

JX-200

Change the IMPOSSIBLE
to POSSIBLE

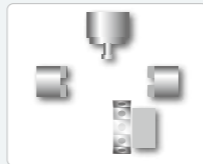
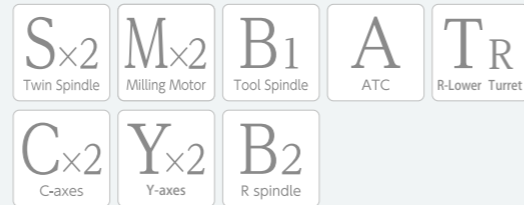
Innovative
Technology

~Creating new values~

JX-200

Ultra-modern 6 to 8-inch chuck multitasking machine with a tool spindle and a lower turret equipped with a standard Y-axis.

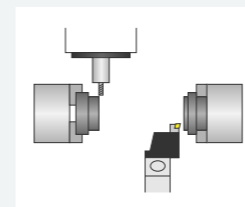
Featuring "NT Smart Cube", the shortest tool spindle in its class, the machining area can be used effectively, thus covering a wide range of machining needs. Additionally, a full range of Nakamura-Tome user-friendly software is available.



Change the IMPOSSIBLE to POSSIBLE

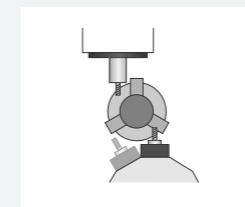
The world's shortest tool spindle in its class "NT Smart Cube" allows for a more effective use of its large machining area. By combining Lower turret, various machining operations can be supported, such as simultaneous machining with L/R spindles, simultaneous machining with Upper and Lower turrets, and center support on Lower turret.

With the ability to handle a workpiece covering the entire volume zone, and a flexible unit configuration that enables any type of processing. These are examples of the various processes that can be done by this machine:



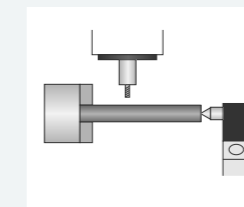
Flexible machining with L/R spindles

Flexible machining with L/R spindles to reduce the cycle time.



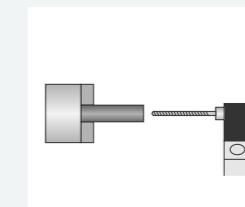
Simultaneous Y-axis vertical machining

Wide variety of milling operations, thanks to its Y-axis travel of ±105mm on the tool spindle and ±35mm on the lower turret.



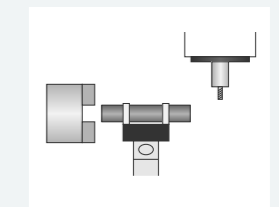
Turret Center-support

The center support on the Lower turret is ideal for long workpieces.



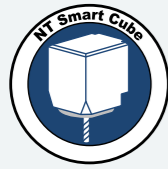
Long drill machining

Enables the use of long drills that do not fit in the ATC magazine.



Semi-automatic

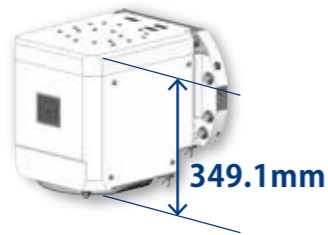
Loading/unloading workpieces by the work rest on the turret.



The world's shortest tool spindle in its class**
NT Smart Cube

■ Tool Spindle (NT Smart Cube)

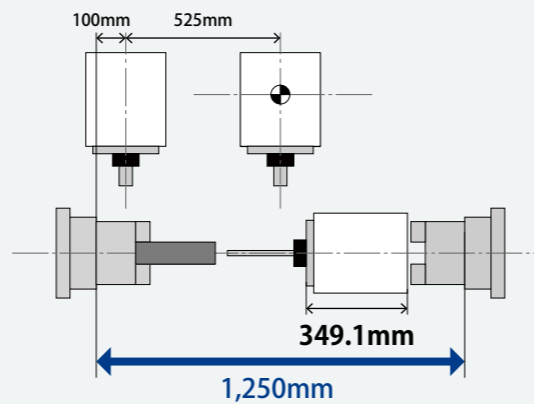
Length **349.1mm***
* The length is 428.6mm in case the tool spindle speed is 18,000min⁻¹
Y-axis slide travel **±105mm**
Tool spindle motor **15/11kW**
12,000min⁻¹
18,000min⁻¹ (op.)



Large machining area

The world's shortest tool spindle in its class. Thanks to the ultra-compact size of the Tool Spindle, interference is reduced, and a wider machining area is ensured.

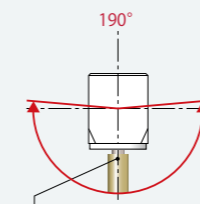
* Based on our survey in the multitasking machine market



144 tools

Up to 144 tools available!

In addition to 120 ATC tools (op.) for the Tool Spindle, 24 tools (half index) can be mounted on the Lower Turret.



Max.tool diameter / Without adjacent tool : φ90 / φ130mm

Max.tool length : 300mm



ATC Maintenance Navigator

In addition to 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.



■ L-spindle

Standard
Bar capacity **Φ65mm**
L-spindle motor **15/11kW**
4,500min⁻¹

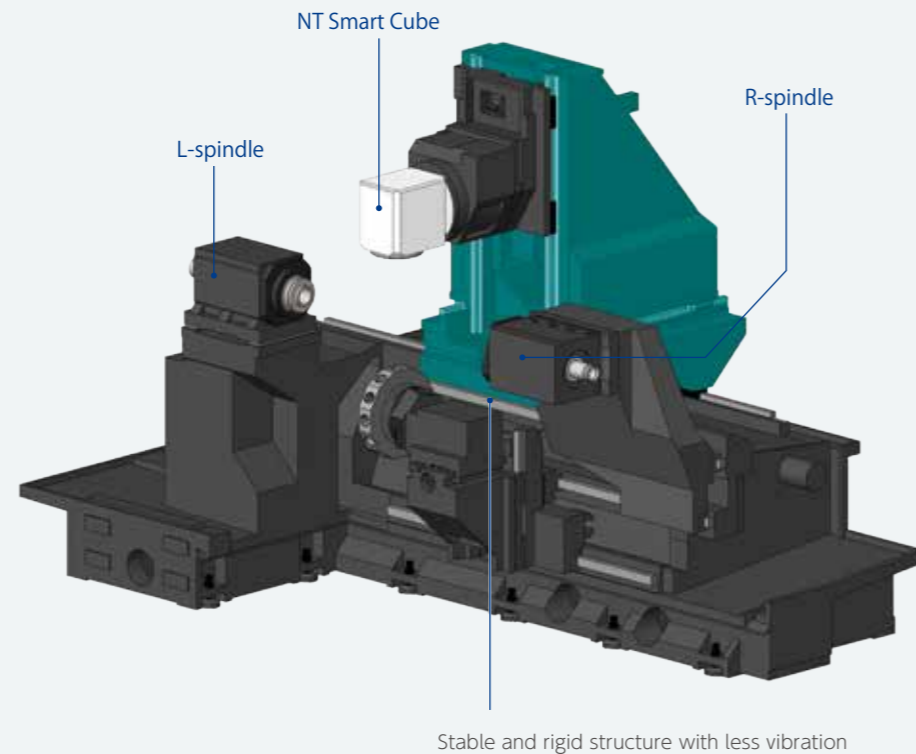
Option
Bar capacity **Φ80mm***
L-spindle motor **18.5/15kW**
3,500min⁻¹

* Specification of Φ51mm bar capacity is not available on R-spindle when Φ80mm bar capacity is selected on L-spindle.

■ R-spindle

Standard
Bar capacity **Φ51mm**
R-spindle motor **11/7.5kW**
6,000min⁻¹

Option
Bar capacity **Φ65mm**
R-spindle motor **15/11kW**
4,500min⁻¹



ATC
80 (op. 40,120)

High accuracy milling

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



■ R-lower turret

Y-axis slide travel **±35mm**
Milling motor **5.5/3.7kW**
6,000min⁻¹
8,000min⁻¹ (op.)

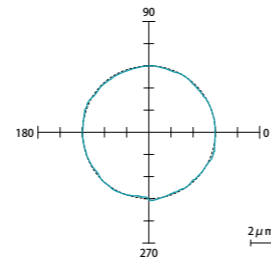


Parts catcher type G		Φ65	Φ80
Workpiece size	Diameter (mm)	Φ12~65	Φ31~80
	Length (mm)	15~150	
	Weight (kg)	3.0	
Ejecting method		Belt conveyor & Chute	

Stable and High Precision ATC multitasking machine

Roundness
0.36 μm

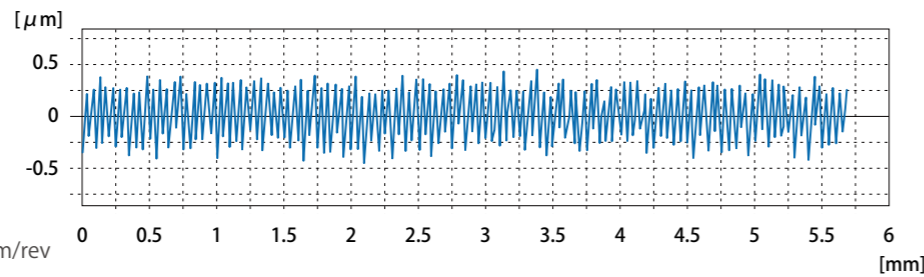
- Spindle speed: 4,000min⁻¹
- Material: BsBM(JIS)



Surface roughness (Rmax)

0.91 μm

- Spindle speed: 4,500min⁻¹
- Material: BsBM(JIS)
- Feed: 0.05mm/rev
- Nose R: 0.8mm



L-spindle

- Spindle motor: 15/11kW, 18.5/15kW(op.)
- Spindle speed: 4,500min⁻¹, 3,500min⁻¹(op.)

R-spindle

- Spindle motor: 11/7.5kW, 15/11kW(op.)
- Spindle speed: 6,000min⁻¹, 4,500min⁻¹(op.)

Turning (Tool spindle)

Common cutting condition

- Material: S45C
- Cutting speed: 120m/min

Cutting cross section
3.6mm²

- Depth of cut: 6mm
- Feed: 0.6mm/rev

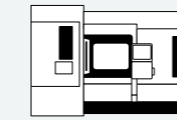
Cutting cross section
2.65mm²

- Depth of cut: 5mm
- Feed: 0.53mm/rev

- Cutting speed: 100m/min

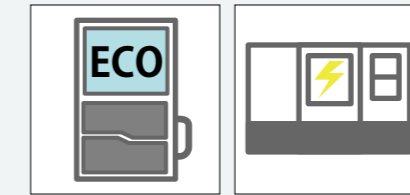
- Groove width: 8mm
- Feed: 0.1mm/rev

- Groove width: 5mm
- Feed: 0.1mm/rev



Initiatives in our products

Addition of eco-mode function to NT SmartX software
Improvement of power control system



Cut down power consumption by approx.68%

* When ECO mode is enabled

Inverter-Driven Hydraulic Power Unit



Cut down power consumption by approx.45%

* Compared with Super NTJX on standby mode

Reduction of oil consumption by changing from oil to grease lubricating



Cut down lubricating oil consumption by approx.98%

* Compared with Super NTJX

Switching the power source is expected to reduce annual CO₂ emissions by approximately 6,563 tons. (* 1)

Cedar trees 
Approx. **468,000 pcs**^{*2}

CO₂ reduction ↓

(* 1) Actual values from April 2019 to March 2020

(* 2) Each cedar tree absorbs 14 kg of CO₂ per year. (Source: Forestry Agency)

Nakamura-Tome is committed to the environment as an eco-friendly manufacturer.



*The actual measured values shown in this catalog are for reference only and may differ depending on cutting conditions and specifications.

NT SmartX

Full Operator Support: from Ease of Use to Reliability

Main features of NT SmartX

Standard

- NT Work Navigator
- Airbag (Overload detection)
- NT Nurse function
- Status Display Function
- Setup Display
- Trouble Guidance
- Productivity Function
- Warm up Function
- Smart Support
- Drop Converter
- Cut in check
- Program Optimizer
- NT Machine Simulation
- NT Collision Guard
- NT Thermo Navigator AI
- Digital Chuck interlock
- NT Manual Guide i
- One Touch MDI
- 3D Smart Pro AI

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



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



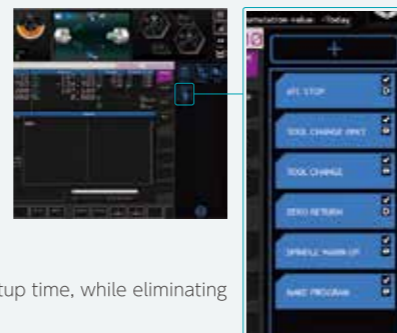
Digital Chuck Interlock

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

One Touch MDI

This function is to register in advance frequently used cycle programs such as home position return and tool exchange, and call 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



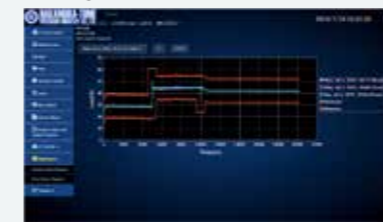
Real Time Monitoring of machine running conditions, in addition to visualizing alarm history and past events.

■ Data Input / Output

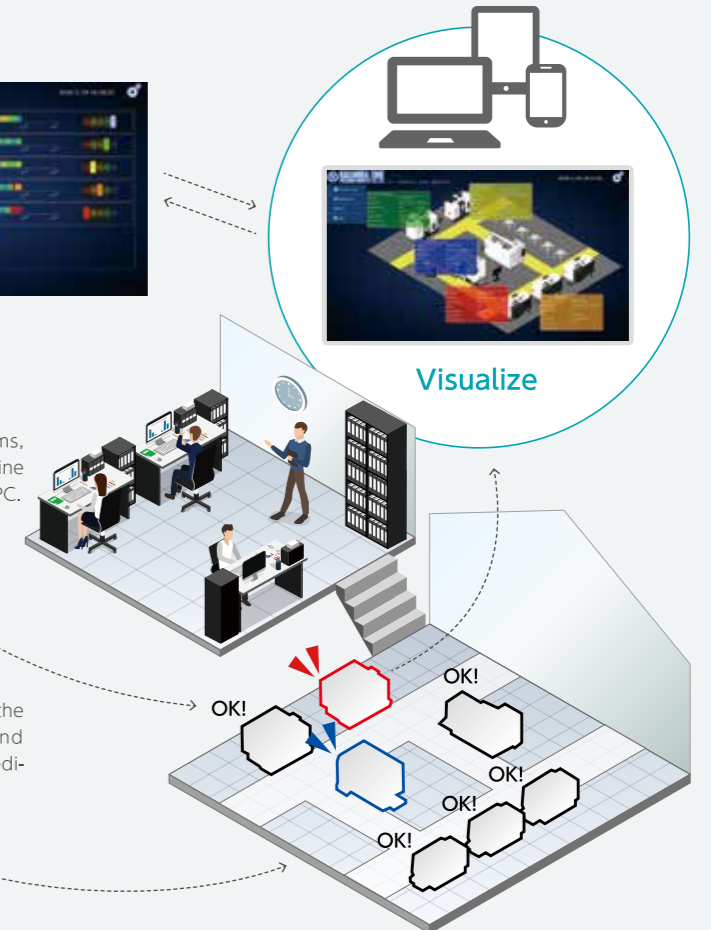


Input and output programs, tool data and other machine data from the monitoring PC.

■ 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

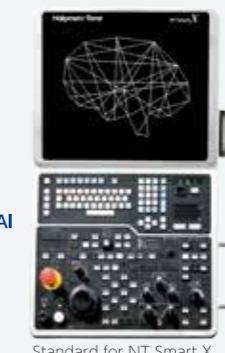
Time and measured dimension data are input into a dedicated AI Learning software, to build an optimized thermal growth compensation model.



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

Acquired Data analyzed with NT Thermo Navigator AI

Feedback

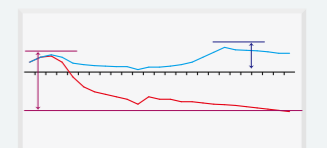


Standard for NT Smart X

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.

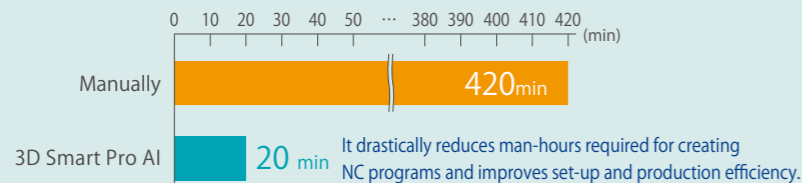
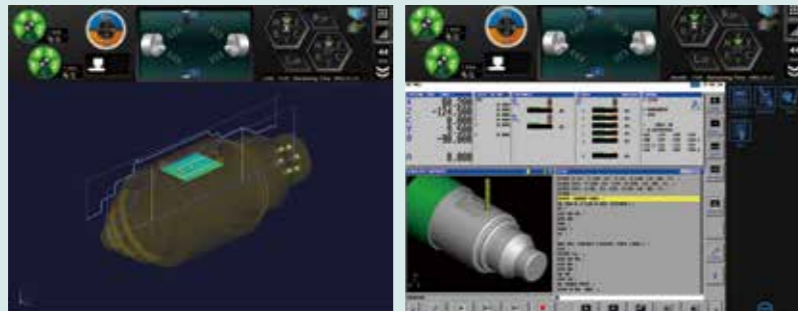
- Pre-correction thermal displacement data
- Thermal displacement data after correction



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

1. Transfer setting

1. Transfer setting

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



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

3. Tolerance setting

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



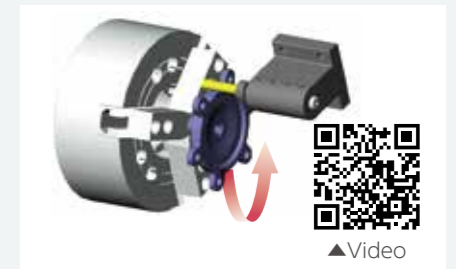
NT Work Navigator



Machining parts with non-round shapes, such as forgings or castings require that the raw part coordinates be recognized by the CNC control.

No fixtures required

It works just by touching the part with a simple inexpensive probe (mostly 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 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 is 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

Preventive safety technology - Machine collisions are avoidable!
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 feed 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 mode or in manual mode. Using registered 3D models of 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 greatly 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.



With Airbag

Retraction within 0.001 sec

Crash! Within 1 millisecond after the crash, the servo motor motion direction is reversed and the machine stops in EMG mode.

Barrier? Even with barrier function, machine collisions may occur



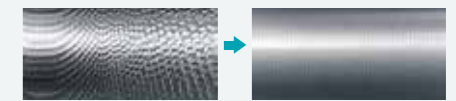
▲Video



* This feature does not mean zero impact

Chatter Canceller

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



* It does not warrant that the function works without chatter and vibration.
* Chatter and vibration may not be reduced depends on setting up as well as 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 simple Fanuc G-code and resolve workpiece damage issues caused by chips twined around the part.



Material : Aluminum
Cutting speed : 200mm/min

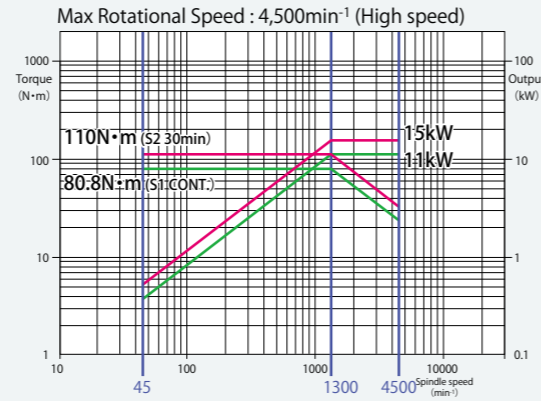
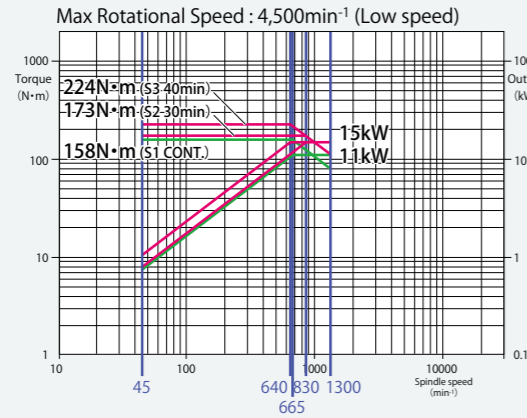
Cutting feed : 0.1mm/rev
Cutting depth : 1.0mm

Torque / Output Chart

L-spindle motor

Bar capacity
Φ65mm
15/11kW

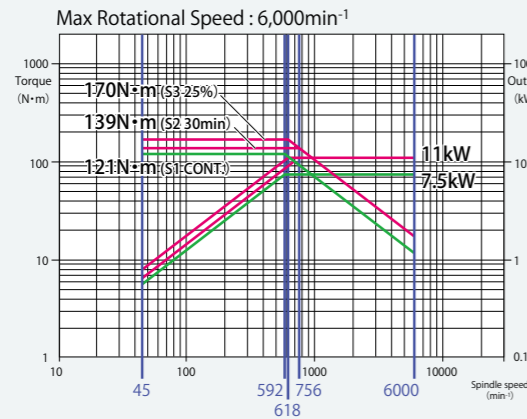
Standard



R-spindle motor

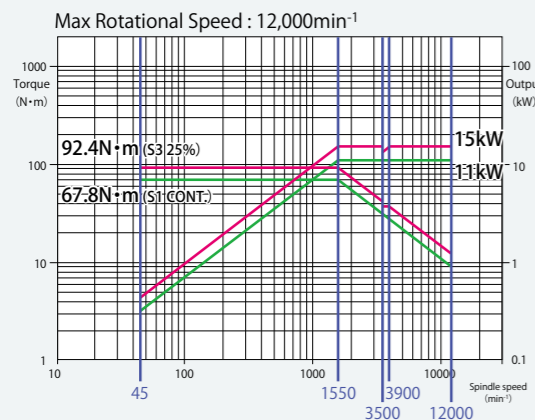
Bar capacity
Φ51mm
11/7.5kW

Standard



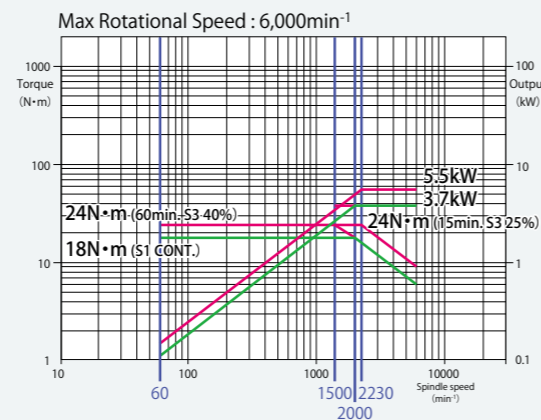
Tool spindle motor

Standard

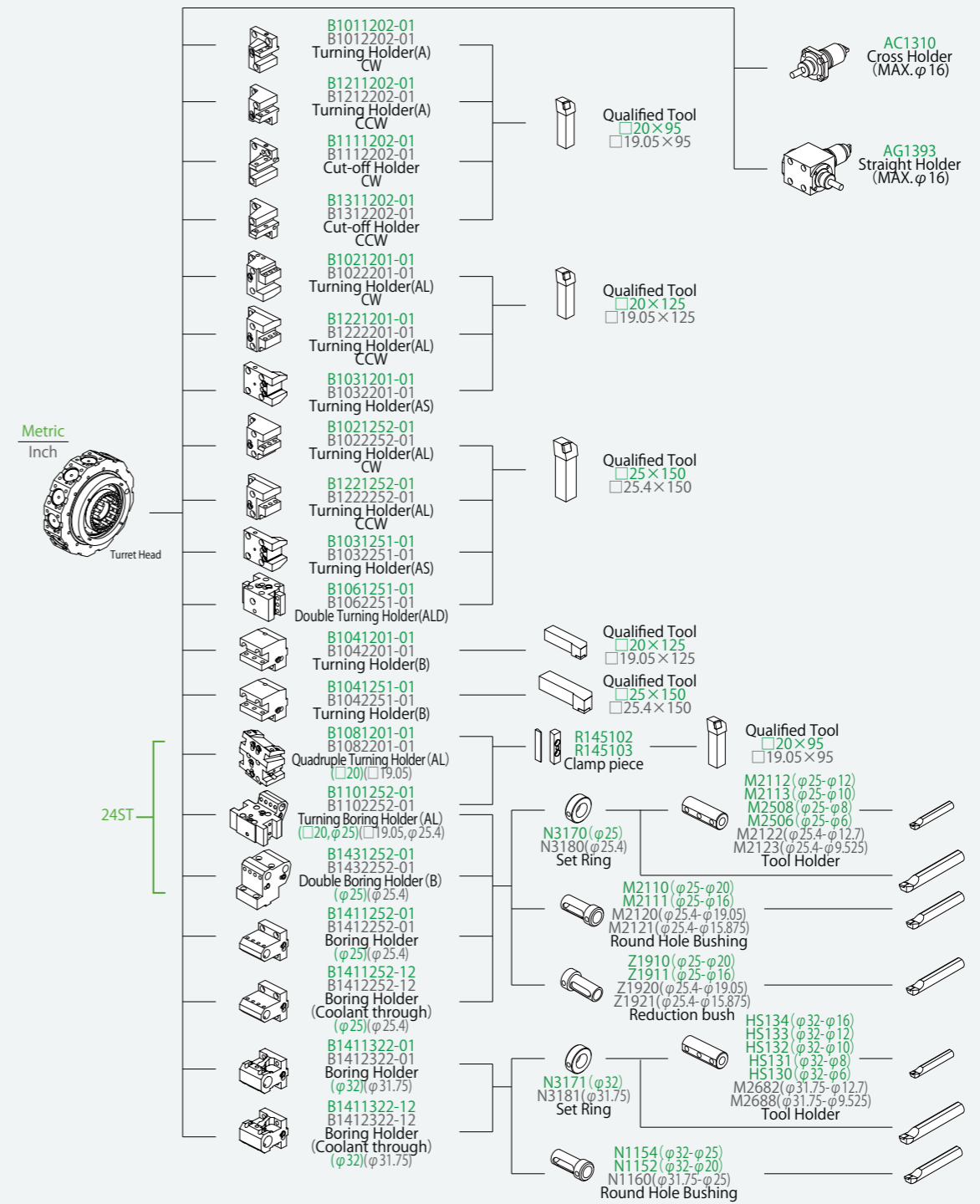


Milling motor

Standard



Tooling System



Tooling System

Sandvik Coromant Capto C6

φ50-100 Milling cutter



Face milling adapter
C6-391.05C-22 025M (0.9kg)
C6-391.05C-27 025M (1.0kg)
C6-391.05C-32 025M (1.1kg)

φ50-100 Side cutter



Side cutter arbor
C6-391.10-27 030 (1.1kg)
C6-391.10-32 025 (1.1kg)

End mill



Chamfering cutter



Drill



Drill with oil hole



Reamer



Tap



Tap (with coolant hole)



End mill



CORO MILL 390



Delta Drill



Coromant U drill



Straight collet



393.CG-20xx52 (φ 3-16 Without shields)
393.CG-25xx56 (φ 3-20 Without shields)
393.CG-32xx60 (φ 6-25 Without shields)
393.CG-20xx52 (φ 3-18 With shields)
393.CG-25xx56 (φ 3-20 With shields)
393.CG-32xx60 (φ 8-25 With shields)

Straight collet



★ A5 16-d (φ 6-12)
★ A5 20-d (φ 6-16)
★ A55 20-d (φ 6-16 Including adjust bolts)

ER/AR collet



393.14-16/20/25/32d (φ 1-20)
393.15-16/20/25/32d (φ 3-20 With shields)
※Commercially available ER/AR collets can be used instead.

Tap collet



393.14-20 DxxxXxxx (M3-M14)
393.14-25 DxxxXxxx (M5-M20)
393.14-20 DxxxXxxx (M20-M22)
※Commercially available ER/AR collets can be used instead.

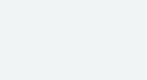
Weldon shank adapter
C6-391.20-20 065 (1.5kg)
C6-391.20-25 080 (1.9kg)
C6-391.20-32 090 (2.4kg)

ISO9766 shank adapter
C6-391.27-16 070 (1.1kg)
C6-391.27-20 070 (1.1kg)
C6-391.27-25 070A (1.1kg)
C6-391.27-32 070 (1.3kg)
C6-391.27-40 085 (1.7kg)

Extension adapter
C6-391.01-63 100A (2.3kg)
C6-391.01-63 140A (3.3kg)
C6-391.01-63 185 (3.8kg)
C6-391.01-62 060
(1.3kg short type / Bolt type not possible.)

Reduction adapter
C6-391.02-32 070A (1.1kg) (C6⇒C3)
C6-391.02-32 185 (2.8kg) (C6⇒C3)
C6-391.02-40 080A (1.3kg) (C6⇒C4)
C6-391.02-40 185 (3.0kg) (C6⇒C4)
C6-391.02-50 080A (1.5kg) (C6⇒C5)
C6-391.02-50 110 (2.2kg) (C6⇒C5)

★Alps tool type AS-AC



Cutting head "CoroTurn" Prime* for OD Face turning
C6-CP-30AR/L-45065-11C (1.3kg)
C6-CP-25BR/L-45065-11B (1.3kg)



CORO TURN® RC
C6-DCLNR/L-45065-12/16/19 (1.3kg)
C6-PCLNR/L-45065-12HP/16HP/19HP (1.3kg)
C6-DDJNR/L-45065-1504 (1.1kg)
C6-PDJNR/L-45065-1504HP (1.2kg)
C6-SCLNR/L-45065-09/12 (1.1kg)
C6-SCLNR/L-45065-12HPA (1.2kg)
C6-SDJCR/L-45065-11 (1.1kg)
C6-SDJCR/L-45065-11HPA (1.2kg)



Cutting head for grooving / cut off turning
CORO CUT® 1-2
C6-R/LF123G10-45065B (3.0kg)
C6-R/LF123H13-45065B (4.0kg)
C6-R/LF123J13-45065B (4.0kg)
C6-R/LF123K16-45065B (5.2kg)
C6-R/LF123L16-45065B (5.5kg)



Cutting head for OD thread
C6-266R/LFG-45065-16/22/27 (1.3kg)



Cutting head for ID boring
C6-DCLNR/L-27240-12/-27140-16 (0.9/1.7kg)
C6-PCLNR/L-27240-12HP/-27140-12HP (1.0/1.7kg)
C6-DDUNR/L-27140-15 (1.7kg)
C6-DDUNR/L-27140-15HP (1.7kg)



Cutting head for ID thread
C6-266R/LKF-14070-16 (1.0kg)
C6-266R/LKF-17075-16 (1.0kg)
C6-266R/LKF-22090-16 (1.2kg)
C6-266R/LKF-27105-16 (1.6kg)



Head cartridge type boring bar (steel)
C6-570-2C 16 056 (0.9kg)
C6-570-2C 20 068 (1.0kg)
C6-570-2C 25 082 (1.0kg)
C6-570-2C 32 081 (1.2kg)
C6-570-2C 40 092 (1.5kg)
C6-570-2C 40 105 (2.4kg)



Head cartridge type boring bar (vibration absorption)
C6-570-3C 16 088 (1.0kg)
C6-570-3C 20 108 (1.0kg)
C6-570-3C 25 230 (1.7kg)
C6-570-3C 32 224 (2.1kg)
C6-570-3C 40 198 (2.6kg)
C6-570-3C 50 239 (4.2kg)



Adapter for cylindrical shank with flat
C6-131-00098-25 (2.4kg)
C6-131-00112-40 (3.5kg)



Rectangular shank adapter (type B)
A C6-ASHR/L-105-20HP (2.3kg)
C6-ASHR/L-122-25HP (2.9kg)
B C6-ASHA-070-20HP (1.8kg)



MDI adapter (*MDI = Modular Drilling Interface)
C6-DM20-N-033 (1.0kg)
C6-DM25-N-030 (1.0kg)
C6-DM32-N-030 (1.0kg)
C6-DM40-N-040 (1.4kg)



Extension adapter
C6-391.01-63 100A (2.3kg)
C6-391.01-63 140A (3.3kg)
C6-391.01-63 185 (3.8kg)
C6-391.01-62 060 (1.3kg short type / Bolt type not possible.)



Reduction adapter
C6-391.02-32 070A (1.1kg) (C6⇒C3)
C6-391.02-32 185 (2.8kg) (C6⇒C3)
C6-391.02-40 080A (1.3kg) (C6⇒C4)
C6-391.02-40 185 (3.0kg) (C6⇒C4)
C6-391.02-50 080A (1.5kg) (C6⇒C5)
C6-391.02-50 110 (2.2kg) (C6⇒C5)



Cutting head R/L 570 type



Sleeve
132N-25xx (φ 6,8,10,16,20)
132N-40xx (φ 20,25,32)



Steel cutting tool for ID

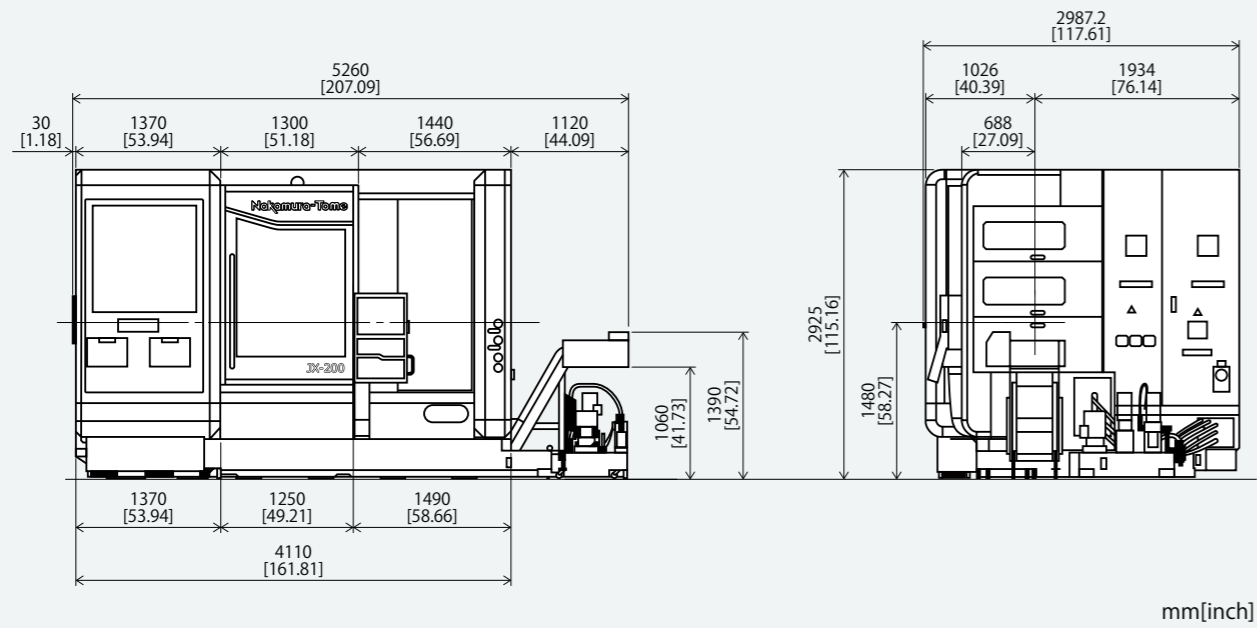


Carbide cutting tool for ID
Exxx-STFCR/L xxxR

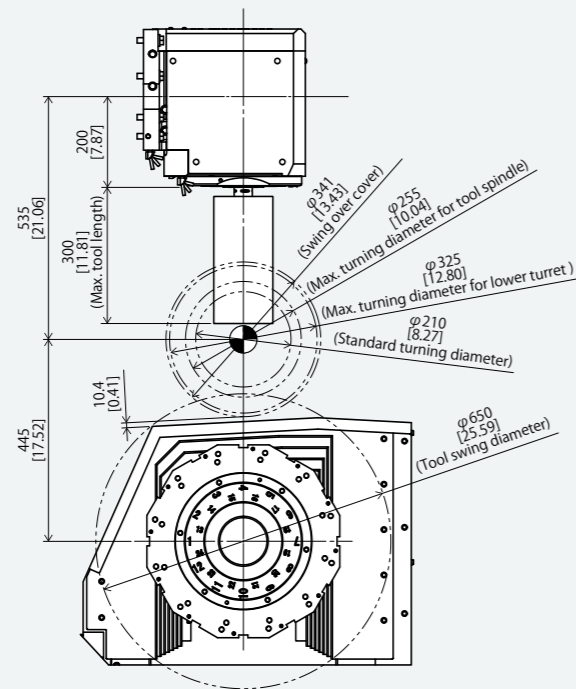
CoroDrill® DS20
DS20-DxxxxDMxx-xx (φ 15-40, MDI size, L/D 04 OR 07)

* For details, refer to the Sandvik Coromant Tooling Catalog.

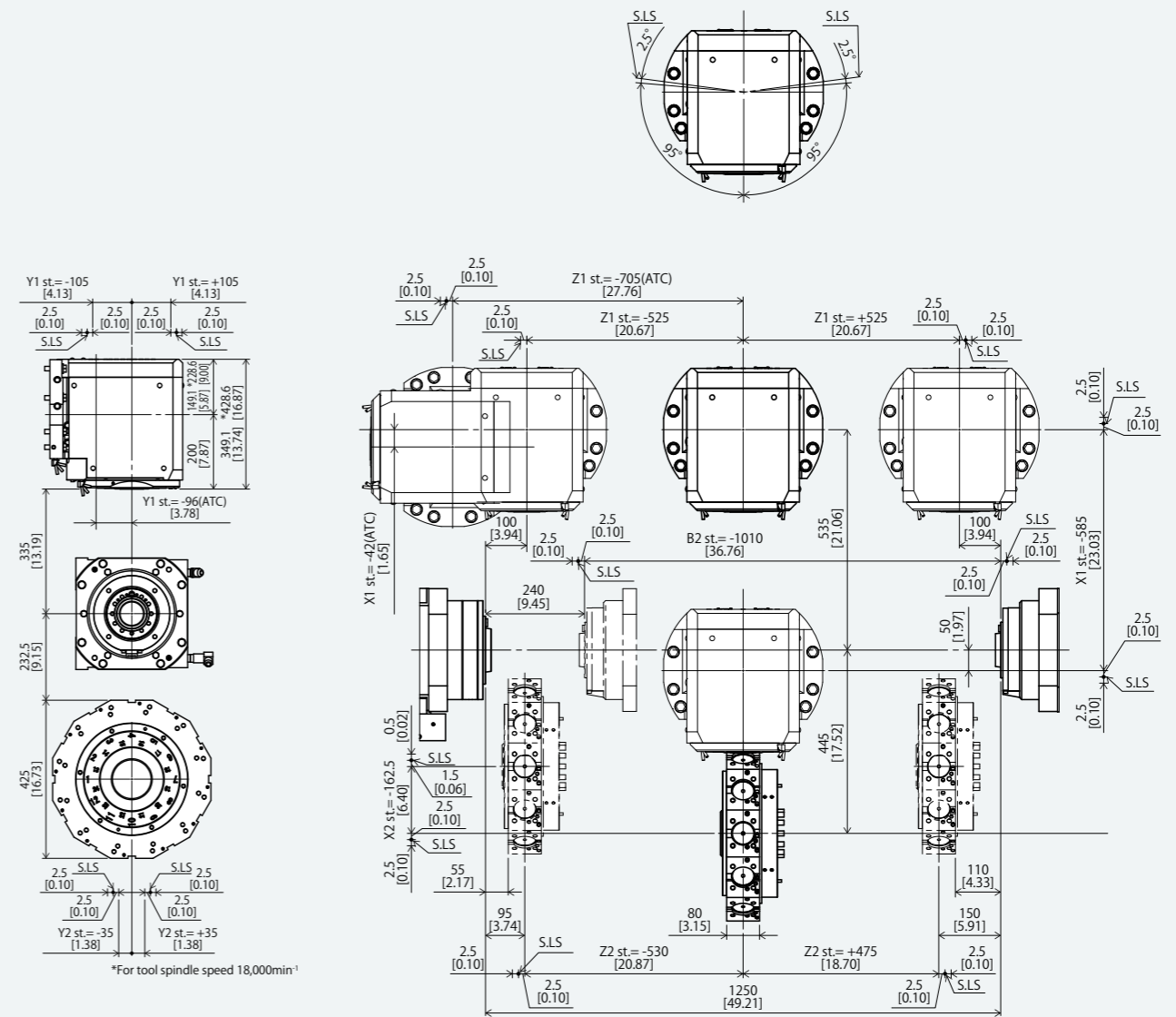
Machine Dimensions



Maximum Tool Diameter



Travel Range



mm[inch]

Capacity	φ51	φ65	φ80*
Max. turning diameter (Tool spindle / Lower turret)	325mm / 255mm		
Distance between spindles	max.1,250mm / min.240mm		
Max. turning length	1,058mm		
Bar capacity	φ51mm	φ65mm	φ80mm
Chuck size	6" / 8"		

Axis travel	
X1-Axis slide travel	585mm
X2-Axis slide travel	162.5mm
Z1-Axis slide travel	1,050mm (at ATC+180mm)
Z2-Axis slide travel	1,005mm
Y1-Axis slide travel	±105mm
Y2-Axis slide travel	±35mm
B2-Axis slide travel	1,010mm

Rapid feed	
X1-Axis rapid feed rate	30m/min
X2-Axis rapid feed rate	16m/min
Z1-Axis rapid feed rate	40m/min
Z2-Axis rapid feed rate	40m/min
Y1-Axis rapid feed rate	16m/min
Y2-Axis rapid feed rate	6m/min
B2-Axis rapid feed rate	40m/min

L-spindle		φ65	φ80(op.)*
Spindle speed	-	4,500min ⁻¹	3,500min ⁻¹
Spindle speed range	-	Stepless	Stepless
Spindle nose	-	A2-6	A2-8
Hole through spindle	-	80mm	90mm
I.D. of front bearing	-	120mm	130mm
Hole through draw tube	-	66mm	81mm

R-spindle	φ51	φ65(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	-

* Specification of φ51mm bar capacity is not available on R-spindle when φ80mm bar capacity is selected on L-spindle.

● Safety quality specifications

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

- 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.)
 - In 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.

ATC Tool spindle	
Tool spindle speed	12,000min ⁻¹ / 18,000min ⁻¹ (op.)
Swiveling range	190° (±95°)
Tool coupling type	CAPTO C6 / HSK-T63(op.)
Number of tools	80, (40, 120 op.)
Max. tool diameter / Without adjacent tool	90mm / 130mm
Max. tool length	300mm

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)	□25mm
Tool size (round shank)	φ32mm

Milling	
Rotary system	Individual rotation
Milling spindle speed	6,000min ⁻¹ / 8,000min ⁻¹ (op.)
Spindle speed range	Stepless
Number of milling stations	12
Tool size	Straight holder φ1mm ~ φ16mm Cross holder φ1mm ~ φ16mm

Drive motor	φ51	φ65	φ80*
L-spindle	-	15/11kW	18.5/15kW(op.)
R-spindle	11/7.5kW	15/11kW(op.)	-
Tool Spindle	15/11kW		
Milling (Lower turret)	5.5/3.7kW		

General	
Height	2,925mm
Floor space (L x W)	5,250mm × 2,987.2mm
Machine weight (incl. control)	ATC 80 23,000kg ATC 40(op.) 22,500kg ATC 120(op.) 24,000kg

Power requirements	
Power supply	59.5kVA(63.5kVA) (L-spindle 15/11kW, R-spindle 11/7.5kW) 62.5kVA(66.5kVA) (L-spindle 15/11kW, R-spindle 15/11kW) 66.1kVA(70.1kVA) (L-spindle 18.5/15kW, R-spindle 15/11kW)

● 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.

Items	
Control Type	FANUC 31i-B5 Plus(2-PATH)

Controlled axes	
Controlled axes	10 axes
Simultaneously Controlled axes	Upper 5 axes(X1, Z1, C1(C2), Y1, B1 axis) Lower 5 axes(X2, Z2, C2(C1), Y2, 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 B) / 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) Y1: 1 ~ 8000mm/min, 0.01 ~ 315inch/min (1 ~ 4800mm/min, 0.01 ~ 188inch/min) Y2: 1 ~ 6000mm/min, 0.01 ~ 236inch/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.
Dwell	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% (can be set from 0~100 in 10% intervals on 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 / Number of registrable programs	4Mbyte Total 10240m 8Mbyte Total 20480m(op.)
Parts program editing	delete, insert, change
Program number search	Standard
Sequence number search	Standard
Address search	Standard
Program storage memory	Battery backup
Background 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 functions	
Circular interpolation R programming	Standard
Direct drawing dimension programming or Chamfering/Corner R	Standard (Direct drawing dimension programming is standard)
Canned cycles	G90, G92, G94
Multiple repetitive canned cycles	G70 ~ G76
Multiple repetitive canned cycles II	G71, G72
Canned cycles for drilling	G80 ~ G89
Sub program	Standard
Custom macro	Standard (common variables #100 - #149, #500 - #549)
Additional custom 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

Machine support functions	
Rigid tapping	Standard
Spindle synchronized control	Standard
C axis synchronized control	Standard(G496 C1. rapid feed positioning)
Spindle orientation	Standard
Tool spindle orientation	Standard : 4 positions (4×90°)(M785/M786/M787/M788) Maximum : 12 positions(12×30°)(G419)

ECO functions	
Servo motor power off	Standard(Switch on Power Saving Mode in NT Setting screen)
Control of motor output during acceleration and deceleration	Standard(Switch on Power Saving Mode in NT Setting screen)
G code for servo motor energy-saving during acceleration and deceleration	G356/G357
Automatic light off	Standard(Switch on Power Saving Mode in NT Setting screen)
Automatic monitor off	Standard(Switch on Power Saving Mode in NT Setting screen)



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