

MX-100

NAKAMURA-TOME
PRECISION INDUSTRY CO.,LTD.

Flexibility and
Compact Floor
Space

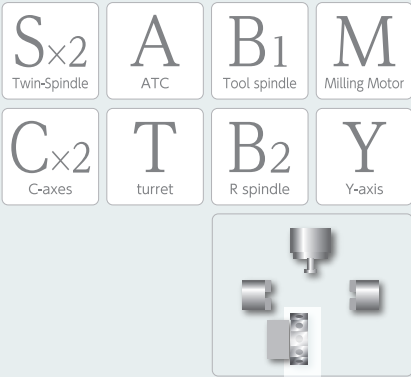
Innovative
Technology

~ Creating new values ~

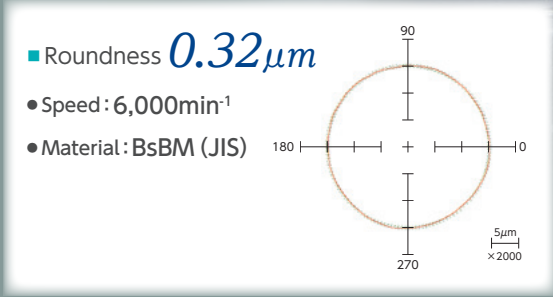
MX-100

State-of-the-art, compact high-precision Multitasking Machine, with the capabilities of a Machining Center and a Turning Center, featuring advanced software, smart features and up to 96 tools, to ensure high-productivity machining of a wide range of parts, and to smartly meet the needs of various manufacturing sectors.

- Milling•Y-axis standard
- ATC tool spindle standard
- Tool spindle power 11/7.5kW
Spindle speed12,000min⁻¹ (op. 20,000min⁻¹)
- ATC storage capacity 36 tools (op. 48, 72 tools)
- X-axis travel up to 50 mm below spindle center.
Y axis travel ± 105 mm with respect to the spindle center
- Floor space 4,350mm x 2,795mm (including chip tank)
- Lower turret milling motor power 7.1/2.2 kW
with Max. speed 6,000 min⁻¹
- Eco-friendly: Grease lubrication of slide axes
- Advanced software and Smart features



Perfection and
Flexibility



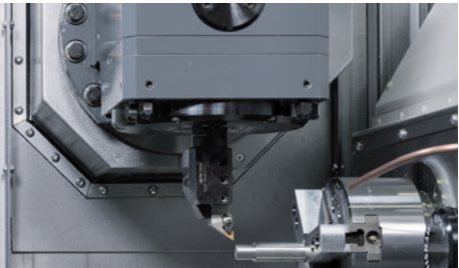
The MX-100 is a compact Multitasking Machine with a wide machining range, and up to 96 tools (72 tools for ATC[op.] and 24 tools for lower turret), ensuring versatility and maximum performance in a small footprint.

The built-in spindle motors feature superior cutting capabilities, with the possibility to upgrade the left spindle to 15/11 KW motor (Bar capacity Dia. 65mm op.) , ensuring higher performance and more rigidity.

With the MX-100, Nakamura-Tome continues its pursuit not only to offer high-accuracy and high-rigidity, but also to ensure the highest performance and the most outstanding cutting capabilities.



Turning



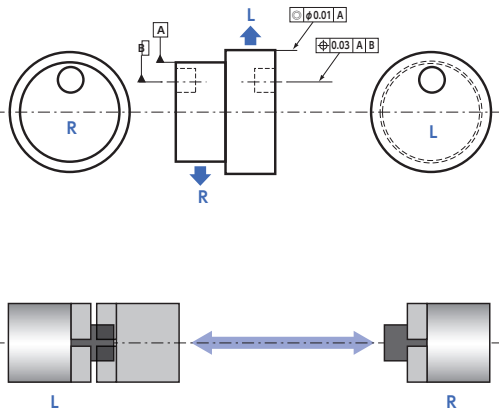
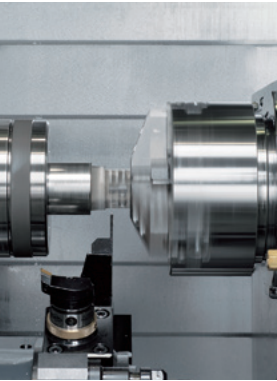
- L-Spindle**
- Cutting cross section $2.25\text{mm}^2/\text{rev}$
 - Depth of cut 5mm
 - Feed $0.45\text{mm}/\text{rev}$
 - L-Spindle motor $11/7.5\text{kW}$
- Material : S45C

Milling



- Tool spindle**
- Metal Removal Rate $57.30\text{cc}/\text{min}$
 - Tool spindle motor $11/7.5\text{kW}$
- Lower turret**
- Metal Removal Rate $18.88\text{cc}/\text{min}$
 - Milling motor $7.1/2.2\text{kW}$
- Material : S45C

Part Transfer Accuracy



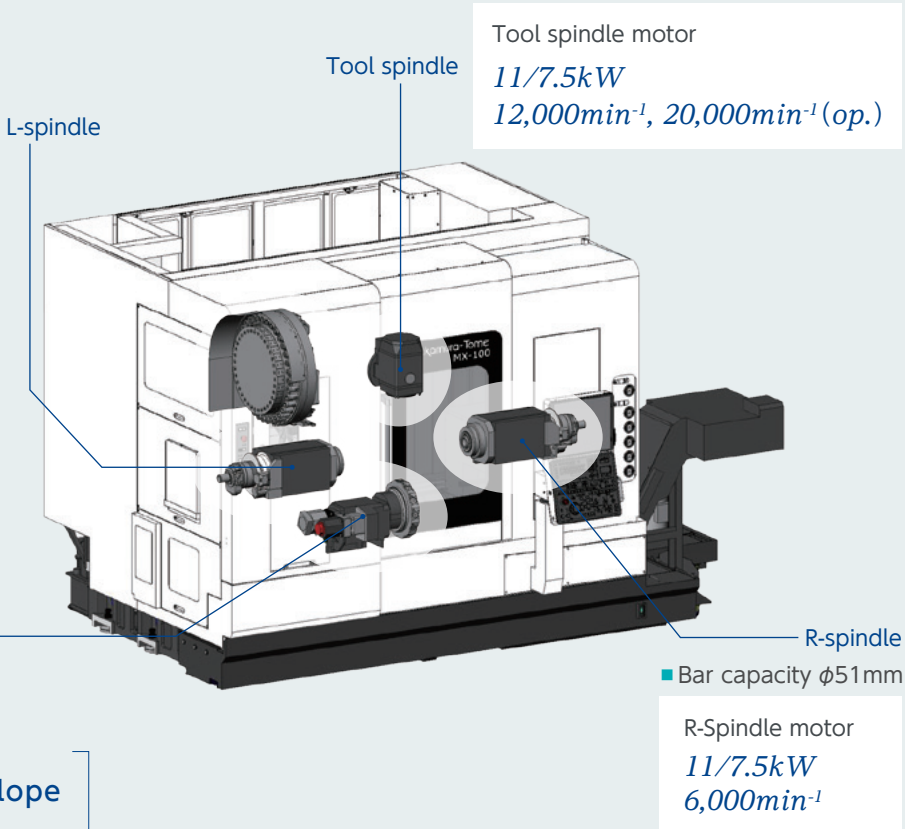
- Outside turning coaxiality**
- Required accuracy $\phi 0.01\text{mm}$
 - Actual value $\phi 0.005\text{mm}$
- Hole positioning accuracy**
- Required accuracy $\phi 0.03\text{mm}$
 - Actual value $\phi 0.009\text{mm}$

Solid performance.
Combining the Capabilities of a Machining Center
and a Turning Center.

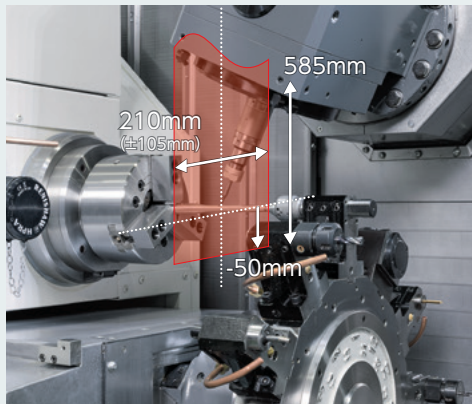
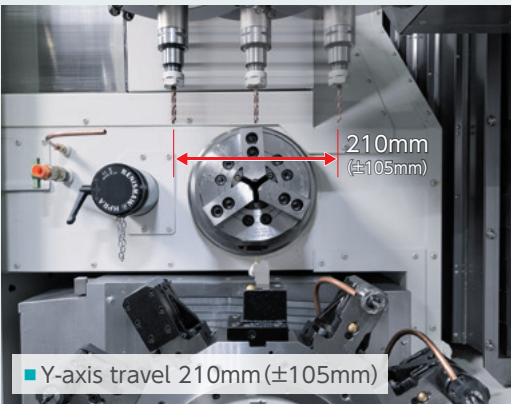
■ Bar capacity $\phi 51, \phi 65\text{mm (op.)}$

L-Spindle motor
 $11/7.5\text{kW}, 15/11\text{kW (op.)}$
 $6,000\text{min}^{-1}, 4,500\text{min}^{-1} \text{ (op.)}$

Lower turret motor
 $7.1/2.2\text{kW}, 6/1.5\text{kW (op.)}$
 $6,000\text{min}^{-1}, 8,000\text{min}^{-1} \text{ (op.)}$



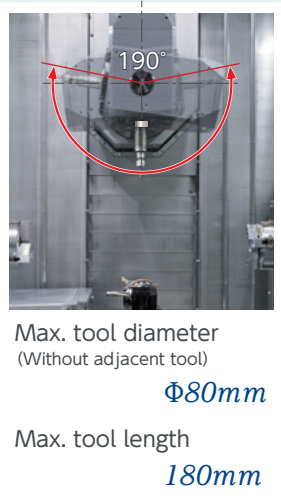
Ensuring a large work envelope
in a compact machine



High accuracy
machining.

Thanks to large Y-axis travel and 50mm X-axis travel beyond the spindle center, various machining operations can be performed without rotating the C-axis, such as square milling in the X-Y plane or deep hole drilling in the X-axis direction, ensuring faster cycle time and higher precision.

Standard specification
Floor space (Machine only) $L3,200\text{mm} \times W2,485\text{mm} \times H2,662\text{mm}$
*not including chip tank or chip conveyor.

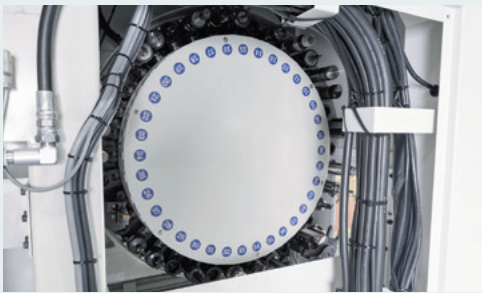


96 tools

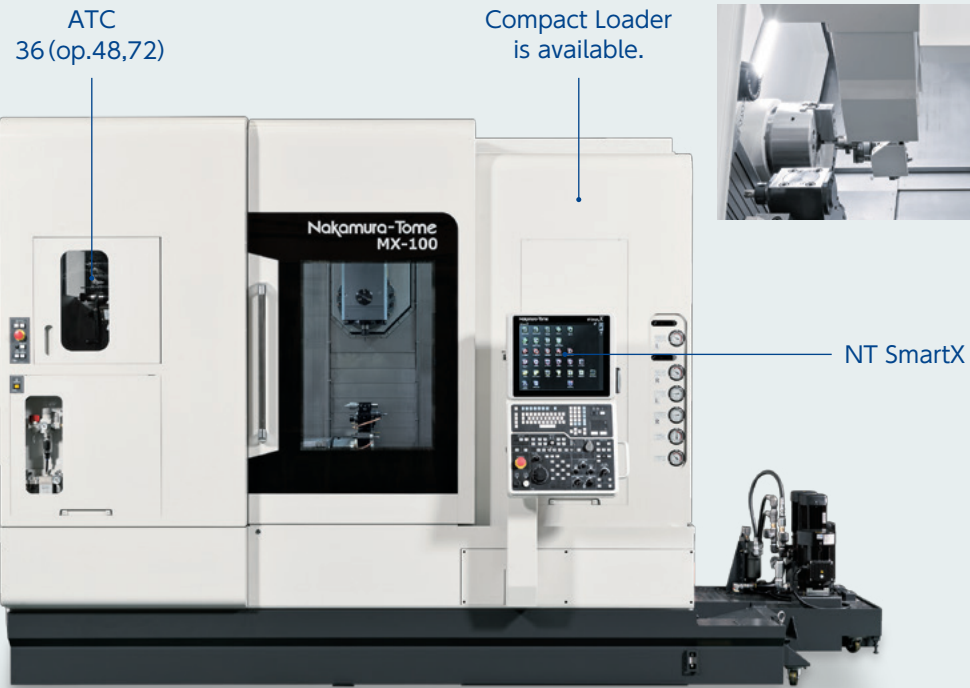
Up to 96 tools
available!

In addition to 36 (op. 48 or 72) ATC tools for Tool Spindle, up to 24 turning tools (12 milling tools) can be mounted on the lower turret.

36(op.48,72) ATC tools



Max. tool diameter	55mm (80mm Without adjacent tool)
Max. tool length / Max tool weight	180mm / 4kg
Tool shank type	Sandvik Capto C4
Tool change time	1.3 Sec

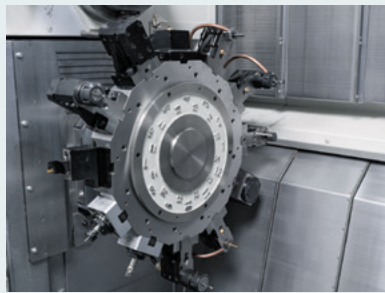


ATC Maintenance Navigator



In addition to the information about the ATC status and position of the Tool Changer arm. The step by step ATC recovery guidance screen ensures fast ATC recovery and shorter machine down time.

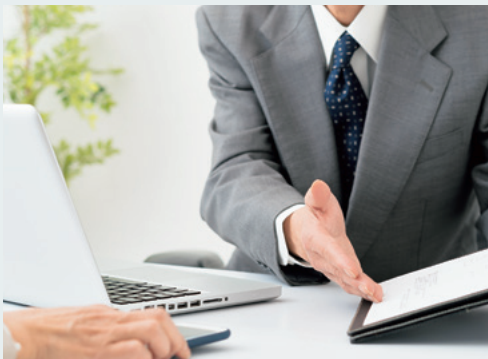
Lower turret



Type of turret head	Dodecagonal drum turret / 24st
Number of tools	24 tools (turning tools)
Number of driven-tool stations	12
Milling tool size	$\Phi 1 \sim \Phi 14\text{mm}$

Various Options to Meet our Customer's Needs.
Total Provider for Peripheral Equipment.

Whether it is machine setup, cutting chip management, higher efficiency, or improved productivity, Nakamura-Tome offers top-class peripheral equipment, which boosts the performance of our Multitasking Machines. As a total solution provider using our vast experience, Nakamura-Tome offers complete solutions, including Multitasking Machines complemented with a great variety of peripheral equipment.



Parts Catcher Type G



Compact Loader



Fire protection damper



Duct for Oil Mist Collector



Coolant pump



In-process measuring system



Chip conveyor



Oil skimmer



And many others.
For items not listed, please
feel free to contact your
Nakamura-Tome representative.

NT SmartX

Full Operator Support from
Ease of Use to Reliability

Main features of NT SmartX

Standard	
• NT WORK NAVIGATOR	• Drop Converter
• Airbag (Overload detection)	• Cut in check
• NT NURSE	• Program Optimizer
• Status Display Function	• NT Machine Simulation
• Setup Display	• NT Collision Guard
• Trouble Guidance	• NT Thermo Navigator AI
• Productivity Function	• Digital Chuck Interlock
• Warm up Function	• NT Manual Guide i
• Smart Support	• One touch MDI
	• 3D Smart Pro AI

19 inch color LCD touch panel	Original Menu screen
QWERTY keyboard	Voice Guidance
PC memory 8 GB	Multi-Touch Screen
	Touch pad



- Powered by AI as standard equipment
- NT Thermo Navigator AI
- 3D Smart Pro AI



Cut in check



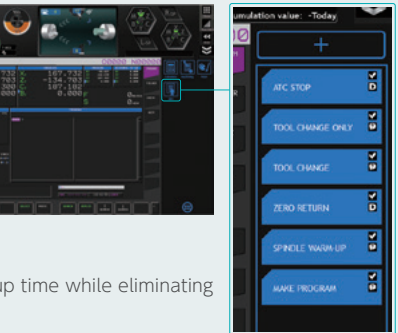
Digital Chuck Interlock

Set the Chuck Open and Close detection position easily.
The chuck open / close position is set up on the NT SmartX screen.
Setup time and machining cycle time are reduced.

One Touch MDI

This function is to register frequently used program blocks or cycles, such as zero return or tool change, and call them again with one touch.

Reduce programming and setup time while eliminating input errors.

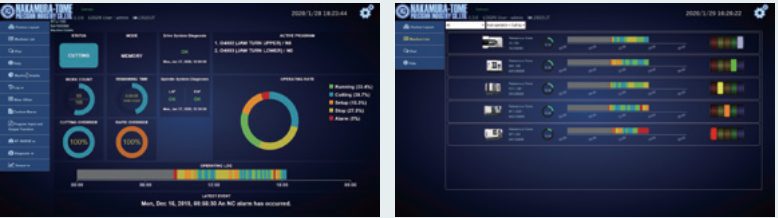


NT Smart Sign

Nakamura-Tome IoT software

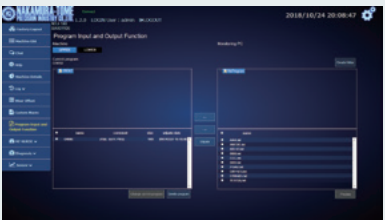
※Please refer to the NT Smart Sign exclusive catalog for details.

■ Monitoring



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

■ Data Input / Output

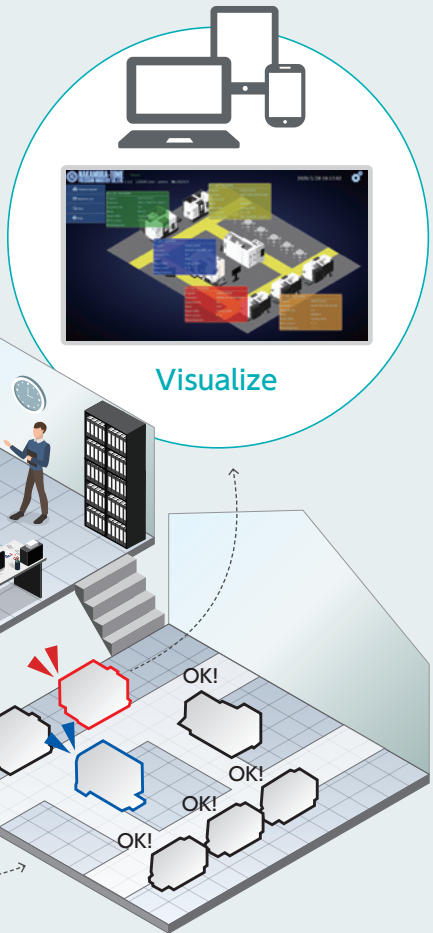


Input and output programs, tool data and other machine data from the monitoring PC.

■ Diagnosis



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



NT Thermo Navigator AI

Thermal Growth
Compensation using AI.

Compensation model built using AI machine learning.

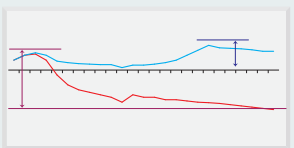
Powered by AI

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

- ① Time
- ② Measured Dimensions
- ③ Retrieval of Wear Offset Data

Acquired Data analyzed with NT Thermo Navigator AI

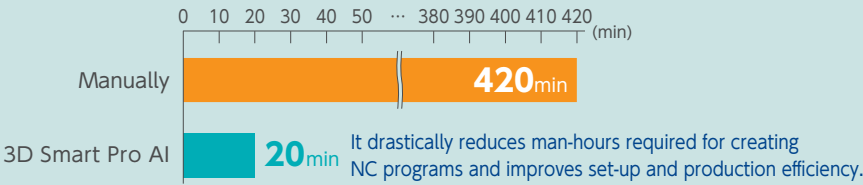
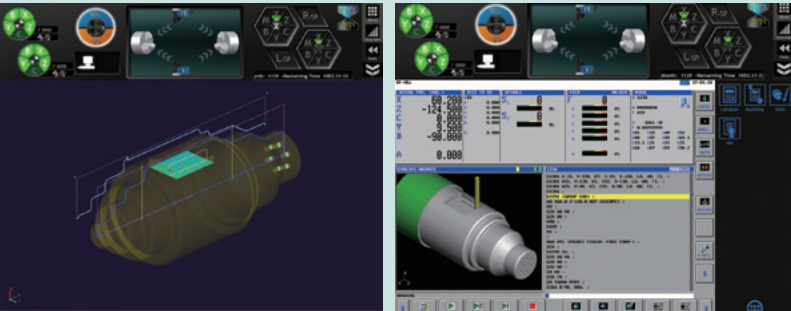
Feedback



Standard for NT Smart X

3D Smart Pro AI AI analysis NC programming support function

From the 3D CAD drawing, AI automatically analyzes “model geometry”, “machining path”, “machining tools”, “machining conditions”, and “machining process sequence”, to create NC programs for all processes from raw material to finished product.



3 useful features available with 3D Smart Pro AI

2. Optimization of machining processes

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



1. Transfer setting

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



3. Tolerance setting

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



NT WORK NAVIGATOR

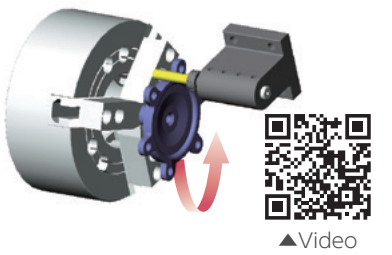


No fixtures required

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.



Double safety features for maximum protection

NT Machine Simulation / NT Collision Guard + Airbag (Overload detection)

The machine comes protected with dual safety features: "NT Machine Simulation / NT Collision Guard" to prevent a collision beforehand, and the "Airbag Function" minimizes damage to the machine in case of collision.

NT Machine Simulation

Machine collisions are avoidable with Preventive safety technology!

By checking in advance for interference between chucks and tools, or between tools and covers, etc, in addition to checking the machining processes, the risk of a machine collision is drastically reduced, and the machining processes can be optimized.



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

Image shown here is of a 2-turret machine

NT Collision Guard

Available in automatic or manual mode. Using the built-in 3D models on the machine, chucks, tools, holders, and parts, machine collisions can be monitored and prevented in real-time during automatic, manual, or jog movements. Even turret indexing is monitored to prevent collisions, drastically reducing collision risks, especially during machine setup.



Image shown here is of a Tool spindle machine

Airbag (Overload detection)

Compared to other machines, Nakamura-Tome machines will not break after the slightest collision. The "Airbag Function" minimizes the damage that may occur during a collision.

If a machine collision occurs, there is good reason to be confident: Airbag !

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.



Without Airbag

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



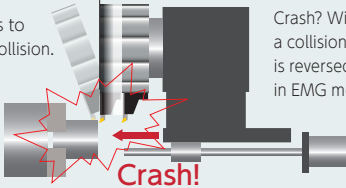
▲Video



With Airbag

Retraction within 0.001 sec

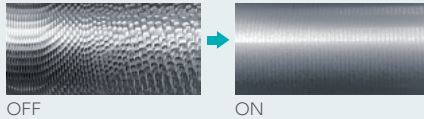
Crash? Within one millisecond after a collision, the servo motor direction is reversed, and the machine stops in EMG mode.



* This feature does not mean zero impact

Chatter Celler

Reduce the chatter and vibration by changing the spindle speed up/down continuously during cutting. This function can be turned ON/OFF simply by M code.



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

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.



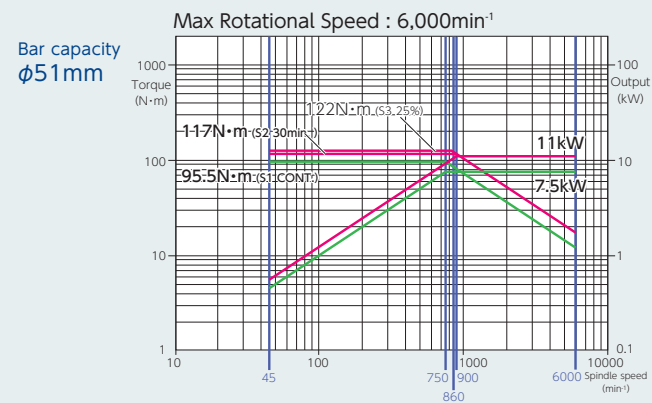
Material : Aluminum
Cutting speed : 200mm/min

Cutting feed : 0.1mm/rev
Cutting depth : 1.0mm

Torque/Output Chart

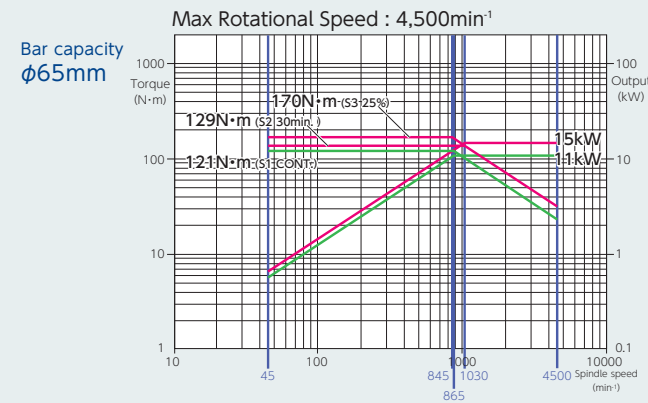
L/R Spindle motor

Standard



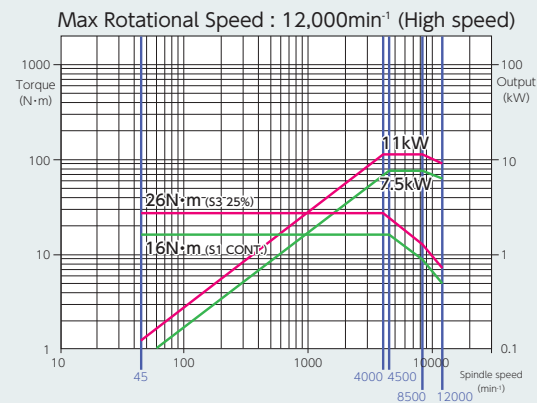
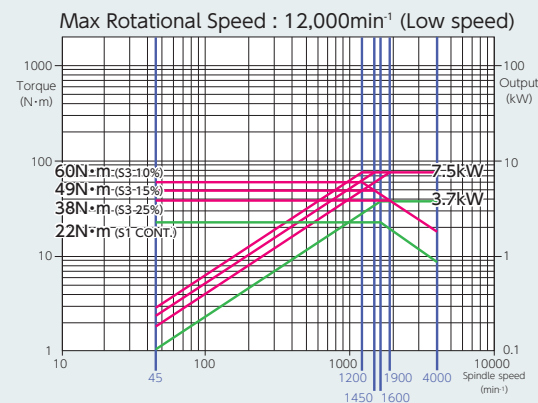
L- Spindle motor

Option



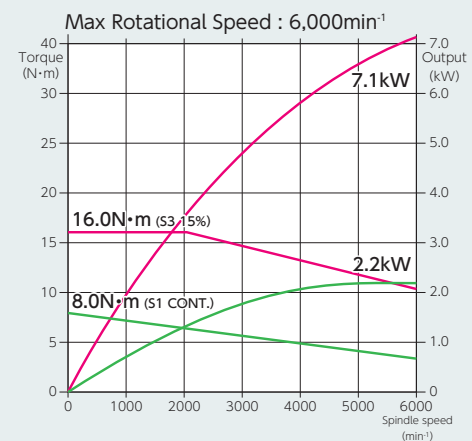
Tool spindle motor

Standard



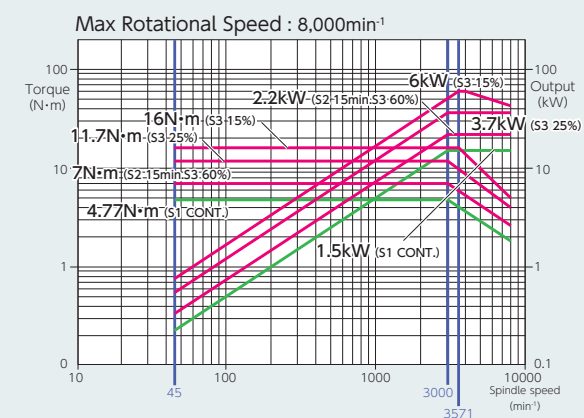
Milling motor

Standard

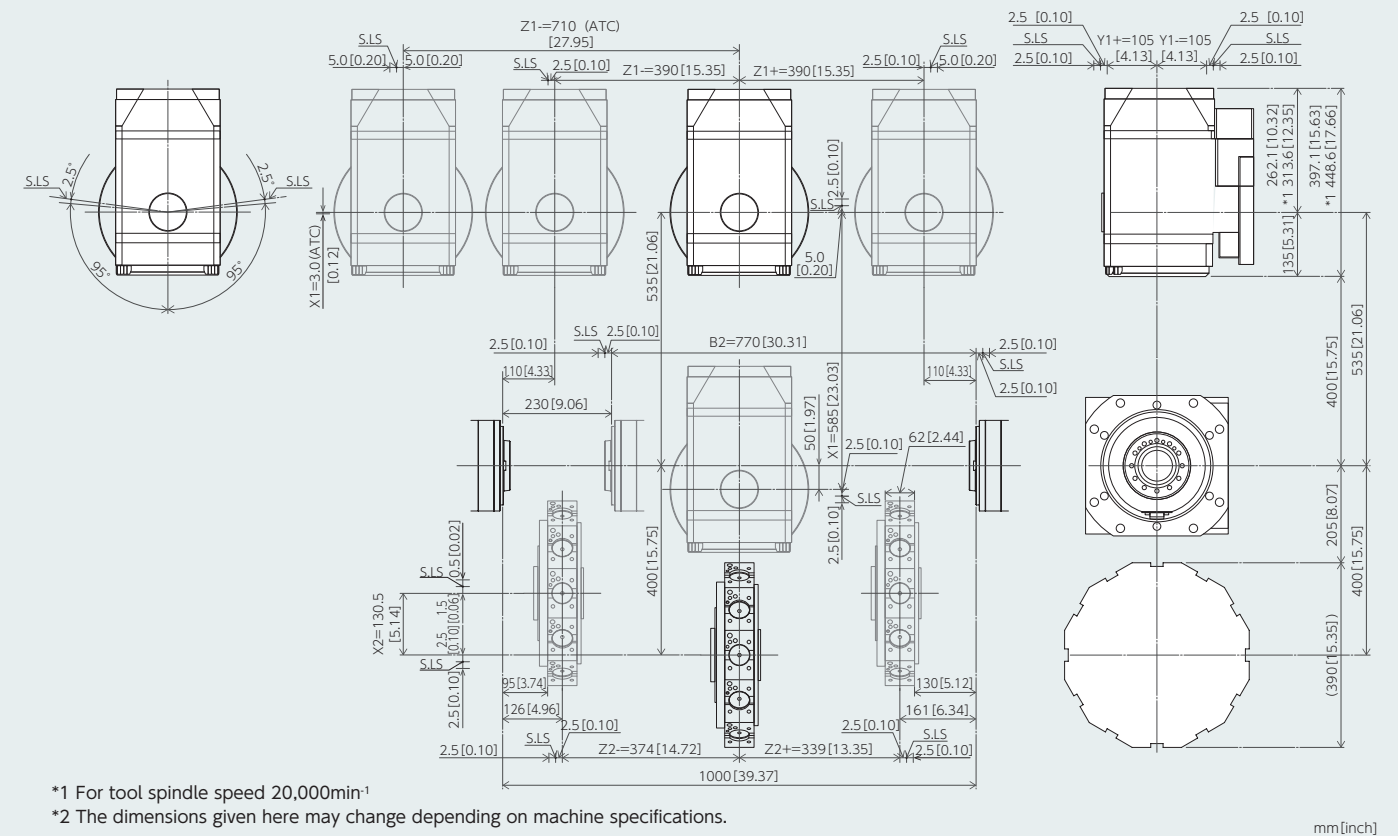


Milling motor

Option



Travel Range

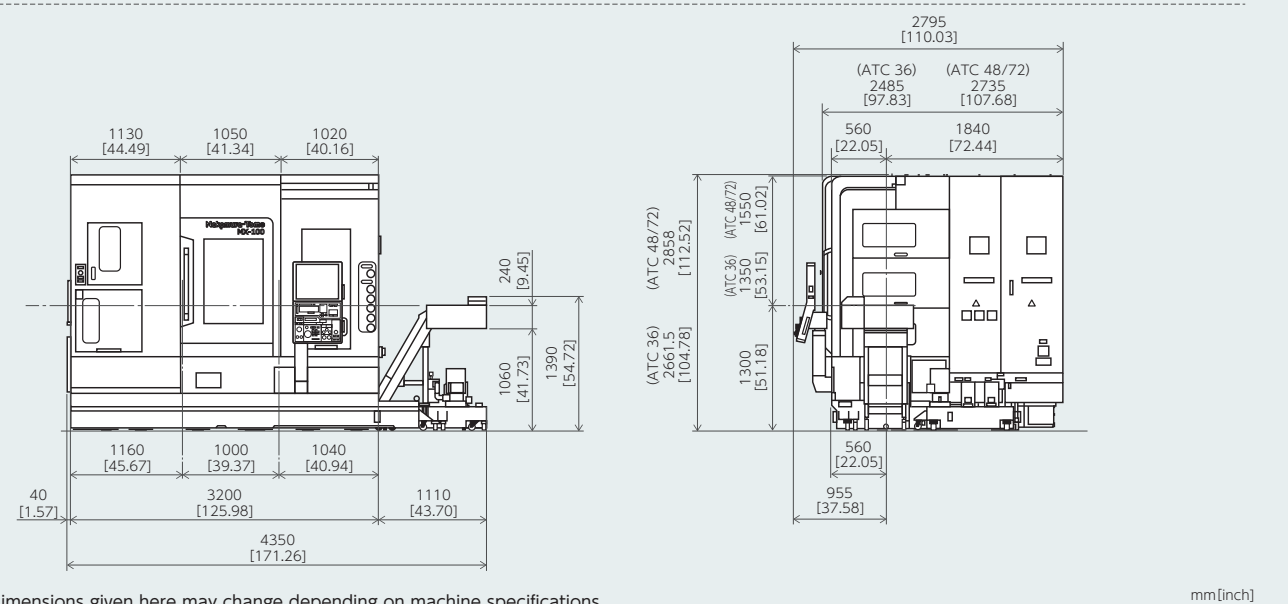


*1 For tool spindle speed 20,000min⁻¹

*2 The dimensions given here may change depending on machine specifications.

nm[inch]

Machine Dimensions



*2 The dimensions given here may change depending on machine specifications.

nm[inch]

Tooling System

Side cutter, Shoulder, Face milling

End mill tool

Drill tool

Drill tool (with coolant hole)

Reamer

Tap

Tap (with coolant hole)

End mill tool

CoroMill® 390

Delta Drill

Super U drill

Morse taper shank drill

Shoulder milling cutter

End mill

Long edge

Long edge

CoroMill® 790

CoroMill® 210

CoroMill® 345

CoroMill® 365

Extension adapter

Reduction adapter

393.CG-12x40/20x52 (φ3-16)

393.CG5-06x27/12x40/20x52(φ3-18 Shield type)

393.CG5-20x50 (φ9/711/715.7 Shield type)

393.CGP-20x72 (φ3-12 Pencil type)

393.CF-12x40/20x50 (φ2.9-16 High precision collet)

ER Collet

★AR Collet

393.14-16/20/25/32d (φ1-20)

393.15-16/20/25/32d (φ3-20 Shield type)

★AR16/20/25/32-d (φ1-20)

★AR16/20/25/32OH-d (φ3-20 Shield type)

Slim type

930-C4-S-12-080A/20-090A (0.6/0.9kg)

Pencil type

930-C4-P-06-085 (0.4kg)

930-C4-P-12-100/135 (0.6/0.7kg)

Collet chuck adapter

C4-391.14-16 070 (0.4kg)

C4-391.14-20/25 052 (0.3/0.4kg)

C4-391.14-32 054 (0.5kg)

Milling chuck adapter

★AC4-TRX16-70 (0.7kg)

★AC4-TRX20-75 (0.9kg)

★AS 16-d ASS20/25/32-d (φ6-25)

AR/GB Tap collet

★AR20GB-Mx (M4-12)

★AR25GB-Mx (M4-16)

Weldon shank adapter

C4-391.20-06/08 050 (0.4kg)

C4-391.20-10 050A (0.5kg)

C4-391.20-12 055A (0.6kg)

C4-391.20-14/16 055 (0.6/0.7kg)

ISO shank adapter

C4-391.27-16 056 (0.5kg)

C4-391.27-20 060 (0.5kg)

C4-391.27-25 077 (0.8kg)

Super U drill

CoroDrill® 880

880-DxxxxC4-03/04 (φ12 ~ 30/3xDC ~ 4xDC)

MT shank adapter

★AC4-MTA1-90 (MT1) (0.5kg)

★AC4-MTA2-95 (MT2) (0.6kg)

★AC4-MTA3-115 (MT3) (1.0kg)

CoroMill® 490

490-025-C4-08M

490-032-C4-08M

490-040-C4-08M

490-044-C4-08M

490-040-C4-08H

490-044-C4-08H

CoroMill® 390

R390-016/020C4-11L

R390-025/032C4-11L

R390-025/032C4-11M

R390-040C4-11M/11H

R390-044C4-11M060

R390-044C4-11M075

CoroMill® 790

Shoulder milling for aluminum alloy

CoroMill® 210

For high feed / plunge

CoroMill® 345

For plunge

CoroMill® 365

Milling cutter for cast iron

C4-391.01-40 060A (0.6kg)

C4-391.01-40 080A (0.7kg)

C4-391.01-40 040 (0.4kg)

C4-391.02-32 055A (C4⇒C3) (0.5kg)

C4-391.02-32 070A (C4⇒C3) (0.6kg)

★Alps tool type AC · AR · ASS

Cutting head for OD Face turning

CoroTurn® RC

C4-DCLNR/L-27050-09/12 (0.4/0.5kg)

C4-DWLR/L-27050-06/08 (0.4kg)

CoroTurn® TR

TR-C4-D13JCR/L-27050 (0.3kg)

TR-C4-V13JBR/L-27050 (0.3kg)

Cutting head for grooving / cut off turning

C4-R/LF123D15/E15-27055B (0.4kg)

C4-R/LF123F20/G20-27060B/65B (0.4kg)

C4-R/LF123H25/J25/K25-27067/70B (0.5kg)

Cutting head for OD thread

CoroThread® 266

C4-266R/LFGZ-27050-22 (0.4kg)

C4-266R/LFGZ-27050-22 (0.4kg)

Cutting head for 45°OD turning

CoroTurn® RC

C4-DSDNN-00050-12 (0.4kg)

C4-DSSNR/L-27042-12 (0.4kg)

C4-DDNNN-00050-11 (0.4kg)

C4-DDNNN-00055-1504 (0.4kg)

Cutting head for boring

T-Max P

C4-PCLNR/L-17090-12M1 (0.5kg)

C4-PCLNR/L-22110-12M1 (0.6kg)

C4-PCLNR/L-27080-12M1 (0.7kg)

C4-PCLNR/L-27120-12M1 (1.1kg)

Cutting head for ID thread

CoroThread® 266

C4-266R/LKF-12060-16 (0.3kg)

C4-266R/LKF-14060-16 (0.4kg)

C4-266R/LKF-17070-16 (0.4kg)

C4-266RKF-22090-16 (0.7kg)

C4-R166.0KFZ12060-11 (0.3kg)

Head cartridge type boring bar (steel)

CoroTurn® SL

C4-570-2C 16 048 (0.4kg)

C4-570-2C 20 058 (0.4kg)

C4-570-2C 25 064 (0.5kg)

C4-570-2C 32 074 (0.6kg)

C4-570-2C 40 073 (0.8kg)

C4-570-2C 16 041R/L (0.4kg)

C4-570-2C 20 047R/L (0.4kg)

Head cartridge type boring bar (vibration absorption)

CoroTurn® SL

C4-570-3C 16 088 (0.4kg)

C4-570-3C 20 107 (0.5kg)

C4-570-3C 25 132 (0.8kg)

Adapter for cylindrical shank with flat

C4-131-00040-10 (0.4kg)

C4-131-00045-12 (0.4kg)

C4-131-00050-16 (0.5kg)

Super U drill

CoroDrill® 880

880-DxxxxC4-03/04 (φ12 ~ 30/3xDC ~ 4xDC)

Turning Holder A

★AC4-BHB20R-100(CC/W)

★AC4-BHB19.05R-100(CC/W, inch)

Blank adapter for special application

C4-NR-040095-B (1.0kg)

C4-NR-060165-B (3.6kg)

C4-NR-080075-B (2.4kg)

C4-NR-100085-B (4.1kg)

C4-391.50-40 120-B (1.3kg)

C4-391.50-80 120-B (4.3kg)

Extension adapter

C4-391.01-40 060A (0.6kg)

C4-391.01-40 080A (0.7kg)

C4-391.01-40 040 (0.4kg)

Reduction adapter

C4-391.02-32 055A (C4⇒C3) (0.5kg)

C4-391.02-32 070A (C4⇒C3) (0.6kg)

CoroTurn® 107

C4-SCLCR/L-27050-09/12 (0.4kg)

C4-SDJCR/L-27050-07/11 (0.4kg)

CoroTurn® Prime

C4-CP-30AR/L-27050-11C (0.5kg)

C4-CP-25BR/L-27060-11B (0.5kg)

CoroCut® 1-2

C4-NF123G20-00070B (0.5kg)

C4-NF123J25-00077B (0.5kg)

CoroCut® SL

*Adapter 0°, 45°, 90° for SL

Refer to the Touring Catalogue

Metric

Inch

Turret Head

24ST

A1021201-01

A1022201-01

Turning Holder(AL)

Forward

A1221201-01

A1222201-01

Turning Holder(AL)

Reverse

A1111201-01

A1112201-01

Cut-off Holder

Forward

A1311201-01

A1312201-01

Cut-off Holder

Reverse

A1061201-01

A1062201-01

Double Turning Holder

A1041202-01

A1042202-01

Turning Holder(B)

A1411253-01

A1412253-01

Boring Holder

(φ25)(φ25.4)

A1411253-12

A1412253-12

Boring Holder

(Coolant through)

(φ25)(φ25.4)

A1431254-01

A1432254-01

Double Boring Holder(B)

(φ25)(φ25.4)

A1091252-01

A1092252-01

Turning Boring Holder(AL)

(□16,φ25)(□15.875,φ25.4)

A1081164-01

A1082264-01

Quadruple Turning Holder(AL)

(□16)(□15.875)

Qualified Tool

□20×90

□19.05×90

Qualified Tool

□20×90

□19.05×90

Set Ring

N3170(φ25)

N3180(φ25.4)

M2112(φ25-φ12)

M2113(φ25-φ10)

M2122(φ25.4-φ12.7)

M2123(φ25.4-φ9.525)

Tool Holder

M2110(φ25-φ20)

M2111(φ25-φ16)

M2120(φ25.4-φ19.05)

M2121(φ25.4-φ15.875)

Round Hole Bush

W145102

W145103

Clamp piece

Qualified Tool

□16×80

□15.875×80

C26330

Cross Holder

(Max.φ14)

H26333

Straight Holder

(Max.φ14)

★Alps tool type AC

15

16

Capacity

Max. turning diameter(Tool spindle /Lower turret)	305mm / 220mm
Distance between spindles	max.1,000mm / min.230mm
Max. turning length	834mm
Bar capacity	φ51mm / φ65mm (op. only for L)
Chuck size	6" / 8"

Axis travel・Rapid feed

X1/X2 axis slide travel	585mm / 130.5mm
Z1/Z2 axis slide travel	780+320(only during ATC)mm / 713mm
Y1 axis slide travel	± 105mm
B2 axis slide travel	770mm
X1/X2 rapid feed rate	30m/min / 16m/min
Z1/Z2 rapid feed rate	40m/min / 40m/min
Y1 rapid feed rate	16m/min
B2 rapid feed rate	40m/min

Left spindleφ51mmφ65mm(op.)

Spindle speed	6,000min ⁻¹	4,500min ⁻¹
Spindle speed range	Stepless	Stepless
Spindle nose	A2-5	A2-6
Hole through spindle	63mm	80mm
I.D. of front bearing	100mm	120mm
Hole through draw tube	52mm	66mm

Right spindleφ51mm

Spindle speed	6,000min ⁻¹
Spindle speed range	Stepless
Spindle nose	A2-5
Hole through spindle	63mm
I.D. of front bearing	100mm
Hole through draw tube	52mm

ATC Tool spindle

Tool spindle speed	12,000min ⁻¹ , 20,000min ⁻¹ (op.)
Swiveling range	190° (±95°)
Tool shank type	CAPTO C4 , HSK-T40 (op.)
Number of tools	36, (op. 48,72)
max. tool diameter / without adjacent tool	55mm / 80mm
max. tool length	180mm

Lower turret

Type of turret head	Dodecagonal drum turret
Number of tool stations	12 (Max.24)
Number of Indexing positions	24
Tool size (square shank)	□20mm (12st) / □16mm (24st)
Tool size (round shank)	φ25mm

Milling (Lower turret)

Rotary system	Individual rotation
Milling spindle speed	6,000min ⁻¹ , 8,000min ⁻¹ (op. only for L φ65)
Spindle speed range	Stepless
Number of milling stations	12
Tool size	Straight holder φ1mm ~φ14mm
	Cross holder φ1mm ~φ14mm

Drive motor

L-spindle	11/7.5kW , 15/11kW (op.)
R-spindle	11/7.5kW
Tool Spindle	11/7.5kW
Milling (Lower turret)	7.1/2.2kW, 6/1.5kW (op.)

General

Height	2,662mm (ATC 36)
	2,858mm (ATC 48/72)
Floor space (L × W)	4,350mm ×2,795mm
Machine weight (incl. control)	14,000kg (ATC 36)
	14,800kg (ATC 48)
	15,100kg (ATC 72)

Power requirements

power supply	45.1kVA (49.1kVA) (L spindle 11/7.5kW)
	48.2kVA (52.2kVA) (L spindle 15/11kW op.)

●Safety quality specifications

Various interlocks, such safety fences, auto extinguisher devices, and other safety related equipment may be required. These have to be selected during the configuration of the machine.

① Safety devices include electromagnetic door lock, chuck interlock, hydraulic pressure switch, air pressure switch, short circuit breaker and quill interlock. (Door interlock and chuck interlock are standard equipment.)

②In case of automation, various safety fences may be required, such as work stocker safety fences, robot safety fences, ...etc.

During the configuration of machine specifications, please discuss these requirements with the Nakamura-Tome machine sales representative.

●Precautions on the use of cutting fluids and lubricating oils

◦ Some types of cutting fluids (coolant) are harmful to machine components, causing damages such as peeling of paint, cracking of resin, expanding of rubber, corrosion and rust build up on aluminum and copper. To avoid causing damage to the machine, never use synthetic coolants, or any coolants containing chlorine. In addition, never use coolants and lubricating oils which contain organic solvents such as butane, pentane, hexane and octane.

◦ Machine warranty terms are void for any claims or damage arising from the use of inappropriate cutting fluids or lubricating oils.

Items

Control type	FANUC 31i-B (2-PATH)
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Controlled axes

Controlled axes	9 axes
Least command increment	Upper : 5axes (X1, Z1, C1 (C2), Y1, B1 axis) Lower : 4axes (X2, Z2, C2 (C1), B2 axis)

Input command

Least input increment	X,Z,Y,B2:0.001mm/0.0001inch (diameter for X-axis), C,B1:0.001°
Least command increment	X:0.0005mm / Z,Y,B2:0.001mm / C,B1:0.001°
Max.programmable dimension	±999999.999mm / ±39370.0787in , ±999999.999°
Absolute / incremental programming	X, Z, Y, C, B (absolute only for B2) / U, W, V, H
Decimal input	Standard
Inch / Metric conversion	G20 / G21
Programmable data input	G10

Feed function

Cutting feed	feed/min X, Z : 1 ~ 8000mm/min, 0.01 ~ 315inch/min (1 ~ 4800mm/min, 0.01 ~ 188inch/min) Y : 1 ~ 8000mm/min, 0.01 ~ 315inch/min (1 ~ 4800mm/min, 0.01 ~ 188inch/min) C : 1 ~ 4800° /min B1 : 1 ~ 8000° /min (1 ~ 4800° /min) B2 : 1 ~ 8000mm/min, 0.01 ~ 315inch/min (1 ~ 4800mm/min, 0.01 ~ 188inch/min)
	feed / rev 0.0001 ~ 8000.0000mm/rev (0.0001 ~ 4800.0000mm/rev) 0.000001 ~ 50.000000inch/rev
	The maximum cutting feed rate is the value in AI contour control mode. In normal operation, It is enabled with G316 command. The values in parentheses are normal values.
Dwel	G04
Feed per minute / Feed per revolution	G98 / G99
Thread cutting	G32F designation
Thread cutting retract	Standard
Continuous thread cutting	Standard
Handle feed	Manual pulse generator 0.001/0.01/0.1mm,* (per pulse)
Automatic acceleration / deceleration	Standard
Linear accel./ decel. After cutting feed interpolation	Standard
Rapid feed override	Low /25/50/100% (changeable to every 10% by NT Setting screen)
Cutting feedrate override	0 ~ 150%, 10% (each 10%)
AI contouring control I	G5.1
L- Spindle override	50%~ 120% Set every 10%
R-Spindle override	50%~ 120% Set every 10%
Tool Spindle override	50%~ 120% Set every 10%

Program memory

Part program storage length	1Mbyte Total 2560m (Upper/ Lower : Each 1280m) 2Mbyte Total 5120m (op.) 4Mbyte Total 10240m (op.) 8Mbyte Total 20480m (op.)
Part program editing	delete, insert, change
Program number search	Standard
Sequence number search	Standard
Address search	Standard
Number of registerable programs	Total 2,000 programs (Upper/ Lower :Each 1,000 programs) Total 4,000 programs (op.)
Program storage memory	Backed up by battery
Multiple program simultaneous editing	Standard
DNC operation through memory card	Standard (Not including memory card)
Extended part program editing	Standard

Operation and display

HMI (Human Machine Interface)	NT SmartX
Operation panel : Display	19-inch color SXGA LCD touch panel
Operation panel : Keyboard	QWERTY keyboard

Programming assist function

Circular interpolation R programming	Standard
Direct drawing dimension programming or Chamfering/Corner R	Standard (Direct drawing dimension programming is standard)
Canned cycle	G90, G92, G94
Multiple repetitive canned cycle	G70 ~ G76
Multiple repetitive canned cycle II	G71, G72
Canned cycle for drilling	G80 ~ G89
Sub program	Standard
Custom macro	Standard (common variable#100 - #149, #500 - #549)
Additional customer macro variables	Standard (After addition, #100 - #199, #500 - #999)
Luck-bei II / NT Manual Guide i	Standard
Abnormal load detection function	Standard
NT WORK NAVIGATOR	Standard (not including contact bar)
NT NURSE	Standard

Mechanical support

Rigid tap	Standard
Spindle synchronised control	Standard
C axis synchronised control	Standard (G496 C1, fast forward positioning)
Spindle orientation	Standard
Tool spindle orientation	Standard : 4 positions (90° × 4/ M785/ M786/ M787/ M788)
	Maximum : 12 positions (30° × 12/ G419)

ECO function

Servo motor power off	Standard (changeable by NT Setting screen)
Motor acceleration / deceleration output limit	Standard (changeable by NT Setting screen)
Servo motor energy saving acceleration / deceleration G code	G356/G357
Automatic lighting off	Standard (changeable by NT Setting screen)
Automatic monitor off	Standard (changeable by NT Setting screen)



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