—	—	—	—	—	—	—
19	ATC Maintenance Navigator	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20	Drive Recorder	std.	std.	std.	—	—	std.	—	—	—	—	—	—	—	—	—	—
20	Regular Maintenance Function	std.	std.	std.	std.	std. ※8	std.	std. ※8	std. ※8	std. ※8	std. ※8	std. ※8	std. ※8	std. ※8	std. ※8	std. ※8	std. ※8
21	Productivity Monitoring Function	std.	std.	std.	std.	—	std.	—	—	—	—	—	—	—	—	—	—
21	Operation Level Management Function	std.	std.	std.	std.	—	std.	—	—	—	—	—	—	—	—	—	—
23	NT Multitasking Office	op.	op.	op.	op.	—	op.	—	—	—	—	—	—	—	—	—	—
24	NT Smart Sign	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.	std.

※1 Only NT SmartX is smart type
※2 Standard only when Tool Setter is selected
※3 NT SmartX (3.01 generation or later) and NC must satisfy the following conditions.
NC: FANUC 30i Series Model B
BX71 series 37 version or later
BX72 series 18 version or later
BX73 series 06 version or later

※4 Standard only when HAN-BEI 8-POINT MEASUREMENT(op.) is selected
※5 Since it is the Warm-Up Function of NT NURSE, the function is limited.
※6 Only X/Z axis of Linear Guide can be used.
※7 HAN-BEI HIGH-SPEED SKIP FUNCTION(op.) is required.
※8 Since it is the Regular Maintenance Function of NT NURSE, the function is limited.



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