

High-Precision, High-Efficiency Integrated Mill Turn Center

NTX 1000

NTX 1000 2nd Generation



NTX 1000

Covering Extensive Range of Machining Across All Fields

The NTX 1000 is a "all-rounder" machine capable of high-accuracy, high-efficiency machining of complex-shaped workpieces in the aircraft, medical equipment, automotive, die & mold and precision equipment industries. The outstanding combination of a turning center and a machining center allows for process integration for various machining from high-mix, low-volume production to mass production, bringing a great profit to customers.





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Medical Equipment

- 1 Hip joint
- 2 Acetabular Prosthesis
- 3 Knee joint

Industrial machinery

- 4 Screw Rotor
- 5 Connection flange

Tool

- 6 Tool Holder

Aerospace

- 7 Turbine blade

NTX 1000

Incorporating Two Cutting-edge Technologies: turning centers and Machining Centers

The NTX 1000 2nd Generation equipped with DMG MORI's latest technologies enables process integration with higher accuracy, superior machining performance and a large work envelope, while achieving a smaller footprint than the first-generation NTX 1000 model.

The model offers two choices for the user interface "CELOS": Touch panel (both upper & lower screens) for "MAPPS IV" and Touch panel screen + Keyboard for "Siemens 840D sl."

The CELOS ensures easier setting for multi-axis machining.

The NTX 1000 2nd Generation brings the best performance for customers who seeks high efficiency of production processes and cost reduction.

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Simultaneous 5-axis machining

- + Simultaneous 5-axis machining of complex parts with the direct drive motor (DDM) installed in the B axis
- + The B-axis rotation range of 240° and rotation speed of 100 min⁻¹, the X-axis travel of 455 mm (17.9 in.) <-105 — +350 mm (-4.1 — +13.8 in.)>
- + Equipped with a Capto C6 tool spindle as standard, max. spindle speed of 12,000 min⁻¹, 20,000 min⁻¹ (Option)

Ease of operation

- + Digital tailstock adopted for the tailstock specifications
- + Two operation panels available: CELOS + MAPPS IV and CELOS + Siemens 840D sl

High precision

- + Thoroughly controlled thermal displacement by cooling oil circulation in the body

High rigidity

- + High-rigidity bed and linear motion guide achieve high rigidity

Peripheral equipment

- + A full range of optional equipment for automation, including an in-machine travelling robot and workpiece unloader

Energy-saving

- + Energy-saving Setting and Visualization of Energy-saving Effect



DMG

DMG MORI

DMG MORI

DMG MORI

5-Axis-Champion

NTX 1000

Six Variations Selectable According to Purpose

The NTX 1000 offers the Spindle 2 specification and the tailstock specification, both of which can mount the Turret 2.

A total of six specifications including the one with milling function on the Turret 2 is available.

CELOS
FROM DMG MORI



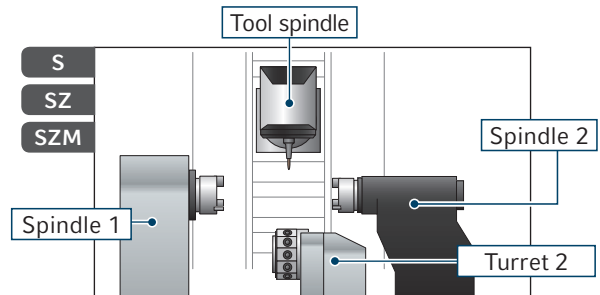
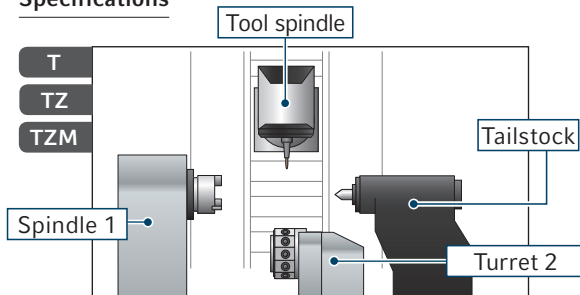
Floor space
required*
10.6 m²
(114.1 ft²)

● Photo: Tool storage capacity 76 tools

* Control unit for FANUC, Tool storage capacity 38 tools, including the chip conveyor



Specifications



Specifications	T	TZ	TZM	S	SZ	SZM
Tool spindle / Spindle 1	●	●	●	●	●	●
Spindle 2	—	—	—	●	●	●
Turret 2	—	●	●	—	●	●
Turret 2 (Milling specifications)	—	—	●	—	—	●
Tailstock	●	●	●	—	—	—

● Standard features — not applicable

NTX 1000

High-rigidity Construction not Susceptible to Aging

DMG MORI pursues high rigidity machines from the basic designing stage by FEM analysis. The NTX 1000 equipped with a thick, high-rigidity bed is not affected by changes over years, maintaining high-accuracy machining for a long period of time.

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1 High-rigidity bed

Thick and high-rigidity bed to stably support the moving units

2 FEM analysis

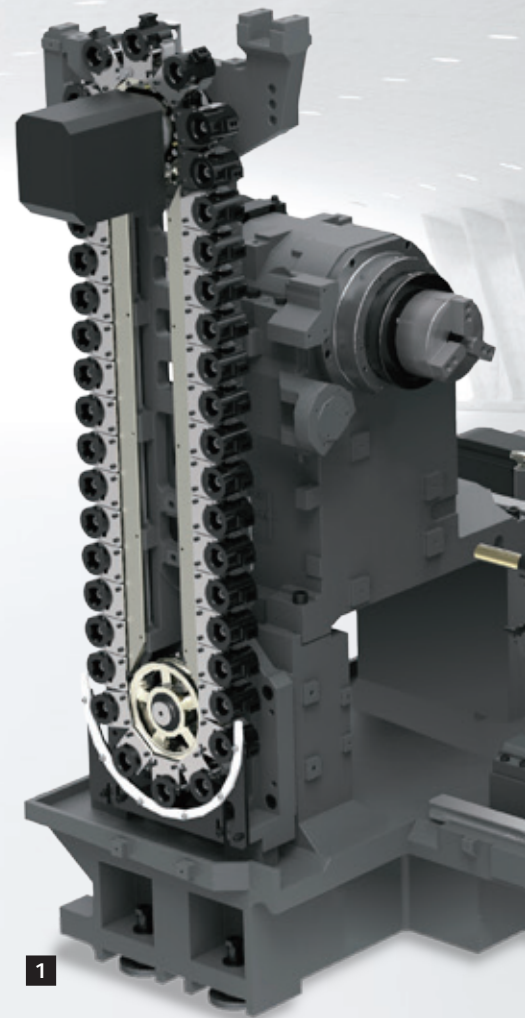
High-rigidity body designed using FEM analysis

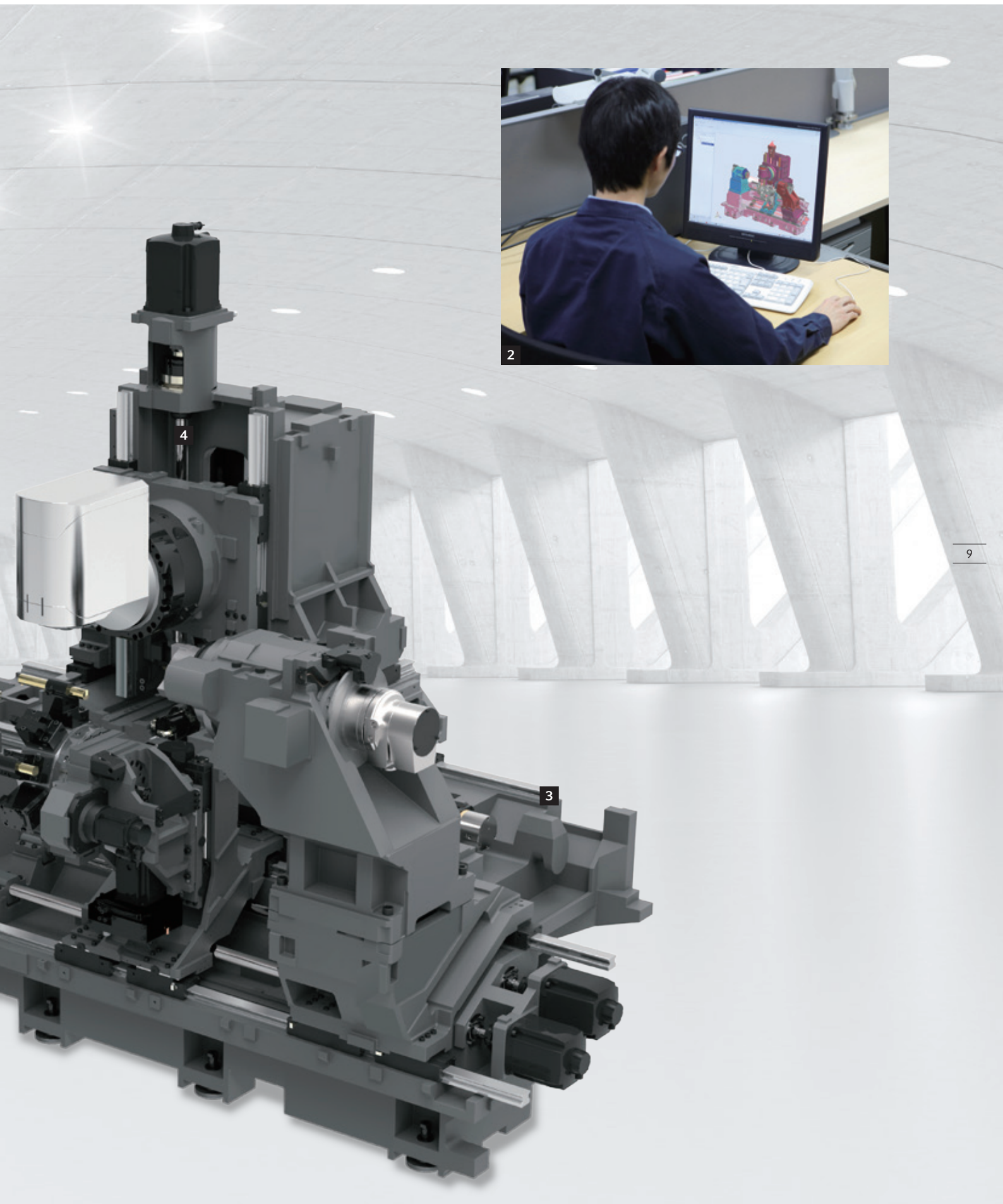
3 linear motion guide

Smooth movements and high rigidity are realized by adopting linear motion guide.

4 Increased ball screw rigidity

The double anchor method is employed for ball screws and support bearings, which ensures high rigidity for heavy-duty machining and high-accuracy machining.





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NTX 1000

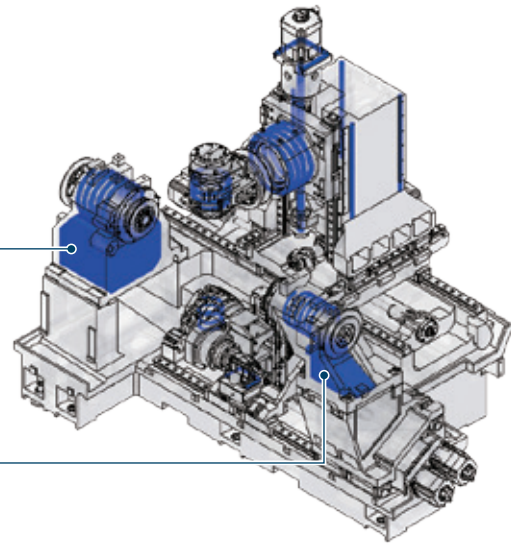
Fully Equipped to Support High-accuracy Machining

A variety of factors can bring about thermal displacement that has considerable influence on machining accuracy, including heat generation during machine operation, room temperature changes, and coolant temperature rises. DMG MORI has implemented original and comprehensive measures to suppress thermal displacement after examining each of these individual factors from all angles. As for the spindle, which is the biggest heat source, temperature rise is suppressed by oil jacket that spirally goes around the spindle.



Cooling oil circulation in the machine body

DMG MORI developed a new technology "Cooling oil circulation in the machine body" as a countermeasure against thermal displacement that directly affects machining accuracy. Cooling oil circulated to heat sources, which are motors of the spindle, tool spindle and turret; ball screws and ball nuts minimizes thermal displacement and contributes to high-accuracy machining.



Cooling oil circulation in the machine body
(patent pending)

Coolant chiller <separate type> (Option)



Raised coolant temperature causes thermal displacement in the fixtures and workpiece, affecting the machining accuracy of the workpiece. Use this unit to prevent the coolant from heating up. When using oil-based coolant, the coolant temperature can become extremely high even with the standard coolant pump, so please be sure to select this unit.

When using oil-based coolant or a super-high-pressure coolant system, please be sure to consult our sales representative.

- We cannot guarantee that this unit will completely control the coolant temperature. It is designed to help prevent oil temperature increases.

Direct scale feedback (Option)



No contamination of the measuring system to oil or water condensation.

- + Superior precision with the Magnescale absolute linear measuring system featuring a standard resolution of 0.01 μm
- + High-resolution, magnetic measuring system
- + Resistance to oil and condensation due to a magnetic detection principle



- + Impact resistance of 450 m/s^2 (17,716.5 in./s^2)
- + Vibration resistance of 250 m/s^2 (9,842.5 in./s^2)
- + Thermal expansion coefficient as cast iron

NTX 1000

High-accuracy Spindles Matched to the Customer's Requirements

The NLX 1000 offers the chuck sizes of 6 inches and 8 inches for both Spindle 1 and Spindle 2.

Two types of output are available for the Spindle 1 to respond to customers' needs.

As the spindle is a cartridge type, the whole unit can be replaced, which allows for easy maintenance.

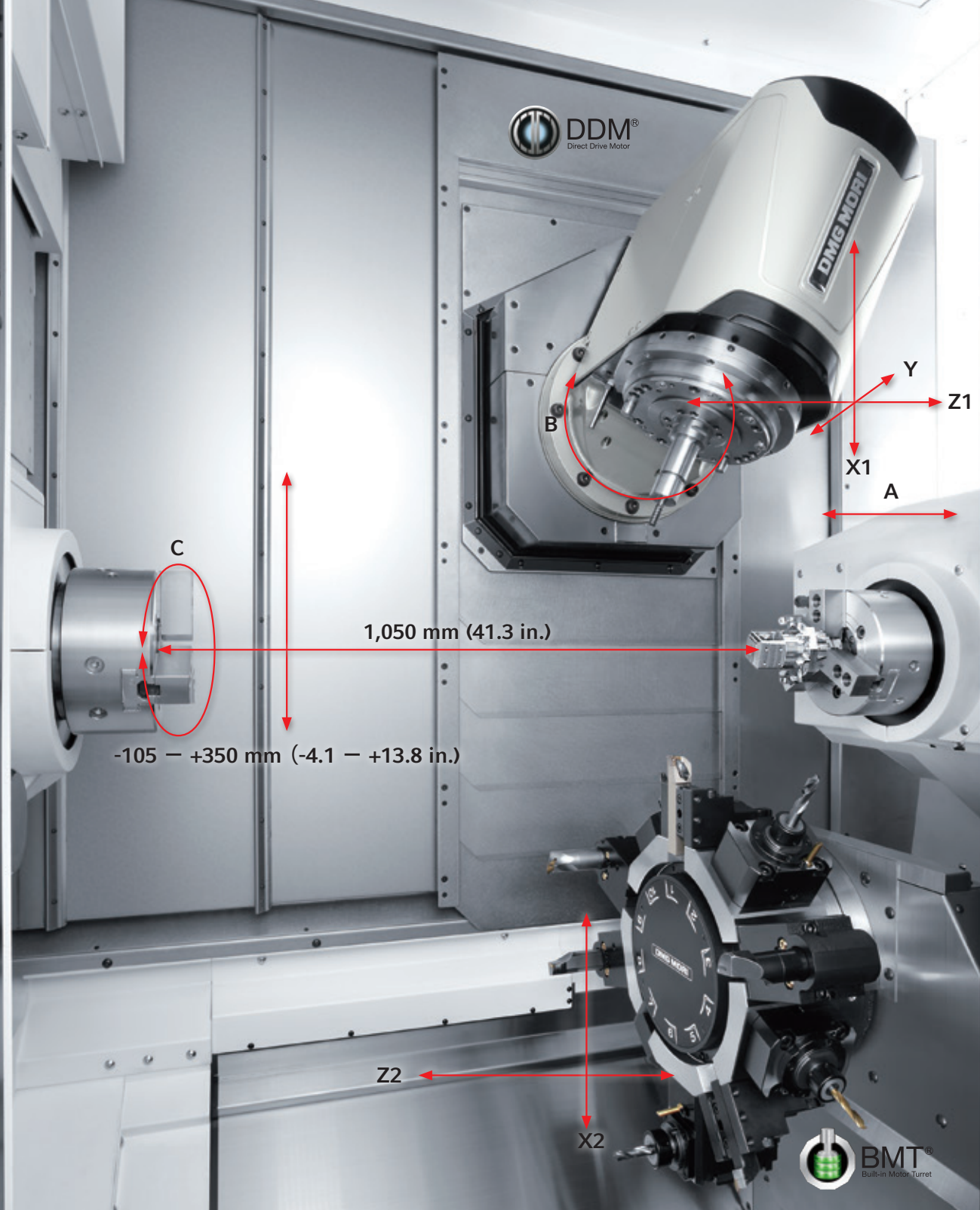
Sophisticated spindle labyrinth structure

- + More sophisticated labyrinth structure designed for frequent use of high-pressure coolant, and coolant ingress into the spindle prevented by featuring spindle air purge as standard, realizing high spindle durability

Spindle 2 and tailstock

- + The spindle 2 has the same maximum speed as the spindle 1, at 6,000 min⁻¹.
- + The tailstock is available in the optional built-in center MT3 specifications (tailstock center included) in addition to the standard live center MT4 specifications (tailstock center not included).

● The chuck is optional.



Travel

			NTX 1000
Tool spindle	X1-axis	mm (in.)	455 (17.9) <-150-+350 (-5.9-+13.8)>
	Y-axis	mm (in.)	±105 (±4.1)
	Z1-axis	mm (in.)	800+165 (31.5+6.5)*1
	B-axis		240°
Turret 2	X2-axis	mm (in.)	160 (6.3)
	Z2-axis	mm (in.)	730 (28.7)
Spindle 1 / Spindle 2*2	C-axis		360° / [360°]
Tailstock	A-axis	mm (in.)	820 (32.3)

[] Option
 *1 for ATC
 *2 S, SZ and SZM types

Workpiece size

		NTX 1000
Max. distance between centers	mm (in.)	1,050 (41.3)
Max. turning diameter (Tool spindle / Turret 2)*1	mm (in.)	φ430 (φ16.9) [φ274 (φ10.7)]
Max. turning length	mm (in.)	800 (31.4)
Bar work capacity*2	mm	φ52 (φ2.0) [φ65 (φ2.5)]

[] Option
 *1 Same for both Spindle 1 and Spindle 2
 *2 Bar work capacity: Depending on the chuck /cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

NTX 1000

Tool Spindle with Wide Range of Motion

The tool spindle travels on the X- / Y- / Z- / B-axis, achieving easy access to surfaces of complex-shaped workpieces to be machined. Workpieces that could not be machined in one chucking now can be cut without attachment and detachment, which leads to process integration.

The model equipped with the DDM (Direct Drive Motor) allows for high-speed, high-accuracy machining.

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Direct drive motor (DDM) which achieves zero backlash and two-face contact

- + A direct drive spindle (DDS) adopted as the tool spindle
- + Max. tool spindle speed: 12,000 min⁻¹ [20,000 min⁻¹]
- + B-axis driven by a direct drive motor (DDM)
- + Highly rigid two-face contact specification: Capto C6, HSK-A63 (Option)
- + Tool storage capacity: 38 [76] tools
- + Max. tool diameter: $\phi 130$ mm ($\phi 5.1$ in.) <Without adjacent tools>, $\phi 70$ mm ($\phi 2.8$ in.) <With adjacent tools>
- + Tool changing time: 2.26 sec. <Tool-to-tool>

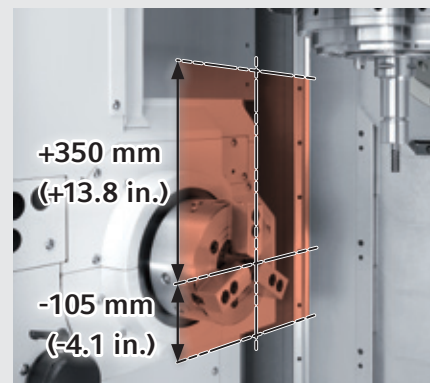
compactMASTER

The model employs new bearings effective for continuous high-speed rotations of the spindle tools, and the labyrinth structure is enhanced for heavy use of high-pressure coolant. The air purge is provided as standard to prevent coolant from entering the tool spindle, ensuring high durability.



X-axis travel in the negative direction

The X-axis travel in the negative direction is extended from 50 mm to 105 mm. This enables accurate machining up to the area below the chuck with linear axes only and no polar coordinate interpolation. So the programs can be created with the simplicity of creating programs for machining centers.



The world's fastest rotary axis drive system, with zero backlash

Transmitting the drive power directly to the rotary axes without using gears eliminates backlash. Compared with conventional worm gear systems, this dramatically improves transmission efficiency and offers high-speed feed.



Effects of DDM

High-speed rotation

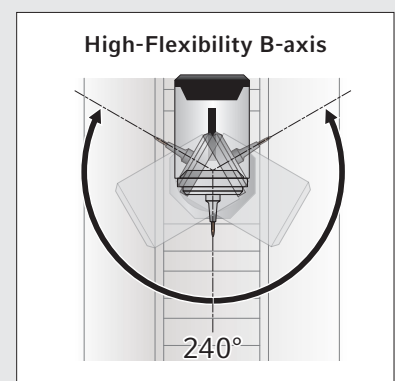
High-precision indexing

Less maintenance

Longer product life

DDM: Direct Drive Motor

		NTX 1000
B-axis rotation range	SIEMENS	-30°—+210°
	FANUC	±120°
B-axis rotational speed	min ⁻¹	100
Min. indexing increment		0.0001



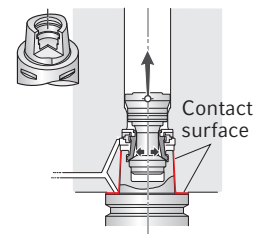
Two-face contact

Tool rigidity has been improved by contact of both the spindle taper and the tool flange.

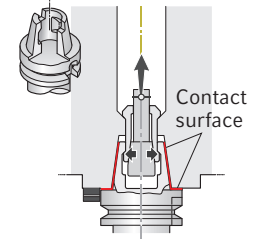
This extends the useful life of a tool, raises cutting power and improves the machining precision.

- DMG MORI builds all the spindles in house.

Capto Specifications



HSK Specifications (Option)

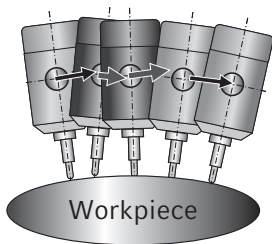


SVC function <Fanuc> / Advanced Surface (CYCLE832) <Siemens>

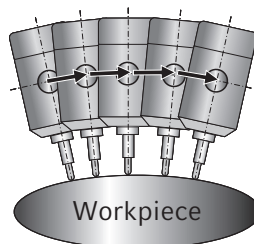
The SVC function, in which the program commands for tool tip control are read in advance and compensation is automatically applied to achieve smooth tool feed, is equipped as standard. By combining this function with DDM (Direct Drive Motor), the machine offers greatly improved surface quality and reduced cycle time during 5-axis machining.

Motion of the SVC function

OFF



ON

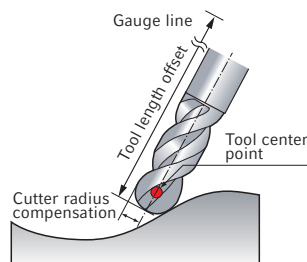


The SVC function includes the following functions:

- + AI contour control II
- + Nano smoothing II
- + Smooth TCP
- + Machining mode selection
- + G332 tolerance command

Tool center point (TCP) control <FANUC> / TRAORI <Siemens>

Tool center point control



Main features

- + The tool path can be controlled from the tool center point.
- + No reprogramming is needed when the tool length and the tool diameter are changed.
- + NC automatically calculates cutter radius compensation and tool length offsets based on the program commands for tool center control.

Manual operation of magazine



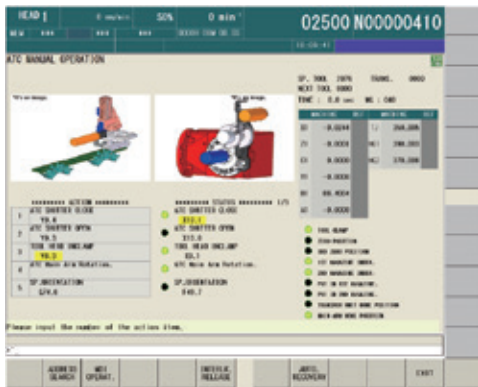
●Photo: Tool storage capacity 76 tools

As the tool magazine is arranged in the front of the machine, tools can be checked and replaced at the operating position. Tools can be attached/detached with one push of a button.

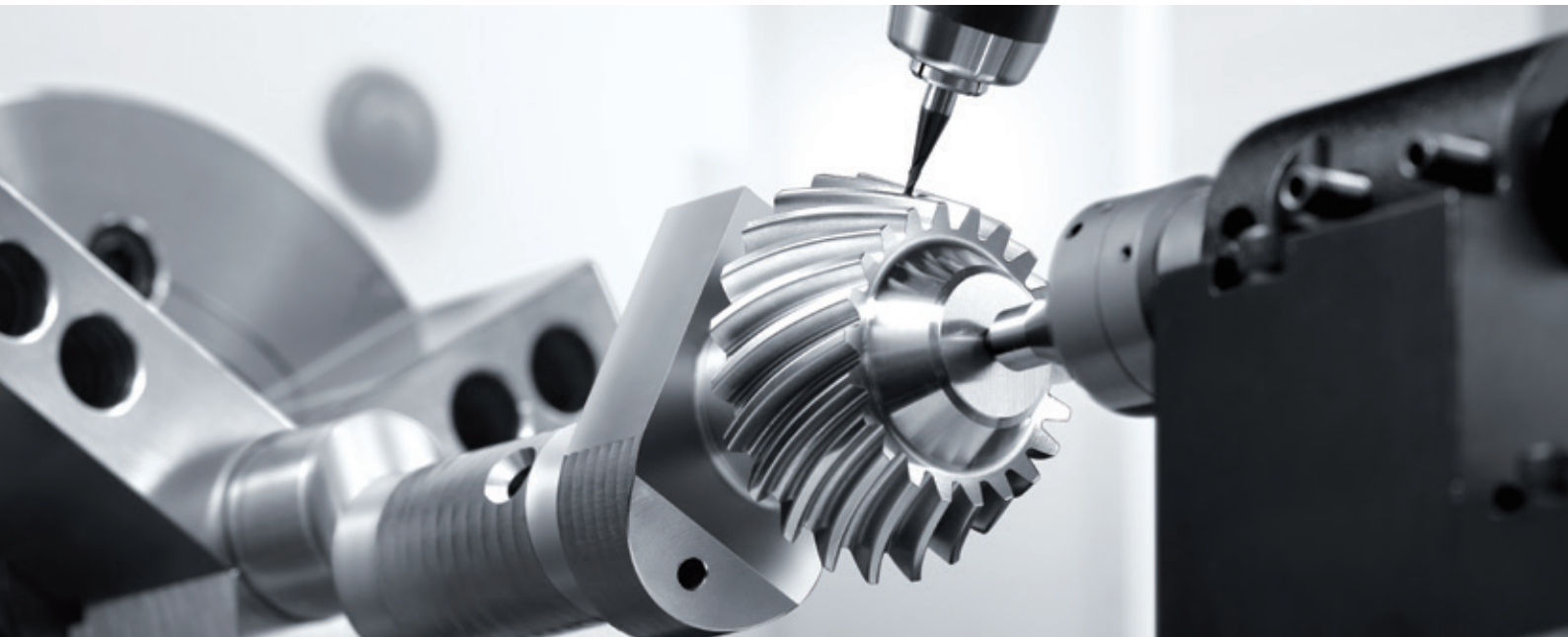
			NTX 1000
Tool storage capacity		mm (in.)	38 [76]
Max. tool diameter	Without adjacent tools	mm (in.)	φ130 (φ5.1)
	With adjacent tools	mm (in.)	φ70 (φ2.7)
Max. tool length	Tool diameter smaller than φ 70 mm (φ2.8 mm)	mm (in.)	250 (9.8)
	Tool diameter larger than φ 70 mm (φ2.8 mm)	mm (in.)	210 (8.2)
Max. tool mass		kg (lb.)	5 (11)
Max. tool mass moment (from spindle gauge line)		N·m (ft·lbf)	3.9 (2.87)
Tool changing time <Tool-to-tool>		sec.	2.26

[] Option

Independent operation of the ATC



When tool change operation has stopped part way through as the result of trouble, for example, the individual ATC operations can be performed while checking them on the screen, in order to recover ATC operation smoothly.



NTX 1000

Turret 2 for Flexible Machining

Turret 2 enables flexible machining, from turning to secondary machining and back side milling, of workpieces on the Spindle 1 and 2 sides.

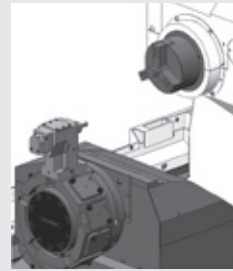
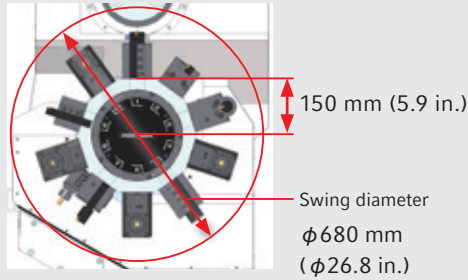
The milling specification is equipped with the BMT (Built-in Motor Turret). The heat is controlled with jacket cooling, which ensures outstanding machining accuracy. The NTX 1000 is capable of coherent and simultaneous milling and turning, greatly contributing to process integration and improvement of productivity for customers.

Turret 2 featuring BMT technology <SZM, TZM>

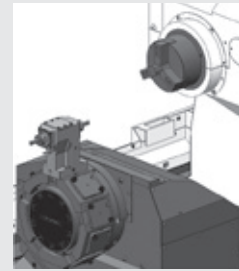
- + Number of tool stations: 10 tools
- + Max. rotary tool spindle speed: 10,000 min⁻¹
- + Turret indexing time (1-station): 0.19 sec.
- + Milling tools can be mounted on Turret 2, enabling milling operation on the Spindle 2 side. (option)

Large indexing diameter and tool holders for milling operation on the Spindle 2 side (option)

The swing diameter of the 10-station turret is 680 mm, enabling flexible tooling. The holders for end face milling can be used for end face milling of workpieces on the Spindle 2 side using Turret 2, which leads to shorter cycle times.

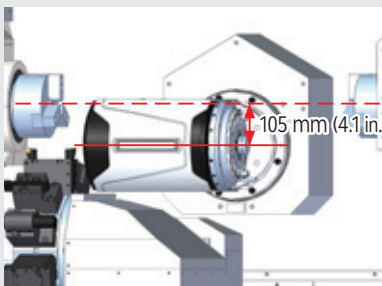


Offset holder for drilling end face oil holes

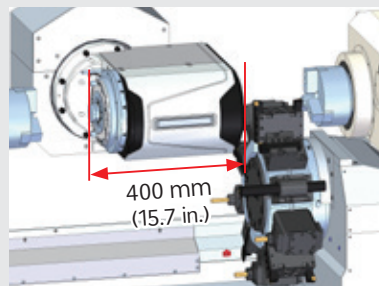


Offset holder for drilling both faces

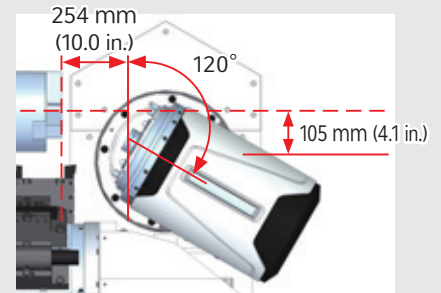
Synchronous machining with tool spindle and turret 2



Higher machining flexibility due to X-axis travel up to 105 mm (4.1 in.) under spindle centreline



Tool spindle is just 400 mm (15.7 in.) in total length, for less interference in the working area



Large working area, 254 mm (10 in.) from tool spindle to chuck face with X-axis -105 mm (-4.1 in.) and B-axis +120° operable

“Mature” and “Evolved” BMT Technology <SZM, TZM>

The built-in structure, in which the motor is placed inside the turret, minimizes heat generation and vibration, improves transmission efficiency and significantly increases cutting power, speed and accuracy.



- Effects of BMT**
- Improved milling power**
- Improved milling accuracy**
- Controls the turret’s heat and vibration**
- Reduced energy loss**
- Turret temperature increases: Compared with conventional machine 1/10 or less**
- Vibration amplitude: Compared with conventional machine 1/3 or less**



NTX 1000

Open Innovation to Maintain Ideal Machining Quality

Many high-performance peripherals have been prepared to suit the customers' workpieces and requirements. Combining the high-performance NTX 1000 with superior peripherals achieves high-accuracy machining and high durability. DMQP (DMG MORI Qualified Products) – peripherals that have been carefully selected based on their quality, performance, maintainability and so on – are also available.

Chip conveyor (Option)

+ Provides highly efficient chip disposal

○: Suitable —: Not suitable

Workpiece material and chip size	Steel			Cast iron	Aluminum, non-ferrous metal		
	Long	Short	Powdery		Short	Long	Short
Hinge type	○	—	—	—	○	—	—
Hinge type + Drum filter type	○	○	○	○	○	○	○

Chip size guidelines

Short: chips 50 mm (2.0 in.) or less in length, bundles of chips $\phi 40$ mm ($\phi 1.6$ in.) or less

Long: bigger than the above

- The options table shows the general options when using coolant. Changes may be necessary if you are not using coolant, or depending on the amount of coolant, compatibility with machines, or the specifications required.
- Please select a chip conveyor to suit the shape of your chips. When using special or difficult-to-cut material (chip hardness HRC45 or higher), please consult our sales representative.
- We have prepared several options for different chip shapes and material. For details, please consult our sales representative.

Manual in-machine tool presetter



Super-high pressure coolant system (Option)



Coolant chiller (Option)



Mist collector (Option)



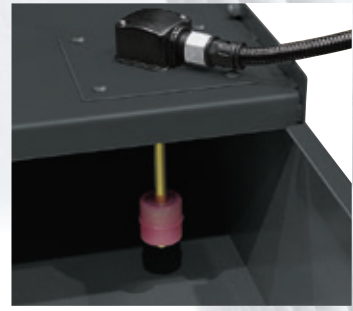
Hydraulic chuck (Option)



Coolant gun (Option)



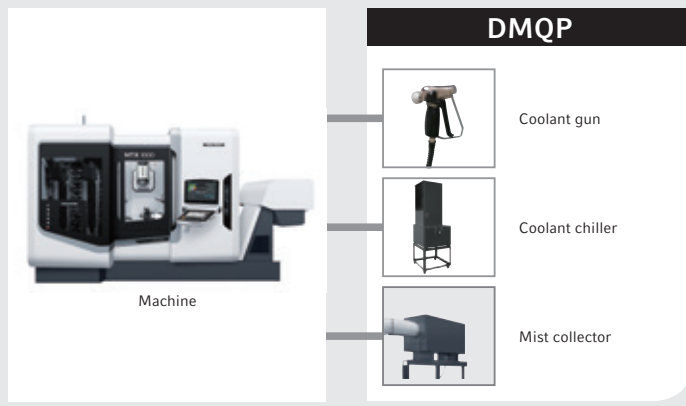
Coolant float switch (Option)



DMQP (Option)

The DMQP program is designed to certify peripherals that meet DMG MORI standards in quality, performance and maintainability. DMQP provides customers with greater peace of mind.

Comprehensive support with machine + peripherals



- + Qualified peripherals are arranged by DMG MORI
 - + Toll-free phone support is available 24 hours a day, 365 days a year (Japan only)
 - For more details on DMQP items, please consult our sales representative.
- DMQP:DMG MORI Qualified Products

NTX 1000

Various Automation Solutions

The NTX provides various automation systems including in-machine travelling robot and workpiece unloaders. With automation systems, it is possible to handle a whole process from blank workpieces to finished products. Reduction in non-cutting times maximizes customer profit.



In-machine travelling robot (Option)

Robot loads material into spindle 1 and unloads finished workpiece from spindle 2. Additionally robot can manage different shapes of workpieces, washing and deburing as well.

		NTX 1000
Maximum Mass (Robot hand + workpiece)	kg (lb.)	Fanuc: 7 (15.4) KUKA: 10 (22.0)

● There are two types of hands: single hand and double hand.



Tray system

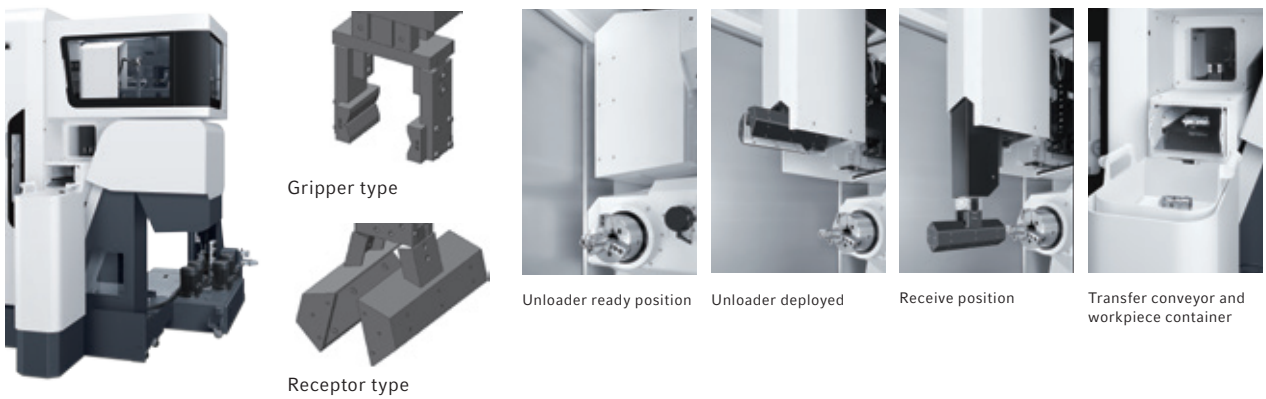
Workpiece unloader (Option)

The NTX 1000 offers three types of workpiece unloaders: the Spindle 2 type, the turret rotation type and the up / down type. Each customer can select the optimal type according to their needs.

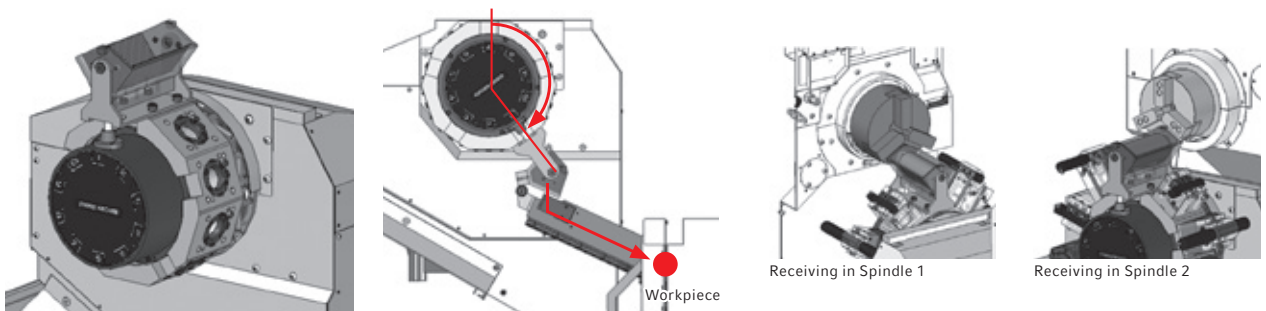
	T	TZ	TZM	S	SZ	SZM
Spindle 2 type	—	—	—	●	●	●
Turret rotation type	—	●	●	—	●	●
Up / down type	●	—	—	●	—	—

	Max. workpiece size		
	Diameter	Length	Maximum Mass
Spindle 2 type	φ65 mm (φ2.6 in.)	230 mm (9.1 in.)	3 kg (6.6 lb.)
Turret rotation type	φ65 mm (φ2.6 in.)	150 mm (5.9 in.)	3 kg (6.6 lb.)
Up / down type	φ65 mm (φ2.6 in.)	150 mm (5.9 in.)	3 kg (6.6 lb.)

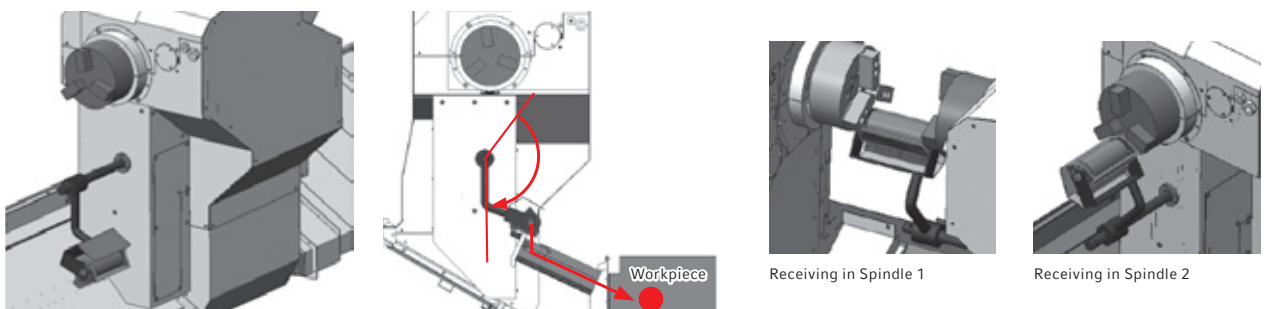
Workpiece unloader (Spindle 2 type)



Workpiece unloader (Turret rotation type)



Workpiece unloader (Up / down type)



NTX 1000

Cutting-edge Design Pursuing Usability

As well as featuring an elegant cover design, the NTX 1000 is designed with careful consideration to factors such as the accessibility to the spindle and the visibility of the working area. Also, various means have been adopted to enhance maintainability, such as centralizing the hydraulic units and instruments in a location that provides easy access.

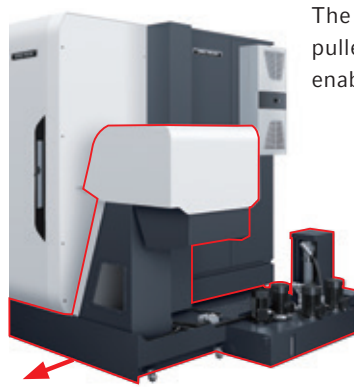


1 Magazine



The tool magazine is arranged at the front of the machine, enabling operators to check and replace tools at their operating position. Furthermore, the tools can be attached / detached with one push of a button.

4 Coolant tank



The coolant tank can be pulled out to the front side, enabling space saving.

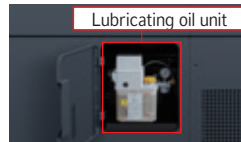
2 Swivel-type operation panel



Adopting a touch-screen type operation panel with a swivel mechanism has improved access to the spindle and workpiece.

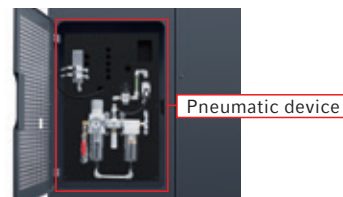
5 Equipment layout

Machine rear



The equipment layout is designed for daily operation and maintenance.

Left side of the machine



3 Door opening width and size of the front door window



NTX 1000

From the Idea to the Finished Product

DMG MORI's operation system CELOS enables consistent management, documentation and visualization of orders, processes and machine data. The CELOS is compatible with various applications, allowing for extension of functions. The operation system also ensures high affinity for the existing information infrastructure and software.

CELOS |

APP MENU

Central access to all available applications



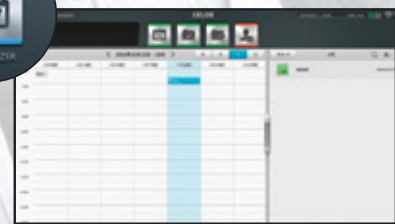
ERGoline Control with
21.5-inch
multi-touch-screen
and SIEMENS

CELOS APPs facilitate quick and easy operation: four examples



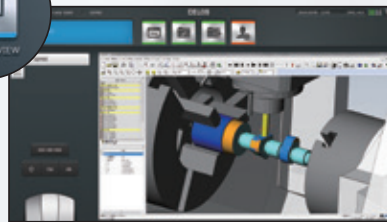
STATUS MONITOR

Status monitoring of the machine and machining



ORGANIZER

Schedule management function



CAD-CAM VIEW

Visualize workpieces and improve program data



TECH CALCULATOR

Calculation support for cutting conditions and dimensions conforming to industrial standards



ERGOline Control with 21.5-inch multi-touch-screen and FANUC

STANDARD

Standard user interfaces for all new high technology machines from DMG MORI

CONSISTENT

Consistent administration, documentation and visualization of order, process and machine data

COMPATIBLE

Compatible with PPS and ERP systems Can be networked with CAD / CAM products Open to trendsetting CELOS APP extensions



NTX 1000

Reduction in Environmental Burden

To conserve limited resources and protect global environment. The NTX 1000 Series pursues a high “environmental performance” that is required of machine tools.

Power-saving Functions

- +Inverter-controlled coolant supply
- +If the screen is not touched for a certain amount of time and NC operation is not being performed, power is cut off to the servo motor, the spindle, the coolant pump and the chip conveyor, thereby saving energy.
- +The latest, energy-efficient components with low power consumption and LED lighting are employed

Energy-saving Setting and Visualization of Energy-saving Effect

- +The energy-saving application enables visualization of the energy-saving effect
- +The running time, power consumption, and CO₂ emission statuses are displayed individually



Running time

Reduced Cycle Times

- +The next M-code command can be specified before the previous command is completed. This enables multiple operations to be overlapped, resulting in shorter cycle times
- +The number of pecking movements in a deep hole drilling cycle is automatically controlled to reduce machining time

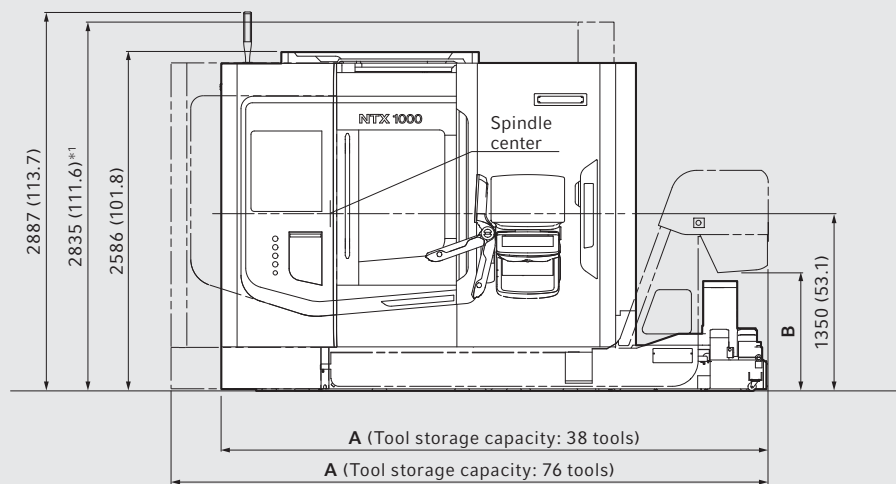
NTX 1000

General view

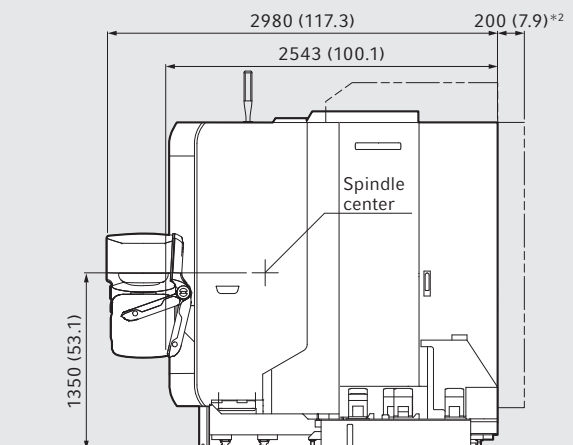
mm (in.)

NTX 1000

Front view



Side view



*1 Electrical cabinet for SIEMENS
*2 Transformer for SIEMENS

Q56254B03
Q56255B03

Chip conveyor			NTX 1000				
			No conveyor	Hinge type	Hinge type (EN type)	Hinge type + Drum filter type	Hinge type + Drum filter type (EN type)
A	Machine width	Tool storage capacity: 38 tools	mm (in.)	4,155 (163.6)	4,160 (163.8)	4,366 (171.9)	4,169 (164.1)
		Tool storage capacity: 76 tools	mm (in.)	4,535 (178.5)	4,540 (178.7)	4,746 (186.9)	4,549 (179.1)
B	Discharge height of chip conveyor		mm (in.)	—	965 (38.0)	829 (32.6)	901 (35.5)

Applications and Parts
Highlights
Machine and Technology
Others
Machine specifications
▸ Main Machine Specifications (Siemens 840D sl)
▸ Main Standard & Optional Features (Siemens 840D sl)

NTX 1000

Main Machine Specifications (Siemens 840D sl)

			NTX1000					
			T	TZ	TZM	S	SZ	SZM
Capacity								
Swing over cross slide		mm (in.)	φ 450 (φ 17.7)					
Max. turning diameter (Tool spindle / Turret 2)		mm (in.)	φ 430 (φ 16.9) / φ 274 (φ 10.7)					
Max. turning length		mm (in.)	800 (31.4)					
Bar work capacity		mm (in.)	φ 52 (φ 1.9) [φ 65 (φ 2.5)]					
Travel								
X1-axis (Tool spindle)		mm (in.)	455 (17.9) <-105—+350 (-4.1—+13.8)>					
Y-axis (Tool spindle)		mm (in.)	±105 (±4.1)					
Z1-axis (Tool spindle) + for ATC		mm (in.)	800+165 (31.5 + 6.5) <for ATC>					
B-axis (Tool spindle)			-30° ~ +210°					
Spindle 1								
Spindle speed		min ⁻¹	6,000 [5,000]					
Spindle 2								
Spindle speed		min ⁻¹	—			6,000		
Tool spindle (Turret 1)								
Min. B-axis indexing increment			0.0001°					
Tool Spindle speed		min ⁻¹	12,000 [20,000]					
Taper hole of rotary tool spindle			C5 [HSK-A50 (T50)]					
Tool magazine		Tool	38 [76]					
Max. tool diameter	With adjacent tools	mm (in.)	φ 70 (φ 2.7)					
	Without adjacent tools	mm (in.)	φ 130 (φ 5.1)					
Max. tool length		mm (in.)	250 (9.8) <Tool diameter smaller than φ 70 mm (φ 2.8 mm)> 210 (8.2) <Tool diameter larger than φ 70 mm (φ 2.8 mm)>					
Max. tool mass		kg (lb.)	5 (11)					
Turret 2								
Number of tool stations (Rotary tool mounting capacity)		Tool	—	10	10 (10)	—	10	10 (10)
Shank height for square tool		mm (in.)	—	20 (0.8)		—	20 (0.8)	
Rotary tool spindle speed range		min ⁻¹	—		10,000	—		10,000
Tailstock								
Taper hole of tailstock spindle			Live center (MT4) [Built-in center (MT3)]			—		
Feedrate								
Rapid traverse rate		mm / min (ipm)	Tool spindle X: 40,000 (1574.8) Y: 40,000 (1574.8) Z: 50,000 (1968.5)	Tool spindle X: 40,000 (1574.8) Y: 40,000 (1574.8) Z: 50,000 (1968.5) Turret 2 X2: 28,000 (1102.4) Z2: 36,000 (1417.3)	Tool spindle X: 40,000 (1574.8) Y: 40,000 (1574.8) Z: 50,000 (1968.5) Spindle 2 A: 36,000 (1417.3)	Tool spindle X: 40,000 (1574.8) Y: 40,000 (1574.8) Z: 50,000 (1968.5) Spindle 2 A: 36,000 (1417.3)		
		min ⁻¹					B:100 C:250	
Motors								
Motor for Spindle 1 <40%ED / 40%ED / cont>		kw (HP)	22 / 18.5 / 15 (30 / 24.7 / 20) [26 / 22 (34.7 / 30) <40%ED / cont>]					
Motor for Spindle 2 <40%ED / 40%ED / cont>		kw (HP)	—			22 / 18.5 / 15 (30 / 24.7 / 20)		
Tool spindle drive motor (25%ED / 15 min. / cont)		kw (HP)	9 / 7.5 / 5.5 (12.0 / 10 / 7.5)					
Turret 2 rotary tool spindle drive motor (15%ED / cont)		kw (HP)	—	4.6 / 2.4 (6.1 / 3.2)		—	4.6 / 2.4 (6.1 / 3.2)	
Machine size								
Machine height		mm (in.)	2,835 (111.6)					
Floor space (width × depth) <Including a conveyor with the hinge type + drum filter>		mm (in.)	4,155×2,743 (163.6×108.0) ^{*1} [4,535×2,743 (178.5×108.0) ^{*2}] <excluding chip conveyor> <[4,169×2,743 (164.1×108.0) ^{*1}] [4,549×2,743 (179.1×108.0) ^{*2}]>					

[] Option

*1 Tool storage capacity: 38 tools

*2 Tool storage capacity: 76 tools

● Bar work capacity: Depending on the chuck/cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

● Max. spindle speed: Depending on restrictions imposed by the workpiece clamping device, fixture and tool used, it may not be possible to rotate at the maximum spindle speed.

● Power sources, Machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.

● The information in this catalog is valid as of October 2016.

NTX 1000

Main Standard & Optional Features (Siemens 840D sl)

●: Standard ○: Option
—: not applicable

		NTX 1000
Fixture		
Automatic centering type steady rest	SLU-X1 <Turret 2, ϕ 8-70 mm (ϕ 0.3-2.8 in.)> (Traveling in clamped state during machining is not possible.)	○
	SCHUNK ZENTRICO THL plus 100	○
	SCHUNK ZENTRICO THL plus 200	○
Coolant		
Water-soluble coolant unit	800 / 1,100 W (50 / 60 Hz)	●
	Standard pressure (800 / 1,100 W <50/60 Hz>) <Center through / Side through>	●
	Through-spindle coolant system (Tool spindle)	○*
Through-spindle coolant system (Tool spindle)	Super-high-pressure* ¹ <3.5 Mpa (507.5 psi)> <Center through>	○*
	Super-high-pressure* ¹ <7.0 Mpa (1,015 psi)> <Center through>	○*
Chip disposal		
Chip conveyor	Right discharge, Hinge type	○
	Right discharge, Hinge type + Drum filter type	○
Measurement		
Manual type in-machine tool presetter	Spindle 1 (removable)	●
	For tool spindle <In-out type> (Machines not equipped with Turret 2)	○
	Automatic in-machine tool presetter	○
Automatic in-machine tool presetter	For tool spindle (Metrol) + For Turret 2 (Renishaw) <Turret 2 specification>	○
	For tool spindle (Metrol) + For Turret 2 (BLUM) <Turret 2 specification>	○
Tool breakage detection system (laser type)		○
In-machine measuring system (Tool spindle)	Touch sensor (Radio signal transmission type)* ²	○
Improved accuracy		
Direct scale feedback (Tool spindle)	X1-, Y-, Z1-axis	○
Automation		
Workpiece handling system (in-machine traveling type robot specification)	Separate stocker, hand, and cover are not included.	○
	Turret rotation type	○
Workpiece unloader	Up / down type	○
	Spindle 2 type	○
Robot interface		○
Other		
• Built-in worklight (LED) • Leveling block • Hand tools		●
Chuck foot switch	1 foot switch	●
Dry anchor		○
Multi dry filter		○
Signal tower	4 layers (LED type Red, Yellow, Green, Blue)	○

		NTX 1000					
		T	TZ	TZM	S	SZ	SZM
Measurement							
Manual in-machine tool presetter	Spindle 2 (removable)	×	×	×	●	●	●
	Automatic in-machine tool presetter (In-out type)	○	×	×	○	×	×
Improved accuracy	Tool spindle + Turret 2	×	○	○	×	○	○
	Direct scale feedback (Turret 2)	×	○	○	×	○	○

* DMQP (DMG MORI Qualified Products)

*1 When using a super-high-pressure coolant system, a coolant chiller is recommended. For details, please consult our sales representative.


*2 Please note that there are a few countries where the radiowave type cannot be used because no radiowave license in those countries has been obtained yet.

For further details, please consult our sales representative.

● The information in this catalog is valid as of October 2016.

● Specifications, accessories, safety device and function are available upon request.

● Some options are not available in particular regions. For details, please consult our sales representative.

 Flammable coolant such as oil-based coolant has a high risk of ignition, and will cause fire or machine breakage if ignited. If you have to use a flammable coolant for any reason, please be sure to consult our sales representative.

Machine specifications

- Main Machine Specifications (Fanuc F31iB5)
- Main Standard & Optional Features (Fanuc F31iB5)

NTX 1000

Main Machine Specifications (Fanuc F31iB5)

			NTX1000					
			T	TZ	TZM	S	SZ	SZM
Capacity								
Swing over cross slide		mm (in.)	φ450 (φ17.7)					
Max. turning diameter (Tool spindle / Turret 2)		mm (in.)	φ430 (φ16.9) / φ274 (φ10.7)					
Max. turning length		mm (in.)	800 (31.4)					
Bar work capacity		mm (in.)	φ52 (φ1.9) [φ65 (φ2.5)]					
Travel								
X1-axis (Tool spindle)		mm (in.)	455 (17.9) <-105--+350 (-4.1--+13.8)>					
Y-axis (Tool spindle)		mm (in.)	±105 (±4.1)					
Z1-axis (Tool spindle) + for ATC		mm (in.)	800+165 (31.5 + 6.5) <for ATC>					
B-axis (Tool spindle)			±120°					
Spindle 1								
Spindle speed		min ⁻¹	6,000 [5,000]					
Spindle 2								
Spindle speed		min ⁻¹	—					
Tool spindle (Turret 1)								
Min. B-axis indexing increment			0.0001°					
Tool Spindle speed		min ⁻¹	12,000 [20,000]					
Taper hole of rotary tool spindle			C5 [HSK-A50 (T50)]					
Tool magazine		Tool	38 [76]					
Max. tool diameter	With adjacent tools	mm (in.)	φ70 (φ2.7)					
	Without adjacent tools	mm (in.)	φ130 (φ5.1)					
Max. tool length		mm (in.)	250 (9.8) <Tool diameter smaller than φ 70 mm (φ2.8 mm)> 210 (8.2) <Tool diameter larger than φ 70 mm (φ2.8 mm)>					
Max. tool mass		kg (lb.)	5 (11)					
Turret 2								
Number of tool stations (Rotary tool mounting capacity)		Tool	—	10	10 (10)	—	10	10 (10)
Shank height for square tool		mm (in.)	—	20 (0.8)		—	20 (0.8)	
Rotary tool spindle speed range		min ⁻¹	—		10,000	—		10,000
Tailstock								
Taper hole of tailstock spindle			Live center (MT4) [Built-in center (MT3)]			—		
Feedrate								
Rapid traverse rate		mm / min (ipm)	Tool spindle X: 40,000 (1574.8) Y: 40,000 (1574.8) Z: 50,000 (1968.5)	Tool spindle X: 40,000 (1574.8) Y: 40,000 (1574.8) Z: 50,000 (1968.5) Turret 2 X2: 28,000 (1102.4) Z2: 36,000 (1417.3)	Tool spindle X: 40,000 (1574.8) Y: 40,000 (1574.8) Z: 50,000 (1968.5) Spindle 2 A: 36,000 (1417.3)	Tool spindle X: 40,000 (1574.8) Y: 40,000 (1574.8) Z: 50,000 (1968.5) Spindle 2 A: 36,000 (1417.3)		
		min ⁻¹	B:100 C:250					
Motors								
Motor for Spindle 1 <40%ED / 30 min. / cont>		kw (HP)	11 / 11 / 7.5 (15 / 15 / 10) [18.5 / 18.5 / 15 (24.7 / 24.7 / 20) <25%ED / 30 min. / cont>]					
Motor for Spindle 2 <40%ED / 30 min. / cont>		kw (HP)	—					
Tool spindle drive motor (25%ED / 15 min. / cont)		kw (HP)	9 / 7.5 / 5.5 (12.0 / 10 / 7.5)					
Turret 2 rotary tool spindle drive motor (15%ED / cont)		kw (HP)	—	1.5 / 1.2 (2 / 1.6)		—	1.5 / 1.2 (2 / 1.6)	
Machine size								
Machine height		mm (in.)	2,586 (101.8)					
Floor space (width × depth) <Including a conveyor with the hinge type + drum filter>		mm (in.)	4,155×2,543 (163.6×100.1)*1 [4,535×2,543 (178.5×100.1)*2] (excluding chip conveyor) <[4,169×2,543 (164.1×100.1)*1] [4,549×2,543 (179.1×100.1)*2]>					

[] Option

*1 Tool storage capacity: 38 tools

*2 Tool storage capacity: 76 tools

● Bar work capacity: Depending on the chuck/cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

● Max. spindle speed: Depending on restrictions imposed by the workpiece clamping device, fixture and tool used, it may not be possible to rotate at the maximum spindle speed.

● Power sources, Machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.

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NTX 1000

Main Standard & Optional Features (Fanuc F31iB5)

●: Standard ○: Option
—: not applicable

		NTX 1000
Chuck		
Automatic centering type steady rest	SLU-X1 <Turret 2, ϕ 8-70 mm (ϕ 0.3-2.8 in.)> (Traveling in clamped state during machining is not possible.)	○
	SCHUNK ZENTRICO THL plus 100	○
	SCHUNK ZENTRICO THL plus 200	○
Coolant		
Water-soluble coolant unit	800 / 1,100 W (50 / 60 Hz)	●
	Standard pressure (800 / 1,100 W <50/60 Hz>) <Center through / Side through>	●
	Through-spindle coolant system (Tool spindle)	○*
	Super-high-pressure*1 <3.5 Mpa (507.5 psi)> <Center through>	○*
	Super-high-pressure*1 <7.0 Mpa (1,015 psi)> <Center through>	○*
Chip disposal		
Chip conveyor	Right discharge, Hinge type	○
	Right discharge, Hinge type + Drum filter type	○
Measurement		
Manual type in-machine tool presetter	Spindle 1 (removable)	●
	For tool spindle <In-out type> (Machines not equipped with Turret 2)	○
	Automatic in-machine tool presetter	○
	For tool spindle (Metrol) + For Turret 2 (Renishaw) <Turret 2 specification>	○
	For tool spindle (Metrol) + For Turret 2 (BLUM) <Turret 2 specification>	○
Tool breakage detection system (laser type)		○
In-machine measuring system (Tool spindle)	Touch sensor (Radio signal transmission type)*2	○
Improved accuracy		
Direct scale feedback (Tool spindle)	X1-, Y-, Z1-axis	○
Automation		
Workpiece handling system (in-machine traveling type robot specification)	Separate stocker, hand, and cover are not included.	○
	Turret rotation type	○
Workpiece unloader	Up / down type	○
	Spindle 2 type	○
Robot interface		○
Other		
• Built-in worklight (LED) • Leveling block • Hand tools		●
Chuck foot switch	1 foot switch	●
Dry anchor		○
Multi dry filter		○
Signal tower	4 layers (LED type Red, Yellow, Green, Blue)	○

		NTX 1000					
		T	TZ	TZM	S	SZ	SZM
Measurement							
Manual in-machine tool presetter	Spindle 2 (removable)	×	×	×	●	●	●
	Automatic in-machine tool presetter (In-out type)	○	×	×	○	×	×
	Tool spindle + Turret 2	×	○	○	×	○	○
Improved accuracy							
Direct scale feedback (Turret 2)	X2-, Z2-axis	×	○	○	×	○	○

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<Precautions for Machine Relocation>

EXPORTATION:

All contracts are subject to export permit by the Government of Japan.
Customer shall comply with the laws and regulations of the exporting country governing the exportation or re-exportation of the Equipment, including but not limited to the Export Administration Regulations. The Equipment is subject to export restrictions imposed by Japan and other exporting countries and the Customer will not export or permit the export of the Equipment anywhere outside the exporting country without proper government authorization.
To prevent the illegal diversion of the Equipment to individuals or nations that threaten international security, it may include a "Relocation Machine Security Function" that automatically disables the Equipment if it is moved following installation.
If the Equipment is so-disabled, it can only be re-enabled by contacting DMG MORI or its distributor representative. DMG MORI and its distributor representative may refuse to re-enable the Equipment if it determines that doing so would be an unauthorized export of technology or otherwise violates applicable export restrictions.
DMG MORI and its distributor representative shall have no obligation to re-enable such Equipment. DMG MORI and its distributor representative shall have no liability (including for lost profits or business interruption or under the limited service warranty included herein) as a result of the Equipment being disabled.

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+ If you have any questions regarding the content, please consult our sales representative.

+ The information in this catalog is valid as of October 2016. Designs and specifications are subject to changes without notice.

+ The machines shown in the catalog may differ from the actual machines. The location and the size of the nameplates may also differ from the actual machines, or the nameplates may not be attached to some machines.

+ DMG MORI is not responsible for differences between the information in the catalog and the actual machine.

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The logo for DMG MORI, with "DMG" in green and "MORI" in red, both in a bold, sans-serif font.