

DMG MORI

HIGH-PRECISION, HIGH-EFFICIENCY INTEGRATED MILL TURN CENTER

NTX 500

NTX 500



NTX 500

All-round machine for various fields

The NTX 500 is an all-round machine for efficient high-precision processing of workpieces related to aircraft, medical, automotive, die & mold, and precision equipment industries.

With its high machining capacity due to the fusion of turning center and machining center technologies, the NTX 500 provides customers with significant benefits by efficiently integrating processes from high-mix low-volume production to mass production.

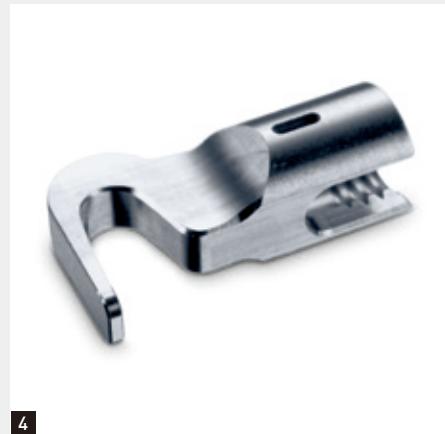




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Medical equipment

- 1** Bone plate
 $\phi 20 \times 60$ mm ($\phi 0.8 \times 2.4$ in.)
<Titanium>
- 2** Prosthetic leg parts
 $\phi 52 \times 65$ mm ($\phi 2.0 \times 2.6$ in.)
<Aluminum>
- 3** Dental abutments
 $\phi 6 \times 11$ mm ($\phi 0.24 \times 0.4$ in.)
<Titanium>
- 4** Lamina hooks
 $\phi 24 \times 20$ mm ($\phi 0.9 \times 0.8$ in.)
<Titanium>

Aerospace

- 5** Joints
 $30 \times 50 \times 12$ mm ($1.2 \times 2.0 \times 0.5$ in.)
<Titanium>

Die and mold

- 6** Punch dies
 $\phi 30 \times 150$ mm (1.2×5.9 in.)
<Tool steel>

Transportation equipment

- 7** Injection nozzles
 $\phi 30 \times 80$ mm (1.2×3.1 in.)
<Tool steel>

Lifestyle

- 8** Watch cases
 $\phi 50 \times 10$ mm (2.0×0.4 in.)
<Stainless steel>

*The sizes listed are for reference only and may differ from actual dimensions.

● Figures in inches were converted from metric measurements.

NTX 500

Turning center & Machining center Fusion of two cutting-edge technologies

The NTX 500 incorporates the latest machining technologies, integrating various machining processes in a compact turn-mill machine capable of fine machining with high precision and high-speed milling.

Furthermore, the NTX 500 offers 6-face machining using the right spindle, making it possible to complete full parts on a single machine.

The user interface "ERGOline X" utilizes a touch panel screen and keyboard to easily set up complex turn-mill operations. The NTX 500 provides

the highest level of performance, making it the ideal solution for customers aiming for higher efficiency and cost reduction in their production processes.

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Simultaneous 5-axis machining

- + Equipped with "compactMASTER 40|250" the high-speed & compact turn-mill spindle by DMG MORI
- + Capto C4 turn-mill spindle equipped as standard with max. $30,000 \text{ min}^{-1}$ and $42,000 \text{ min}^{-1}$ [as high speed specification]
- + The B-axis rotation range of 240° and rotation speed of 100 min^{-1} , the X-axis travel of 375 mm (14.7 in.) $<-75 - +300 \text{ mm } [-2.9 - +11.8 \text{ in.}]$

Operability

- + Digital tailstock adopted for the tailstock specifications
- + Touch panel screen + keyboard for comfortable operation
- + LCD buttons with changing functions for different operation scenarios

High precision

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

High rigidity

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

Peripheral equipment

- + Space-saving automation with in-machine traveling robot (IMTR) and bar feeder

Energy-saving

- + Energy-saving setting and visualization of energy-saving effect

NTX 500



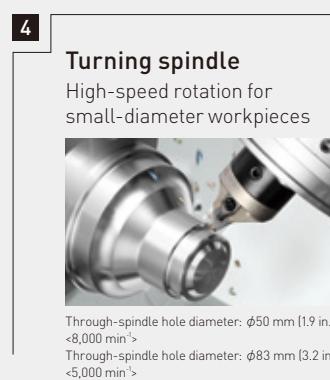
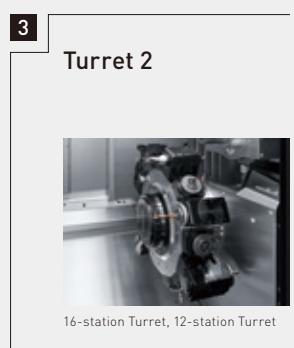
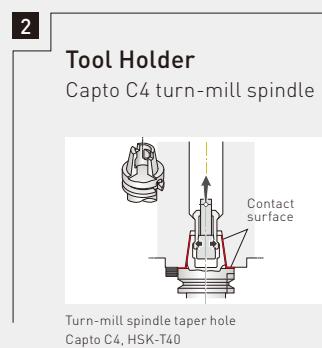
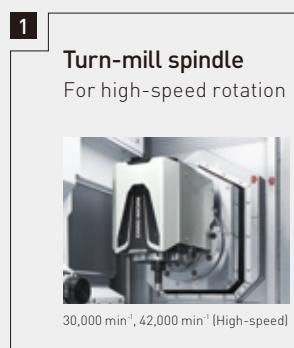
5-Axis Champion



NTX 500

Best Solutions for Your Shop Floor

The NTX 500 provides solutions for higher machining accuracy, higher production efficiency by automation, better chip disposal, maintainability and setup performance. With various cutting-edge solutions, the NTX 500 demonstrates its capabilities to the full extent and achieves a higher level of machining. DMG MORI offers the best solutions that solve your shop issues.



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Workpiece support

Workpiece support suitable for your workpiece and machining



Chuck



Counter spindle tip



Tailstock for turret

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Mass production, automation

Various automation/mass-production solutions



In-machine travelling type robot



Bar feeder



Workpiece unloader from the right spindle

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Machining accuracy

Meeting high accuracy requirements



In-machine measuring system



SmartSCALE



Tool balancer

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Better setup performance

Drastically shortened setup time



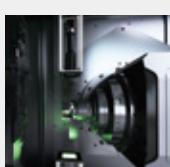
In-machine tool presetter (manual / automatic)



3D quickSET



External tool presetter



Tool measurement [Tool Visualizer]

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Chip disposal

Higher cutting performance



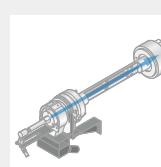
Chip conveyor



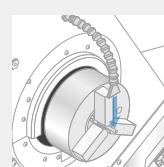
Super-high pressure coolant system



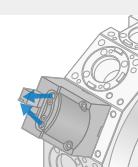
Coolant gun



Through-spindle coolant system



Coolant in upper part of chuck



Air blow [Tool tip]

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Maintenance

Improved production efficiency by preventive maintenance



DMG MORI Messenger



MPC (Machine Protection Control)



my DMG MORI



Air dryer



Oil skimmer



zeroFOG

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NTX 500

Eight Variations Selectable According to Purpose

The NTX 500 is available with a right spindle and tailstock specification, each of which can be equipped with Turret 2 in a total of eight possible types to add functions such as milling capabilities and others.

Maximum production capacity on limited floor space



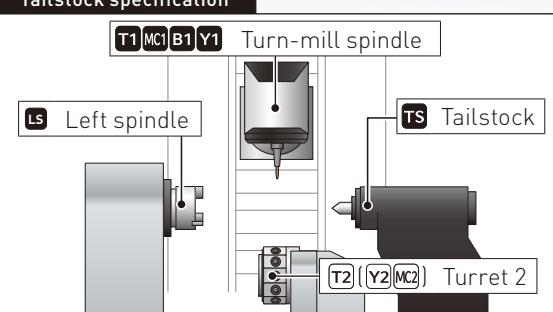
- Photo: Tool storage capacity 38 tools
- *FANUC NC, 38 tools storage, IMTR included
- IMTR: In-Machine Travelling Robot

■: Standard □: Option
T1 : Turn-mill spindle **T2** : Turret 2 **LS** : Left spindle
MC1 : Turn-mill spindle <Milling> **MC2** : Turret 2 [Milling] **RS** : Right spindle
Y1 : Turn-mill spindle <Y-axis> **Y2** : Turret 2 [Y-axis]
B1 : Turn-mill spindle <B-axis>
 ●The Right spindle specification (RS) is not equipped with a tailstock (TS).

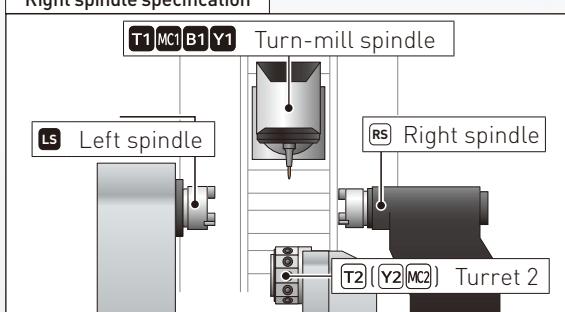


Specifications

Tailstock specification



Right spindle specification



Basic specification

Optional specifications

	—	T2	T2 MC2	T2 Y2 MC2	RS	T2 RS	T2 MC2 RS	T2 Y2 RS MC2	TS
Turn-mill spindle / Left spindle	●	●	●	●	●	●	●	●	
Right spindle	—	—	—	—	○	○	○	○	
Turret 2 <Without the milling function>	—	○	—	—	—	○	—	—	
Turret 2 [Milling specifications]	—	—	○	○	—	—	○	○	
Turret 2 [Y-axis specifications]	—	—	—	○	—	—	—	○	
Tailstock	●	●	●	●	—	—	—	—	—

●: Standard ○: Option —: Not applicable

NTX 500

Proven machine structure for high speed and high precision

At DMG MORI, our commitment to high precision starts at the basic design stage by FEM analysis. The NTX 500 utilizes a thick, high-rigidity bed to maintain high machining precision continuously and to prevent deterioration with age.

The NTX 500 also features a high-speed, high-precision spindle unit for machining small-diameter workpieces.

Turn-mill spindle

- + compactMASTER 40|250
- + Capto C4, HSK-T40 selectable
- + Max. rotational speed: 30,000 min⁻¹, 42,000 min⁻¹ (High-speed)

Tool magazine

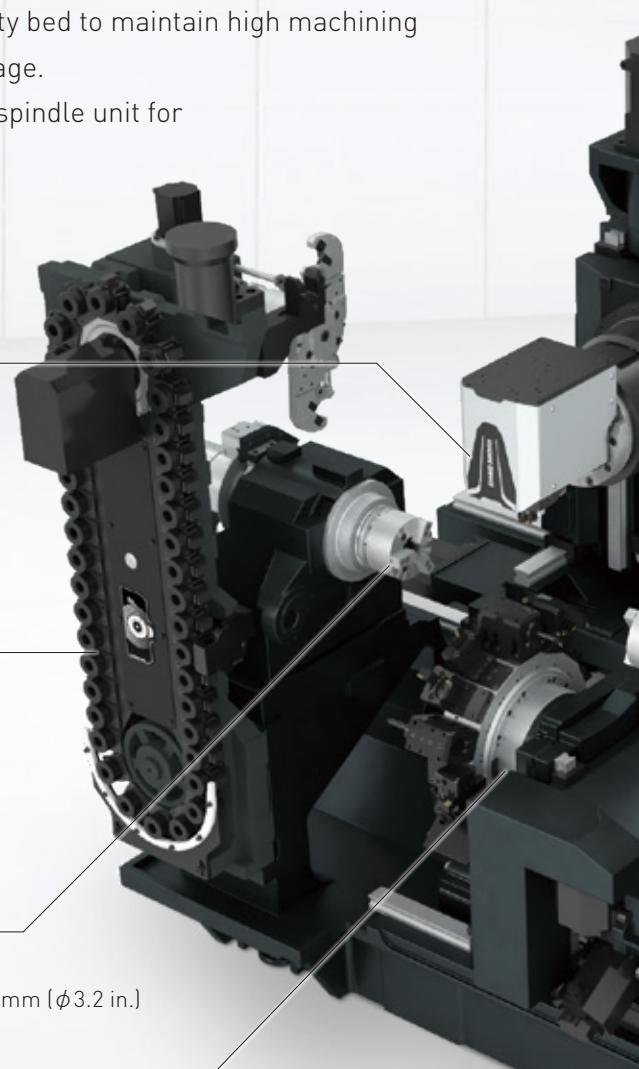
- + Tool storage capacity: 38 tools, 76 tools, 114 tools
- + Max. tool length: 150 mm (5.9 in.)

Left spindle

- + turnMASTER
 - Selectable through-spindle hole diameter: $\phi 50$ mm ($\phi 1.9$ in.), $\phi 83$ mm ($\phi 3.2$ in.)
- + Max. spindle speed
 - Through-spindle hole diameter $\phi 50$ mm ($\phi 1.9$ in.): 8,000 min⁻¹
 - Through-spindle hole diameter $\phi 83$ mm ($\phi 3.2$ in.): 5,000 min⁻¹

Turret 2 <Millng>

- + 16-station turret for BMT42/64, 12-station turret for BMT40/78
- + Max. milling spindle speed: 12,000 min⁻¹



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.

Right spindle

- + turnMASTER
- Through-spindle hole diameter $\phi 50$ mm ($\phi 1.9$ in.)
- + Max. spindle speed: 8,000 min⁻¹
- + Changeable to tailstock specification

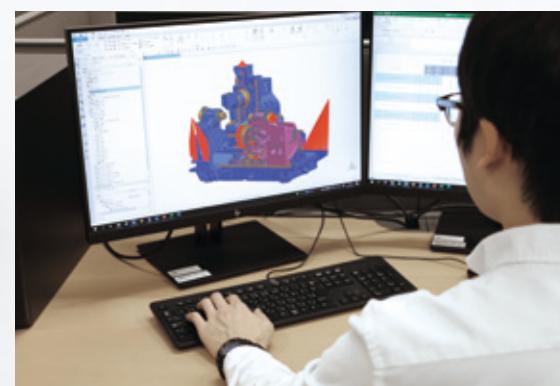
linear motion guide

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

Column front surface held by 4 sliders for high rigidity



FEM analysis



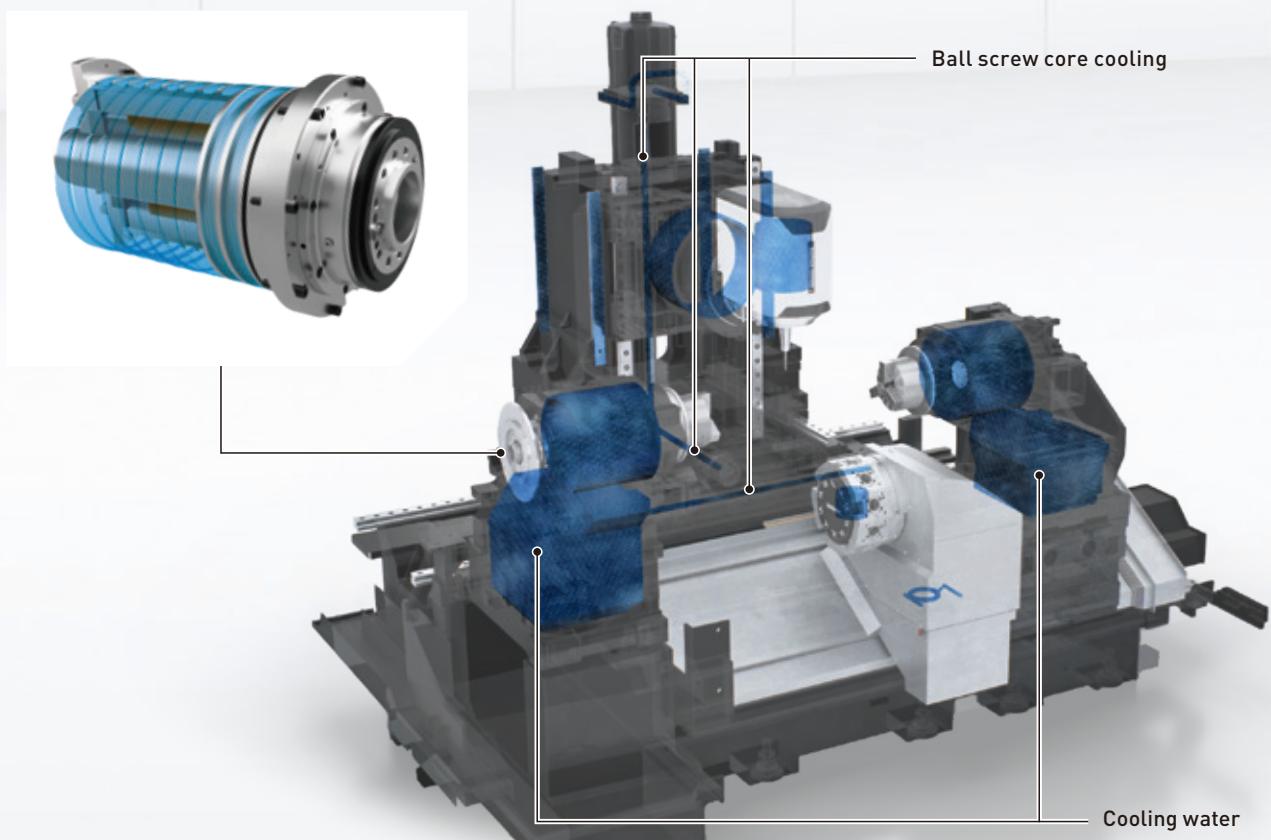
- + Highly accurate and rigid machine structure realized by simulation-based performance prediction and optimization

NTX 500

Optimal control of thermal displacement for high-accuracy machining

We have taken every precaution to realize stable high-precision machining.

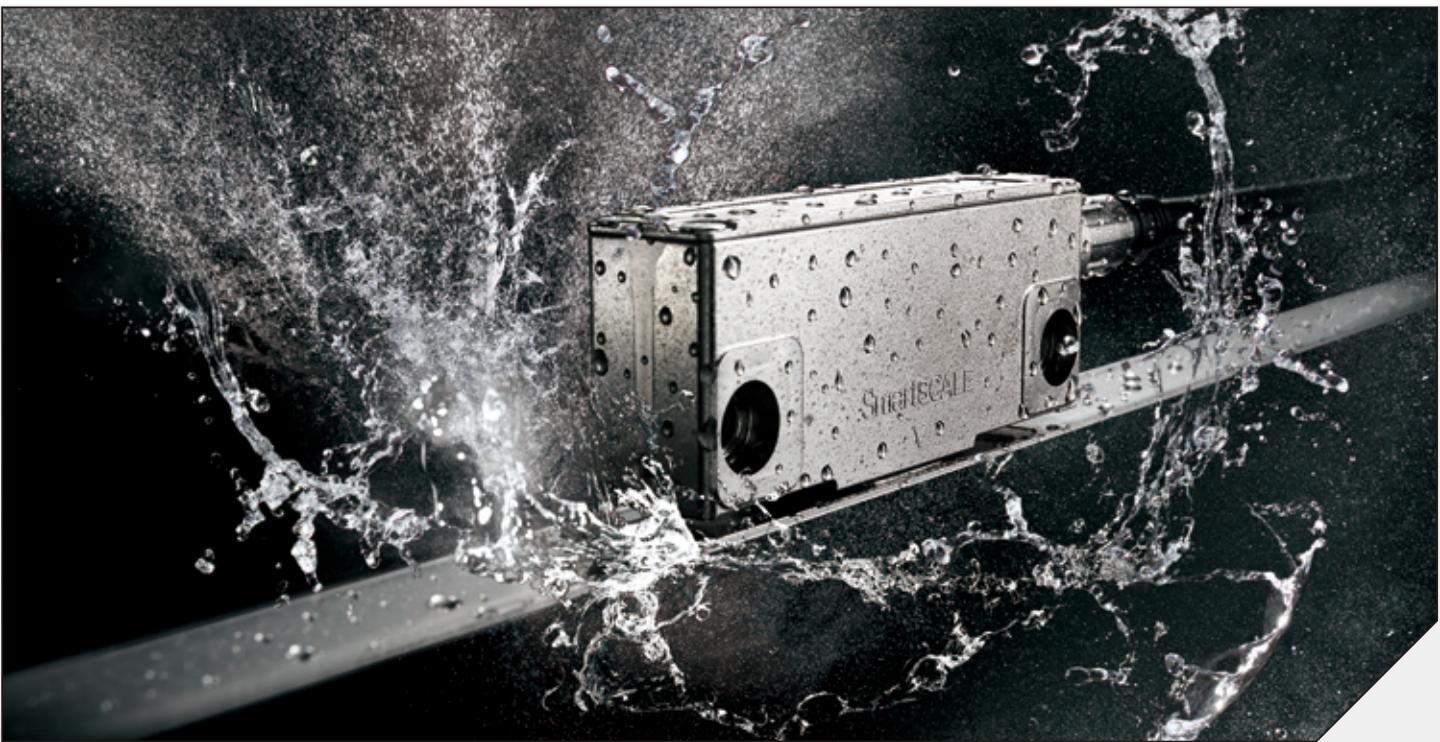
Thermal displacement of the machine structure is efficiently contained by the optimized casting shape and the "machine body cooling water circulation", which circulates cooling water to heat sources such as motors of turning spindles, turn-mill spindles, and turrets, as well as ball screws and ball nuts.



Cooling water circulation in the machine body

By circulating cooling water to each heat generating component, thermal displacement is suppressed and high-precision machining realized.

● Illustration shows NTX 1000.



Full closed loop control <Scale feedback> (Standard features)

- + Superior machining accuracy with SmartSCALE made by Magnescale
- + Magnetic measuring system with a high resolution of 0.01 µm
- + Resistance to oil and condensation due to a magnetic detection principle
- + Impact resistance of 980 m/s² [38,582.6 in./s²]
<if impact is 11 ms>
- + Vibration resistance of 250 m/s² [9,842.5 in./s²]
<if vibration is 50 — 2,000 Hz>
- + High-accuracy machining achieved by the scale with the thermal expansion coefficient equivalent to the machine castings
- + Protection level of IP67 and bearingless non-contact structure for high reliability



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Coolant chiller (Standard features)

Thermal displacement of fixtures and workpieces caused by higher coolant temperatures affects the machining accuracy. The coolant chiller effectively helps to keep coolant temperatures low.

Please contact our sales representative if you would like to use oil-based coolant. *

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

* Changes to the coolant chiller specification may be required.

NTX 500

High-quality high-speed spindle turnMASTER

Both the left and right spindles (option) are compatible with 5-inch and 6-inch chucks. The left spindle can also be equipped with an 8-inch chuck to flexibly meet customer needs. The spindle is a cartridge type, and the entire unit can be replaced for easy maintenance.



Sophisticated spindle labyrinth structure

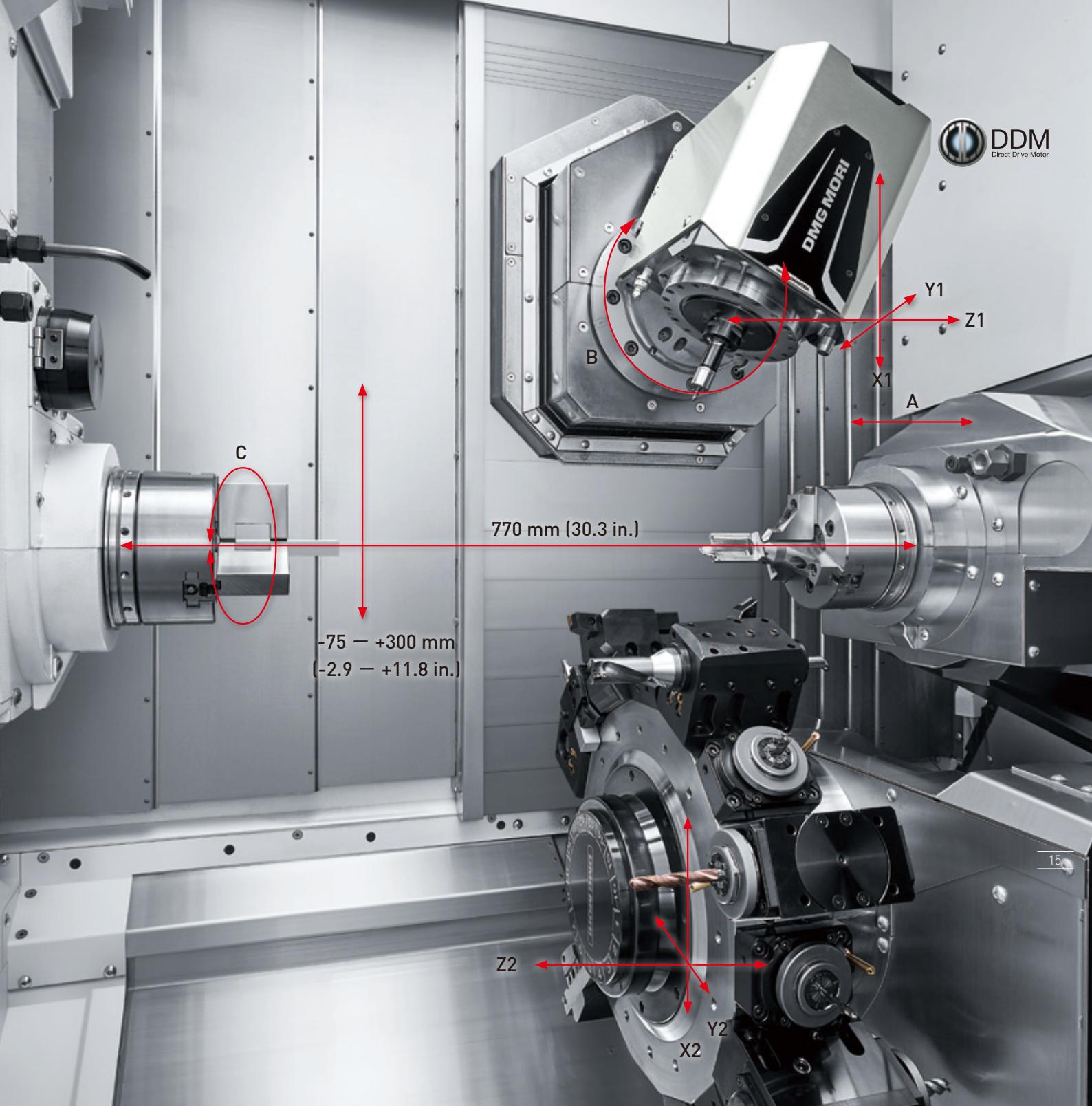
- + More sophisticated labyrinth structure designed for frequent use of high-pressure coolant, and coolant ingress into the spindle prevented by featuring spindle air purge as standard, realizing high spindle durability

Right Spindle and Tailstock

- + The right spindle (optional) has the same maximum spindle speed of 8,000 min⁻¹ as the left spindle.
- + The tailstock is available with the MT3 rotary center (not including the center) as standard.

● The chuck is optional.

● The 8-inch chuck specification is only available for the left spindle.



Travel

NTX 500		
Turn-mill spindle	X1-axis	mm (in.)
		375 (-75 — +300) <14.7 (-2.9 — +11.8)>
	Y1-axis	mm (in.)
		±75 (2.9)
Turret 2	Z1-axis	mm (in.)
		610 + 140 [24.0 + 5.0]*1
	B-axis	FANUC: ±120° SIEMENS: -30 — +210°
	X2-axis	mm (in.)
Left spindle / Right spindle*2		100 (3.9)
	Y2-axis	mm (in.)
		±30 (1.1)
Tailstock	Z2-axis	mm (in.)
		580 (22.8)
C-axis		
360° / 360°		

*1 for ATC

*2 Right spindle specification

Workpiece size

NTX 500		
Max. distance between centers	mm (in.)	770 (30.3)*1, 825 (32.4)*2
Max. turning diameter (Turn-mill spindle / Turret 2)*3	mm (in.)	φ350 / φ90 (13.7 / 3.5)
Max. turning length	mm (in.)	640 (25.1)*1, 580 (22.8)*2
Bar work capacity*4	mm (in.)	φ32 (φ1.2)*1, φ40 (φ1.5)*1, φ65 (φ2.5)*2

*1 Left through-spindle hole diameter: φ50 mm (φ1.9 in.)

*2 Left through-spindle hole diameter: φ83 mm (φ3.2 in.)

*3 Both left spindle and right spindle (optional) are the same.

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

NTX 500

Compact high-speed turn-mill spindle for wide travel

The X-, Y-, Z-, and B-axis configuration enables the turn-mill spindle to easily approach the machined surface of complex workpieces. Workpieces that could not be machined in a single chucking before can now be machined without any setup changes to realize process integration. The B-axis is driven by DDM (direct drive motor) for high-speed, high-precision machining.



- + Turn-mill spindle utilizes Direct Drive Spindle (DDS)
- + Turn-mill spindle max. speed: 30,000 min⁻¹, 42,000 min⁻¹ (High-speed)
- + B-axis driven by a direct drive motor (DDM)
- + Highly rigid two-face contact specification: Capto C4, HSK-T40
- + Tool storage capacity: 38 tools, 76 tools, 114 tools
- + Max. tool diameter: ϕ 100 mm (ϕ 3.9 in.) <Without adjacent tools>, ϕ 60 mm (ϕ 2.3 in.) <With adjacent tools>
- + Tool changing time (Tool-to-tool): 2.1 sec.

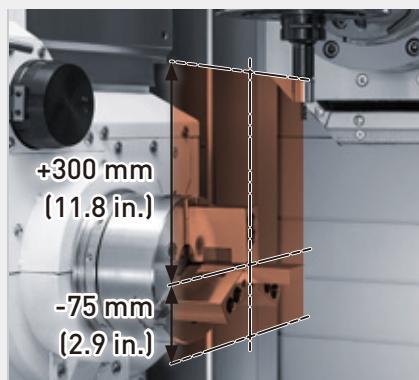
compactMASTER 40|250

The bearing arrangement has been modified to support continuous operation at high speeds, and the labyrinth structure has been upgraded to accommodate heavy use of high-pressure coolant. An air purge is provided as standard to prevent coolant from entering the turn-mill spindle and to further improve durability. The compact size of 250 mm (9.8 in.) × 190 mm (7.5 in.) allows flexible machining with less interference.



X-axis travel in the negative direction

High-accuracy machining below the chuck is achieved by only linear axes, so programs can be created as if using a machining center.



The world's fastest direct drive-type motor with zero backlash on B-axis

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.

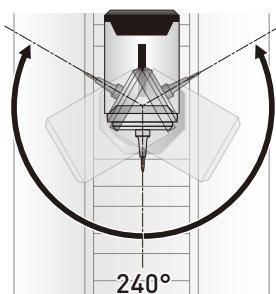


Effects of DDM

- + High-speed rotation
- + High-precision indexing
- + Less maintenance
- + Longer product life

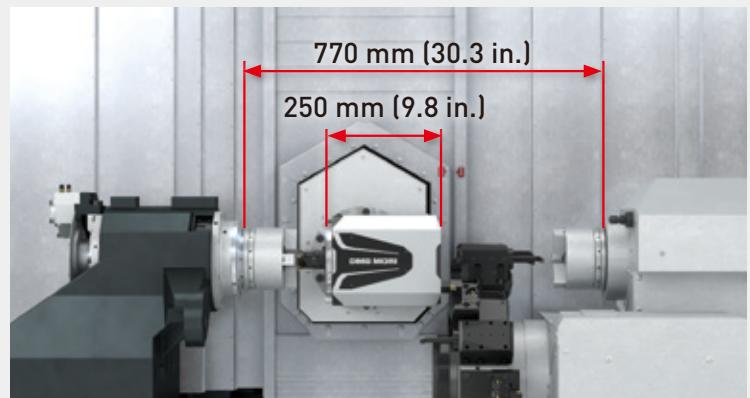
		NTX 500
B-axis rotation range	FANUC	±120°
	SIEMENS	-30° — +210°
B-axis rotational speed	min ⁻¹	100
Min. indexing increment		0.0001°

High-Flexibility B-axis



Compact turn-mill spindle with less interference inside the machining area of Turret 2

Even with a 250 mm (9.8 in.) -long turn-mill spindle between the left and right spindle, Turret 2 can be utilized for machining.



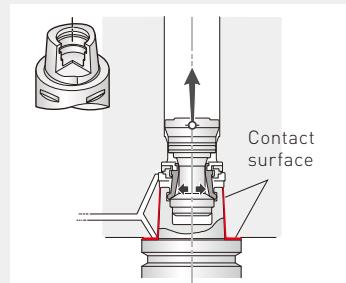
Two-face contact specification

Flexural rigidity of tools has been improved by the contact with both the spindle taper and the end face.

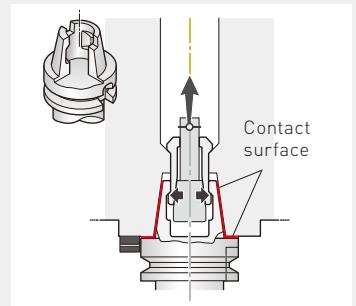
This extends tool life and improves cutting performance and machining accuracy.

- When selecting the 2-contact face specification, be sure to use tools with 2 contact faces.
- DMG MORI builds all the spindles in house.

Capto Specifications



HSK Specifications



Tool magazine



Tool storage capacity		38, 76, 114
Max. tool diameter	Without adjacent tools With adjacent tools	mm (in.) mm (in.)
Max. tool length		mm (in.)
Max. tool mass		kg (lb.)
Max. tool mass moment (from spindle gage line)	N · m (ft · lbf)	3.9 (2.87)
Tool changing time (Tool-to-tool)	sec.	2.1

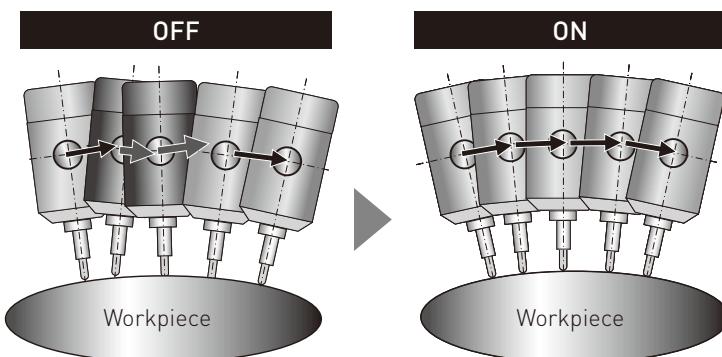
- Photo: Tool storage capacity 38 tools

Function for supporting simultaneous 5-axis machining

SVC function (Standard features)

The SVC function reads the program commands for tool tip control in advance and performs automatic compensation to achieve smooth tool feed. The combination use with the DDM (Direct Drive Motor) ensures higher surface quality and shorter cycle time in 5-axis machining.

Motion of the SVC function

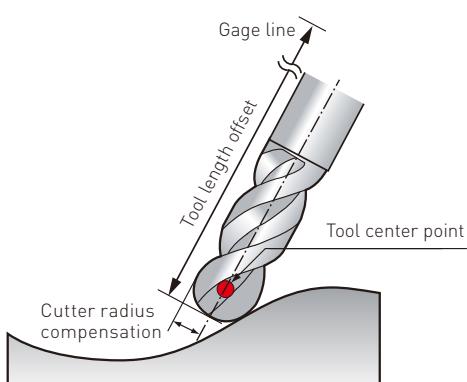


The SVC function includes the following functions:

- + AI contour control II
- + Smooth Tolerance⁺ Control
- + High-speed smooth TCP
- + G332 tolerance command

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Tool center point (TCP) control (Standard features)



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 tip control.

NTX 500

High-performance Turret 2 Broadens Machining Capabilities with Y-axis

By employing the high-performance Turret 2 (option) that combines technologies and expertise DMG MORI has cultivated through turning center development, the machine achieves efficient and flexible turning, secondary processing and rear machining and reduces cycle times.

The milling specification model is equipped with the BMT (built-in motor turret) which controls heat generation by jacket cooling, achieving outstanding machining accuracy.

The Y-axis specification with an axis travel of ± 30 mm (± 1.1 in.) is also available to allow for machining that has not been possible with the conventional Turret 2, thereby greatly contributing to cost reduction and greater competitive edge.

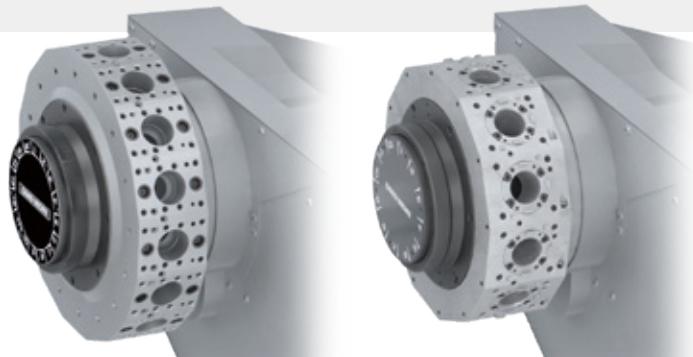
Turret 2 featuring BMT technology (Option)

- + Number of tool stations: 16 tools, 12 tools
- + Max. milling spindle speed: 12,000 min⁻¹
- + The Y-axis specification (Option) with an axis travel of ± 30 mm (± 1.1 in.) offers hobbing with the turn-mill spindle and Turret 2 synchronized.

Selection of high-performance turrets

- + Max. milling spindle speed: 12,000 min⁻¹
- + Y-axis travel: ± 30 mm (1.1 in.) <Option>
- + Max. tool length on right spindle side: 80 mm (3.1 in.)^{*1}

*1 Varies depending on tool holder.



16-station Turret (BMT42/64)

A wide variety of tools can be mounted to accommodate a wide range of machining operations

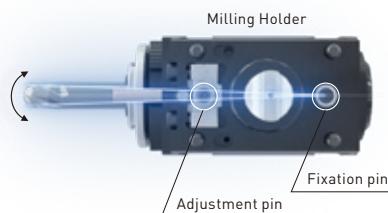
12-station Turret (BMT40/78)

Compatible with NTX 1000 toolholders

Newly developed compact holder BMT42/64 (16-station turret)

Adjustment pins allow fine tuning for accurate machining.

- + Mounting repeatability: 2 μm ^{*2}
- + Adjustment pin to set the holder in parallel to axial direction



*2 16-station turret: Limited to the DMG MORI specified mounting / removal method.

Large indexing diameter and tool holders for milling operation on the Right spindle side (Option)

The 16-station turret comes with a swivel diameter of $\phi 600$ mm ($\phi 23.6$ in.) for flexible tooling. The end face milling holder enables end face milling on the right spindle by Turret 2 to further reduce cycle time.



“Mature” and “Evolved” BMT Technology <Turret 2 milling specification> (Option)

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 the 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 500

Solutions for Chip Disposal & Fog Collection

Chips can be one of the main causes leading to machining failure and machine stop. MG MORI conducted an in-depth study on them by carrying out various experiments and analyses, and achieved outstanding chip disposal performance. We offer optimal chip disposal solutions according to a machining condition of each customer.

Coolant tank

The coolant tank can be pulled out to the front, minimizing the space for maintenance.



Chip conveyor

A hinge-type conveyor discharges long chips, and a cleat (scraping plate) on the hinge belt discharges short, fine chips. This enables processing of a mixture of long and short chips, regardless of the material type.

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Chip flushing coolant

The standard chip flush coolant ensures better chip disposal directly beneath the spindle.



Through-spindle coolant system <Turn-mill spindle>

- + Coolant to be supplied to the tip through the holes of the spindle and tool
- + Effective for chip removal, cooling of machining points and extension of tool life



High pressure coolant pump mounted on the coolant tank [Option]

 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.

Equipped with Zero Sludge Coolant Tank as standard*

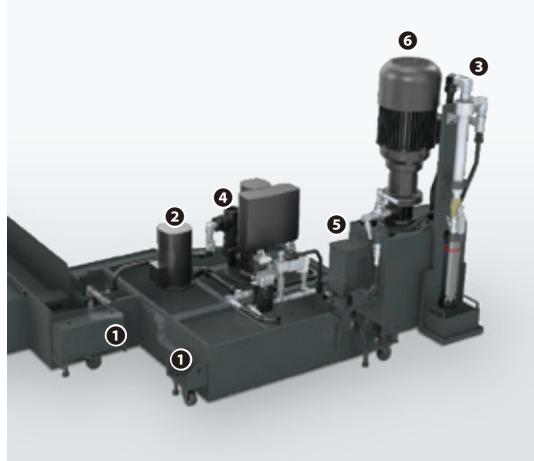
Multiple coolant nozzles are arranged to stir coolant and efficiently collect fine casting sludge with a highly accurate cyclone filter.

- + Reduce cleaning work of the coolant tank dramatically
- + Prevent clogging of pipes / coolant nozzles and pump breakage
- + Expand coolant life

- ① Coolant nozzle
- ② Inlet filter pump
- ③ Cyclone filter
- ④ Stirring nozzle coolant pump
- ⑤ Clean coolant tank (from cyclone filter)
- ⑥ Through-spindle coolant pump

*Not compatible with oil-based coolant.

Find a video about
Zero Sludge Coolant Tank here.



High-performance built-in mist collector zeroFOG

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CLEAN

- + Air quality comparable to household air purifiers
Mist collection efficiency over 99.97% for 0.3 µm particles
- + Stable collection performance realized by filter clogging monitoring and automatic motor control^{*1}

COMPACT

- + Attachable to the machine body^{*2}
No additional floor space necessary
Unified design concept with the machine

High maintainability

- + Frequent filter cleaning no longer necessary
Automatic cleaning of the primary filter prevents filter clogging
- + Notification of filter exchange timing

ENERGY-SAVING

- + Contribution to SDGs:
less energy consumption and carbon emission



zeroFOG

*1 Airflow may decrease depending on operating conditions such as mist concentration, oil type, and machining details.

*2 The method of mounting on the machine varies depending on the model and specifications.

Find detailed information about
zeroFOG here.



NTX 500

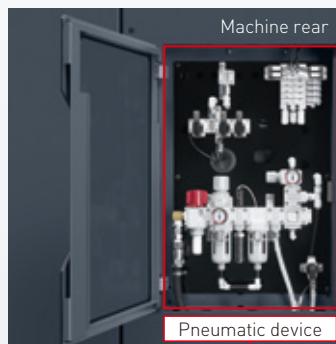
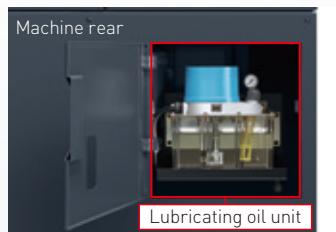
Pursuit of Usability

The NTX Series machines are designed with the highest priority on operator usability.

The usability-focused approach can be seen throughout the machine design, which includes a larger window for greater visibility, and the hydraulic units and other devices in an easily accessible location for better maintainability.

24

Easy-to-access Units & Devices



The equipment layout is designed for daily operation and maintenance.



• Photo: Right spindle specifications

High-rigidity Digital Tailstock <Tailstock specification>

There are two types of tailstocks available: standard MT3 live center (without center) and optional MT2 built-in center (with center). The servo motor-driven, high-rigidity digital tailstock helps achieve significant reduction in setup time.

Tool magazine for improved workability

The tool magazine is located at the machine front to enable tool checking at the machine operation position and tool changes in front of the machine. Moreover, operators can easily remove tools by simply pressing a button. The tool magazines with storage capacity of 76 tools (Double chain type) and 114 tools (Triple chain type) are especially suitable for customers who want to attach / detach tools while one magazine is rotating. In addition, with the magazine operation panel, all operations necessary for tool setup can be performed from the magazine side, reducing operators' work time.



Wide-opening magazine door



Tool removal with a single push of a button



7-inch touch panel usable with gloves

Find a video about the magazine operation panel here.



Door with Outstanding Visibility



* Opening width differs for automatic doors.



ERGOLine X with Superior Operability

The swivel, touch screen operation panel provides better access to the spindle and the workpiece.



NTX 500

Various Automation Solutions

The NTX 500 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 type robot (Option)



Robot	Max. transfer weight (Robot hand + workpiece)	kg (lb.)
● 2 types of hands: single hand and double hand		7 [15.4]

Drawer-type tray

An in-machine traveling robot transfers material prepared on the tray into the machine, attaches it to the spindle, receives processed workpieces from the spindle, and returns them to the tray. The tray can be manually loaded and unloaded into the stocker, and continuous processing is possible by replacing the tray.



Stores a machined part, picks up a material



Detaches a machined part, attaches a material

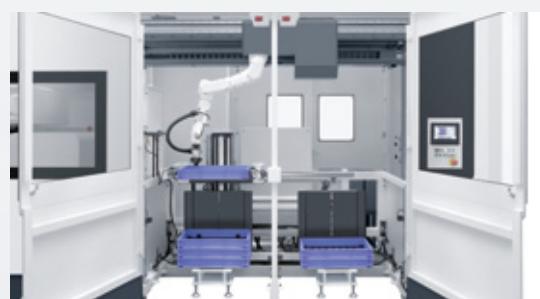


Drawer-type tray

Tray changer system*

In addition to loading and unloading of workpieces, this system flexibly handles multiple types of workpieces, tray systems, cleaning and deburring, etc.

*Consultation is required



Tray System

MATRIS Light (Option)

This freely movable robot system consists of a collaborative robot mounted on a hand cart.

- + Robot cart movable by a single operator
- + Maximum payload capacity of 5 kg (11 lb.) <single hand>
- + Highly sensitive robot stop function to stop the robot immediately when in contact with human workers, eliminating the need for fences
- + No major equipment modifications required for installation, immediate start of robot operation.



Find detailed information on
MATRIS Light here.



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Bar feeder interface (Option)

Combined with a workpiece unloader to realize integrated bar processing.

Recommended accessories for bar feeder specification

- + Bar feeder
- + Multi counter
- + Signal lamp
- + Tool Visualizer
- + Guide bushing
- + Work stopper
- + zeroFOG



Workpiece unloader (Option)

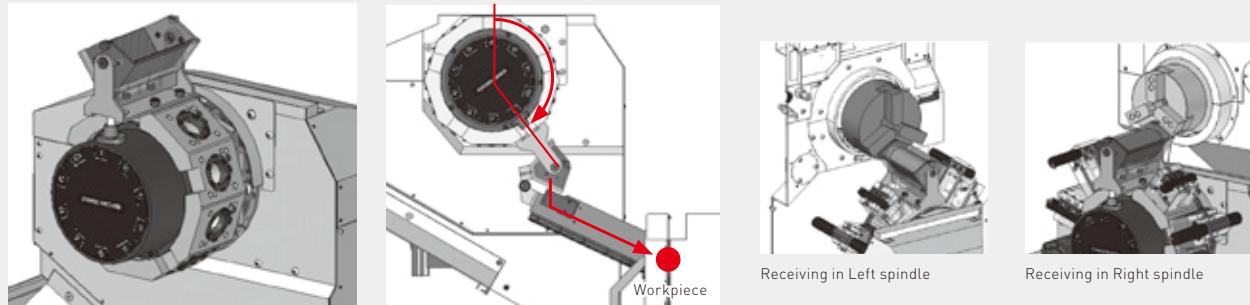
The NTX 500 offers three types of workpiece unloaders: the Right spindle type, the turret-mounting type and the swing type. Each customer can select the optimal type according to their needs.

Basic specification	T1 MC1 B1 Y1 LS TS							
Optional specifications	—	T2	T2 MC2	T2 MC2 Y2	RS	T2 RS	T2 MC2 RS	T2 MC2 Y2 RS
Right spindle type	—	—	—	—	○	○	○	○
Turret-mounting type	—	○	○	○	—	○	○	○
Swing type	○	—	—	—	○	—	—	—

Workpiece unloader (Right spindle type)



Workpiece unloader (Turret-mounting type)



Workpiece unloader (Swing type)



<input checked="" type="checkbox"/> : Standard	<input type="checkbox"/> : Option
T1 : Turn-mill spindle	T2 : Turret 2
MC1 : Turn-mill spindle <Milling>	MC2 : Turret 2 [Milling]
Y1 : Turn-mill spindle <Y-axis>	Y2 : Turret 2 [Y-axis]
B1 : Turn-mill spindle <B-axis>	

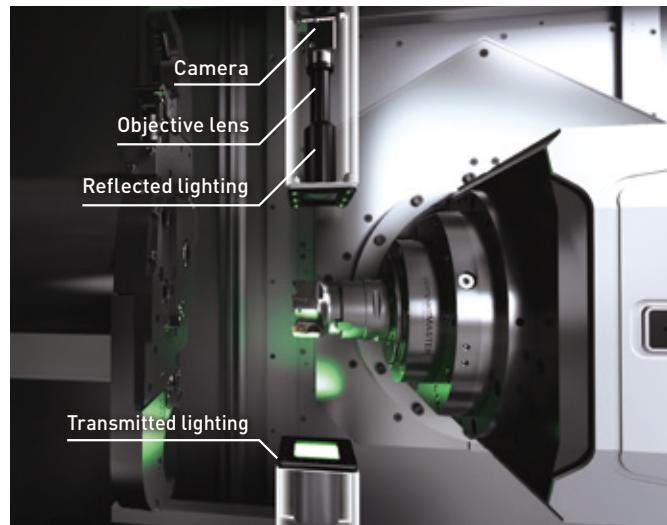
●The Right spindle specification (RS) is not equipped with a tailstock (TS).

Tool Visualizer (Option)

- + Automatic on-machine measurement of tool geometry and setting of tool compensation
- + Detection of drill breakage and chip winding
- + Automatic image capture of tool edge during ATC and manual wear measurement for tool life management
- + Creation of tool model data for interference check, data imported into the interference check function



Find detailed information on
Tool Visualizer here.



In-machine measuring device

Touch sensor with radio wave signal transmission (Renishaw) (optional)

A touch sensor (radio wave signal transmission) is attached to the turn-mill spindle to position the workpiece and measure the fixture and workpiece. The workpiece coordinates read by the touch sensor are transmitted as radio wave signals to the control unit via a receiver installed in the machine. The touch sensor is stored in the tool magazine and called up to the turn-mill spindle by ATC.



NTX 500



DMG MORI Qualified Products One-stop Service for Various Needs

The DMG MORI Qualified Products [DMQP] program <Option> is designed to certify peripherals that meet DMG MORI standards in quality, performance and maintainability.

DMG MORI collaborates with our partners in the world and provides customers with peripherals required for their machining. We take care of the arrangement from selection to installation to support best-quality machining. DMG MORI helps customers improve productivity by offering the total solutions including quality peripherals as well as machine tools.

Find detailed information
on DMQP here.



- + Offer peripheral equipment optimal for each customer at one stop
- + Provide support including connection and setup of machines and peripheral equipment
- + Achieve efficient connections with optimal interfaces



Four DMQP categories

Handling

Robot system

Bar feeder

Shaping

Oil skimmer

Rotary window

Super-high pressure coolant system

Hydraulic steady rest

Mist collector

Measuring

In-machine tool presetter

External tool measurement

In-machine measuring system (workpiece)

Surface roughness measuring system

Monitoring

Electrical cabinet chiller

Coolant chiller

Coolant float switch

Signal lamp

● The options above are examples. For details, please consult our sales representative.

DMQP: DMG MORI Qualified Product

Bar feeder



Shrink fit device



Coolant



In-machine measuring system (workpiece)



In-machine tool presetter



Tool balancer



Air dryer



Air compressor



Oil skimmer



Rotary window



Tool cabinet



Tooling

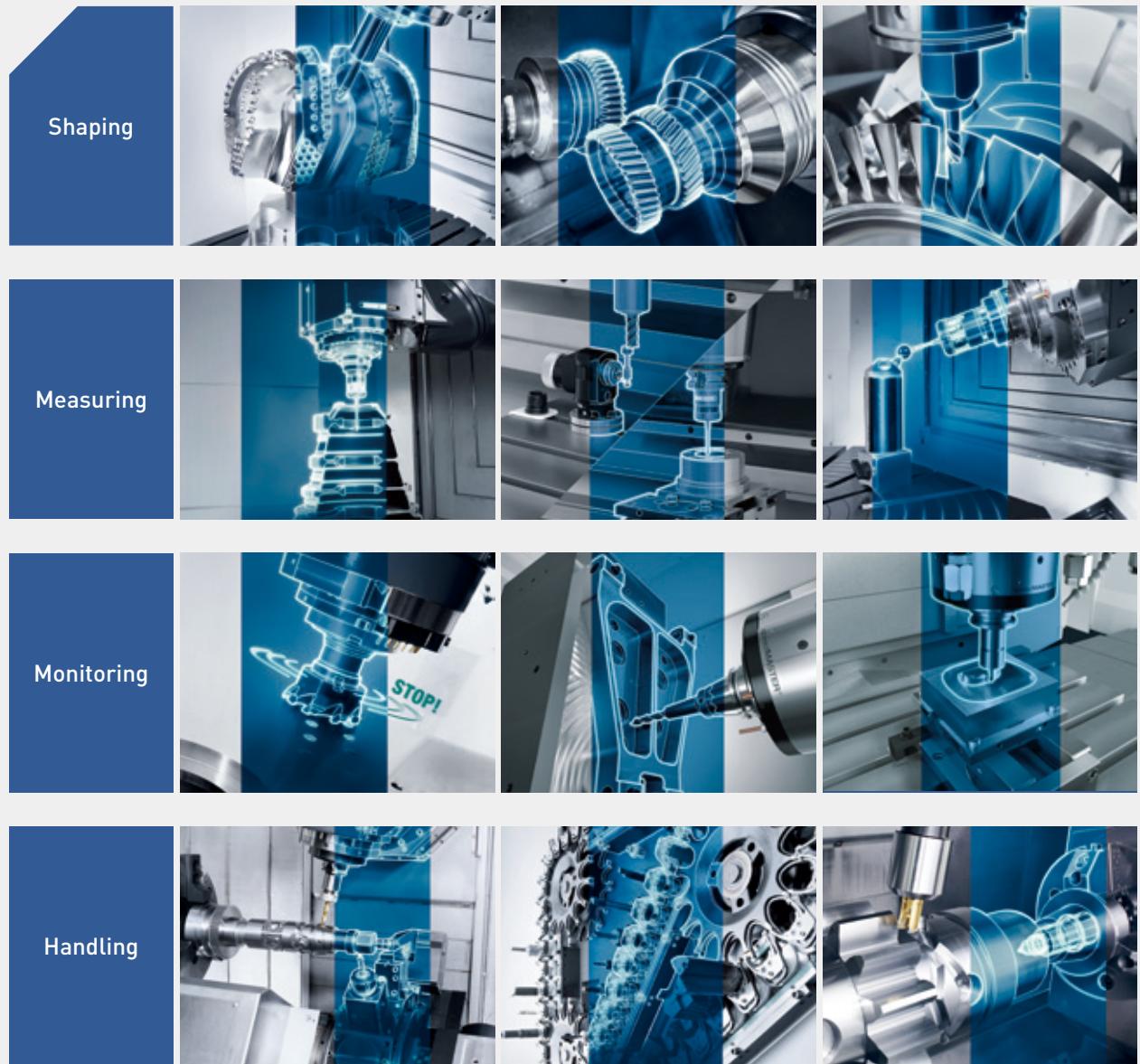


NTX 500

DMG MORI Technology Cycles

Technology Cycles (Option) are total solutions that achieve complex machining easily in a short time. They enable every operator to easily perform high-quality machining, setups and measurement with general-purpose machine tools and standard tools / fixtures, which used to be done with specialized machines, programs and tools.

Find detailed information on
Technology Cycles here.



- The availability of the functions differ depending on the machine. For details, please consult our sales representative.
- The above is an image picture.

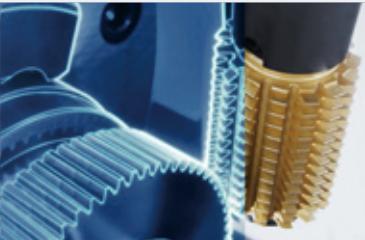
Respond to Various Technology Cycles

Shaping

Gear hobbing^{*1}

Optimal programming achieves hobbing with a general-purpose machine

Efficient High precision



Find detailed information on Gear hobbing here.



Issue (before introduction)



- + A gear machine is needed. After blank machining with a turning machine, gear machining needs to be performed with a gear machine after setup changes
- + Want to extend the tool life of expensive hob cutter

Results (after introduction)



- + Hobbing program can be easily created by conversational input
- + Hob cutter's machining position can be changed, maximizing the tool life
- + Consolidation of machining operations into the general-purpose machine reduces setup time and enhances accuracy such as concentricity due to no setup change

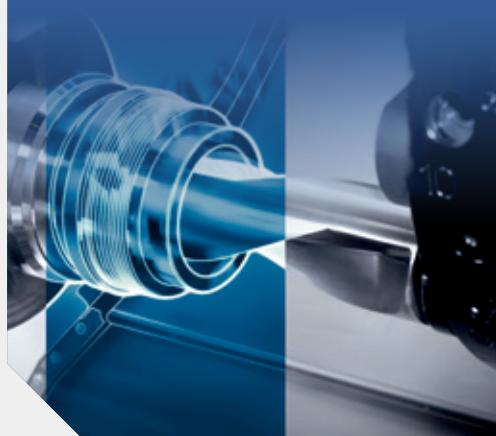
*1 Consultation is required

*2 <Reference> Wikipedia: Hobbing; <https://ja.wikipedia.org/wiki/%E3%83%9B%E3%83%96%E7%9B%A4> (Quoted on March 14, 2022)

Monitoring

Easy tool monitoring

Monitoring load of spindle and traveling axes



Issue (before introduction)

- + Abundant experience is needed to set cutting conditions
- + Want to prevent tool breakage and machine failure
- + Difficult to monitor load to the spindle and tools at all times

Results (after introduction)

- + Conditions can be set in advance, enabling digital cutting management not dependent on experience or expertise
- + Can reduce tool breakage and maintenance cost by maximizing the capacities of the tools and machine
- + Load to the traveling axis and spindle during machining is monitored at all times, and the machine stops when abnormal values are detected



Handling

Multi-tool

Maximizing number of tools & minimizing non-cutting time



Issue (before introduction)

- + Models with the Y-axis or Right spindle specification require tools for various cutting operations
- + More than one tool is mounted to one station in some cases, making their management complex
- + Including spare tools, it is necessary to prepare more tools than the number of turret stations

Results (after introduction)

- + Tool compensation setting and life management can be easily performed for multiple tools of each station
- + Operator can set optimum tool information for each tool and maximize the number of tools
- + Prevent tool breakage and enhance production efficiency by switching to spare tools according to the operating time of the set tool



Handling

Alternating speed

Stable machining in which chatter hardly occurs

 Efficient
 High precision



Issue (before introduction)

- + Chatter occurs when using tools under its recommended conditions
- + Vibration in deep hole drilling using a long drill should be suppressed

Results (after introduction)

- + Cutting resistance is changed by periodically changing the rotation speed of the spindle. This helps suppress chatter and enhance cutting conditions, which lead to shorter machining time
- + Surface quality is improved


Find detailed information on Alternating speed here.


Shaping

Multi-threading 2.0^{*1}

Cutting special thread

 Efficient



Issue (before introduction)

- + Hope to cut special thread shapes
- + Hope to simplify complicated programming

Results (after introduction)

- + Easily create various thread shapes by conversational programming
- + Create a machining program of a special shape thread on the machine without CAD / CAM
- + Worm machining with involute curve tooth profile^{*2} is also available


Find detailed information on Multi-threading 2.0 here.

Triangle
Square
Trapezoidal

Round
Buttress
Worm

*1 Consultation is required

*2 Equivalent to JIS B 1723 Type 4 (DIN 3975 ZI)

Shaping

gearSKIVING*

High-speed gear cutting including internal teeth



Issue (before introduction)

- + Not sure how to create a program because it involves a special machining technique
- + Require multiple processes with a gear machine and a cutting machine

Results (after introduction)

- + Can easily program a machining technique called gear skiving
- + Internal teeth that cannot be machined by hobbing can be cut
- + Consolidation of processing operations into the general-purpose machine reduces setup time and enhances accuracy such as concentricity due to no setup change



Find detailed information on gearSKIVING here.



Shaping

Excentric machining*



Easy programming of excentric machining



Issue (before introduction)

- + Hope to perform excentric machining processes on one machine
- + Expensive jigs for excentric machining are necessary

Results (after introduction)

- + Reduce setup time by consolidating machining operations performed with a special machine into a general-purpose machine
- + Complicated program for excentric machining can be created using the conversational programming style
- + Compatible with both turning and milling to achieve efficient machining
- + Require no eccentric machining jigs



Find detailed information on Excentric machining here.



Handling

Tailstock for turret

Support for programming of the tailstock operation when the tailstock is mounted on Turret 2



Efficient

Issue (before introduction)

- + Hope to machine long workpieces on machine with Right spindle specification
- + Programming is complicated with the tailstock mounted on Turret 2

Results (after introduction)

- + Easy operation on guidance screen
 - Setting of tailstock pressures
 - Tailstock movement from the retract position to approach position, and then the workpiece support position
 - Tailstock retraction



Find detailed information on
DMG MORI gearMILL here.



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Shaping

Keyway broaching



Complete keyway broaching process integrated into one machine

- + Easy programming supported by guidance screen
- + Inner diameter keyway broaching also possible
- + Lower potential for interference than end milling
- + Includes programming for chamfering
- + Y-axis shift function enables various keyway sizes with a one size insert

Find a video about
Keyway broaching here.





Efficient

Handling

Retraction cycle



Automation allows for easy return to the zero return position without errors

- + Operational efficiency is enhanced, as one button push will enable return to the zero return position in the preset order
- + Can customize the order of axes to be moved according to the condition
- + Enhance efficiency of setup operation
- + Reduce the risk of accident



Safe

Shaping

Efficient Production Package (High-speed canned cycle)



Easy inputting of various machining patterns

- + A program will be automatically created just by entering a complex shape in a conversational style
- + Safe cutting is ensured by confirming cutting details using the simulation function
- + Optimal tool path and cutting conditions enhance cutting quality

Shaping

Interpolation turning*

Find detailed information on
Interpolation turning here.



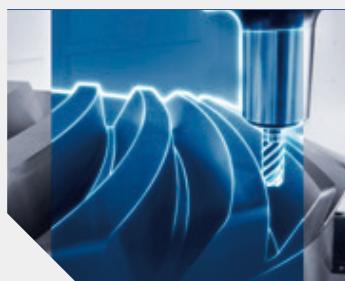
Easy programming of interpolation turning

- + Interpolation turning can be programmed using the conversational programming style
- + O-ring groove and sealing surface can be cut
- + Tuning process can be performed at the eccentric position in one chucking, enabling process integration.

Shaping

DMG MORI gearMILL*

Find detailed information on
DMG MORI gearMILL here.



Integrating gear cutting into Turning / Milling

- + PC software for gear cutting
- + All processes of Turning, Milling, and gear cutting are done on one machine
- + Investment cost can be reduced by use of commercially available tools and generalpurpose machines

Shaping

Simultaneous 5-axis machining



Most suited for simultaneous 5-axis control machining

- + NC options required for simultaneous 5-axis machining are provided as a set in advance

Measuring

3D quickSET



Find detailed information on
3D quickSET here.



Easy offset of deviation of rotary / Tilted axes on 5-axis control machine

- + Automatic offset with the dedicated program
- + Easy programming in accordance with guidance
- + Possible to offset even while fixtures and workpieces are being mounted*
- + Higher accuracy by minimized deviation of rotary / Tilted axes

*Be cautious about interference which may occur depending on the mounting position of the calibration sphere

Handling

Application Tuning Cycle



Easy setting of optimum feed according to the machining operation

- + Only by selecting either the time priority mode or accuracy priority mode, smoothness of look-ahead interpolation can be changed
- + Feedrate can be changed freely while programs are running, and optimum machining method can be set according to surfaces to be machined

Handling

Counter spindle tip



Supports operation programming of the center mounted on the right spindle

- + Easy operation on guidance screen
 - Tailstock pressure setting
 - Movement from retreat position to tailstock
 - Retreat movement of tailstock
 - Calling the center from the magazine and chucking it to the right spindle

Monitoring

MPC (Machine Protection Control)



Vibration of turn-mill spindle detected by sensor

- + Preventive maintenance by regular diagnosis of bearings
- + Detection of subtle changes in vibration caused by tool chipping
- + Quick stop when excessive vibration is detected
- + Minimized load on the spindle at the time of interference

ERGOLine X with CELOS X

Smooth and Time-saving Operation

The refined ergonomic design ensures easy usage down to the smallest detail. The dustproof and waterproof design (IP54 rating) is ideal for factory environments and realizes comfortable and safe operation.

(CE Marking acquired for European safety standards)

1 Large touch screen

Superior visibility and intuitive operation.

- + 10% larger screen and increased text size
- + All necessary information displayed on one screen for higher work efficiency
- + Remote access: machining programs on office PCs are visible on the shop floor as well
- + Can also be operated with touch pen^{*1}

^{*1} Option



Electrostatic touch panel



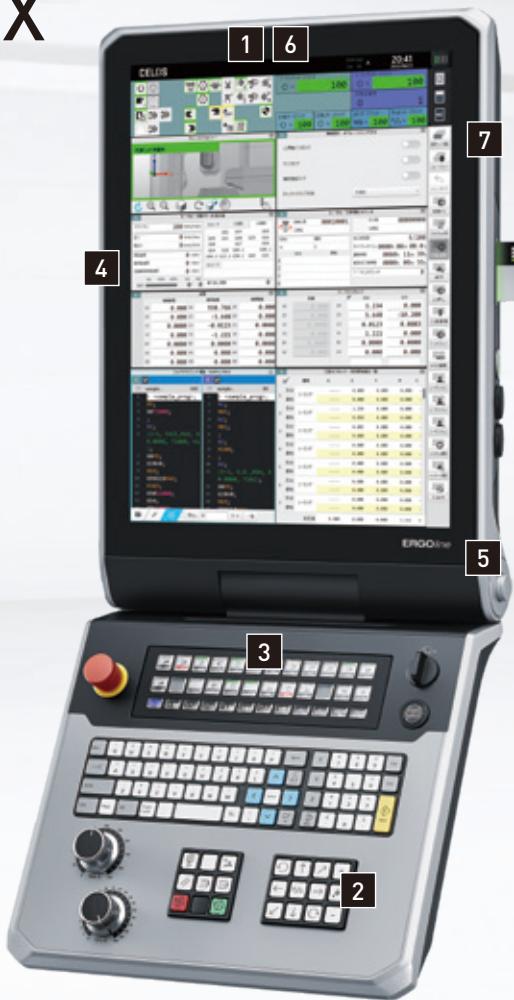
Can also be operated with gloves on

2 Hardware buttons that are easy to press

Ideal for program input where accuracy is required.



- + Dustproof, waterproof and durable design
- + Optimized button ergonomics for comfort pressing

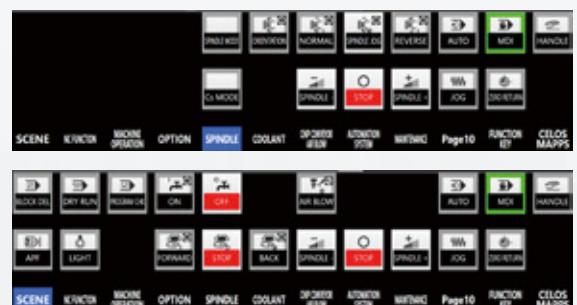


FANUC

- + Upper panel: Front 10°, Back 20°
- + Lower panel: 0 to 84° (adjustable in 7 steps at 12° each)

3 HYBRID BAR^{*2}

Only displays the buttons that are necessary for the current operation. Prevents errors and improves workability.



Example of displayed buttons

- + Switches displayed buttons automatically to suit your current operation
- + LCD panel with comfortable push sensation
- + Synchronized with open programs on the touch screen

^{*2} FANUC only



SIEMENS

- + Upper panel: Front 0°, Back 30°
- + Lower panel: 10° to 85° (stepless adjustment)

4 Useful applications that reinforce your production processes

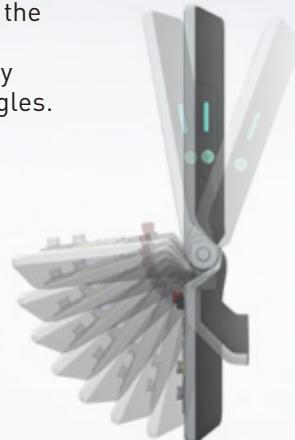
Operator Workbook

CELOS App for easy job processing from the office or factory floor

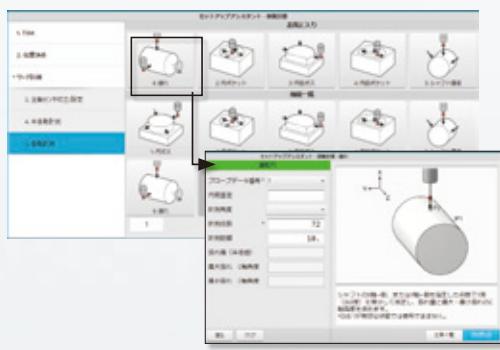
Application Connector

CELOS App to enable display and operation of other IT systems on the operational panel

- 5** Upper and lower panel can be adjusted to your optimal viewing angle Operate the machine in your most comfortable position by adjusting the panel angles.



6 Simple input screen for smooth completion of setup

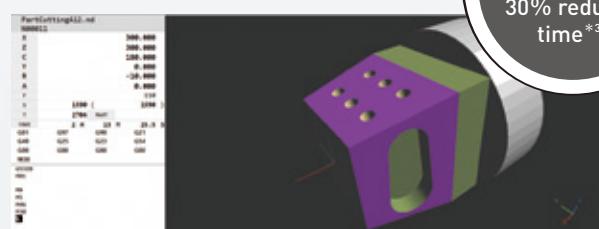


Setup page samples (MAPPS)

- + Easy-to-understand animations and diagrams guide you through the setup
- + For tool change, simply select a tool from the list
- + Enables anybody to safely perform tool change or measuring
- + Significantly reduces setup time

7 Drawing and complex machining simulations are processed in high speed.

- + CPU: Intel Core i5
- + Memory 32 GB
- + 6 GB program storage area
- + USB 2 ports



Compared with previous panel
30% reduced time^{*3}!

Drawing simulation

*3 Based on actual results. Figure may differ depending on the machining program

Intel Core is a trademark or registered trademark of Intel Corporation

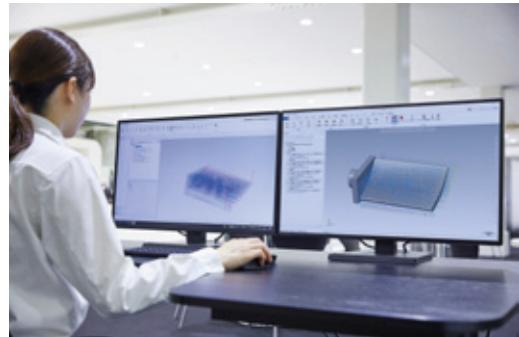
NTX 500

Digital Solutions Promoting the Digital Transformation of Your Shopfloor

DMG MORI's digital solutions visualize production-related information and eliminate inefficient work. The power of digital technology supports workers on the shopfloor, improving overall productivity and promoting work style innovation.

Digital Transformation of programming Program Creation in CAD / CAM

- + Ideal for machining complex shapes with 5-axis machines and mill-turn centers
- + Toolpath optimization increases machining efficiency and accuracy
- + Post processor translation ensures easy programming with different NC controls
- + DMG MORI proposes the optimal CAM for each customer's needs



CELOS DYNAMICpost^{*1}



Access here for the video

Post Processor / NC Simulation / Cutting Force Optimization
integrated in one software
Reliable bridge between CAM and machine tools



- + DMG MORI post processors maximize machine capacity
- + Interference check for safe and secure processing
- + Cutting force optimization reduces cutting time by 20%*2 and tool breakage during roughing
- + Free trial available

*1 Option*2 Listed figures may not be achieved depending on the type of machining.



Supports the digitization of your factory.
Eliminates all redundancies from your shopfloor.

- + Easily create work procedure manuals with applications and make your shopfloor paperless
- + Real-time visualization of on-site production processes
- + Linkage with existing internal systems to manage data in one place



Access here for the detail of TULIP



MESSENGER

Visualize machine conditions that were previously unknown. Share information in the team and derive concrete measures for improvement

- + View the machine operation status in real-time
- + Check the operation status history
- + Visualized operation rates help you to improve production processes
- + Email notifications for alarms and job completion



Access here for the video



NETservice

Quickly recover from any problems!

- + DMG MORI's service engineer can check your machine remotely*
- + Quick and accurate understanding of your machine status
- + Minimizes machine downtime

* DMG MORI's service engineer will only access your machine based on your request.



Robust security

Securely connect machines to the network and prevent problems and accidents caused by cyber attacks.

- + Only executes programs registered in the whitelist to prevent malicious programs
- + Prevents virus infection through machine bodies by blocking the execution of malicious programs in the first place

Whitelist security software



NTX 500

Network Construction and Connection Services for Factories DMG MORI GATEWAY



DMG MORI GATEWAY provides a one-stop cloud connection for machines of all makes and ages, allowing you to monitor the shop floor status in real time.

The implementation requires no effort on the part of customers and can be completed by DMG MORI engineers. The IoT-based, real-time shop floor visualization will help you make better business decisions and maximize production efficiency.

DMG MORI GATEWAY

Connectable to third-party machines and peripherals



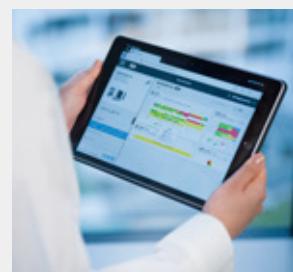
Data stored in the DMG MORI cloud



Shop floor network built by DMG MORI engineers



Data accessible from PCs, tablets, and smartphones



• DMG MORI GATEWAY service is available only in Japan. (As of September 2023) We plan to begin offering this service for overseas markets in due course.

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MTConnect is a trademark or registered trademark of The Association For Manufacturing Technology.

OPC UA is a trademark or registered trademark of OPC Foundation.

MQTT is a trademark or registered trademark of International Business Machines Corporation.

Your Contact for After-sales and Service: *my DMG MORI*



Access here for the video



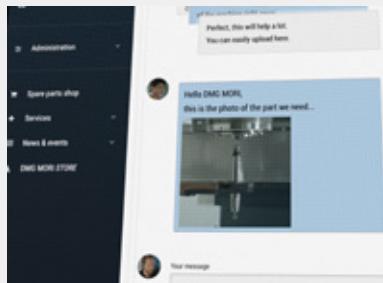
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my DMG MORI is a web-based platform that facilitates communication between customers and DMG MORI during repair and maintenance work.

Unlike phone calls, the digital communication allows both parties to exchange detailed information. You can also view the updated status and history anytime, anywhere.

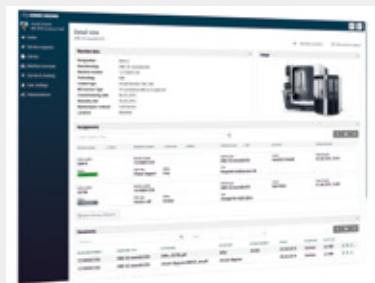
MORE SERVICE

- + No queue: Simple online problem description
- + Pre-filled service inquiries: Send machine details, photos or videos
- + Immediate processing: The "right" service expert will process the inquiry with priority



MORE KNOWLEDGE

- + Full machine history: All machine events are retrievable in a structured format
- + All documents digital: Library for technical and commercial documents available
- + Real-time access to processing status: More transparency for service and spare part inquiries



MORE AVAILABILITY

- + Free access, 24/7: From anywhere, at any time
- + Your portal, your rules: The customer controls who sees what
- + On any device: Computer, Smart-phone or via CELOS



For Sustainable Production

NTX 500 is designed to save energy and reduce CO₂ emissions through process integration, automation and digitization, allowing for energy-efficient and sustainable production.

DMG MORI is committed to reduce CO₂ emissions across the entire supply chain and has been certified by SBT in 2021*.

* Abbreviation for Science Based Targets. Greenhouse gas emissions reduction targets set by companies for the next 5-15 years in accordance with the levels required by the Paris Agreement (limit global temperature increase to below 2 °C or 1.5 °C compared to pre-industrial levels).



Scan the QR code for DMG MORI's approach towards sustainability.

<https://www.dmgmori.co.jp/corporate/sustainability/en/>



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SUSTAINABLE MANUFACTURING

SUSTAINABLE PRODUCTS



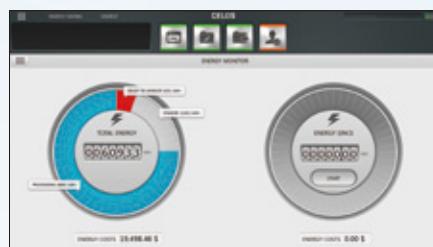
SUSTAINABLE CORPORATE ACTIVITIES



SUPPLIERS + **DMG MORI**

Unique energy-saving function **GREENMODE**

GREENMODE, an energy-saving function developed to achieve the Sustainable Development Goals (SDGs), significantly reduces your machine's power consumption by keeping standby power low and by shortening machining times through efficient machining programs.



Monitoring of power consumption and CO₂ emissions on the CELOS operation panel screen

GREENMODE

GREEN monitoring

- + Visualize power consumption and CO₂ emission amount on the CELOS operation screen

GREEN device

- + High-brightness LED light

GREEN idle reduction

- + Shuts off power to servo motors, spindles, coolant pumps, etc. when the machine is stopped
- + Turns off the operation panel screen when there is no machine operation for a certain period of time

GREEN control

- + Reduce machining power by energy-saving pecking cycles
- + Quicken standard M codes
- + Simultaneous acceleration / deceleration of the spindle and feed axes
- + Controls coolant discharge amount with inverter

Contributing to sustainable production

Reducing CO₂ by 5-axis machining, process integration and automation

5-axis machines and automation systems reduce lead times with highly efficient production.

They also contribute to less CO₂ emissions and power consumption and improve customers' productivity.



MACHINE UTILIZATION



MORE EFFICIENT ENERGY AND EMISSIONS MACHINE OPERATION

1. CELOS apps for transparency and optimization of energy consumption
2. Intelligent, demand-oriented control
3. Consumption-optimized components
4. Energy recovery during braking



TECHNOLOGY EXCELLENCE FOR GREEN TECHNOLOGIES

1. Green technologies like wind power and electromobility are the most important leverage against climate change
2. DMG MORI is the innovation driver for the production of green technologies

CUSTOMERS

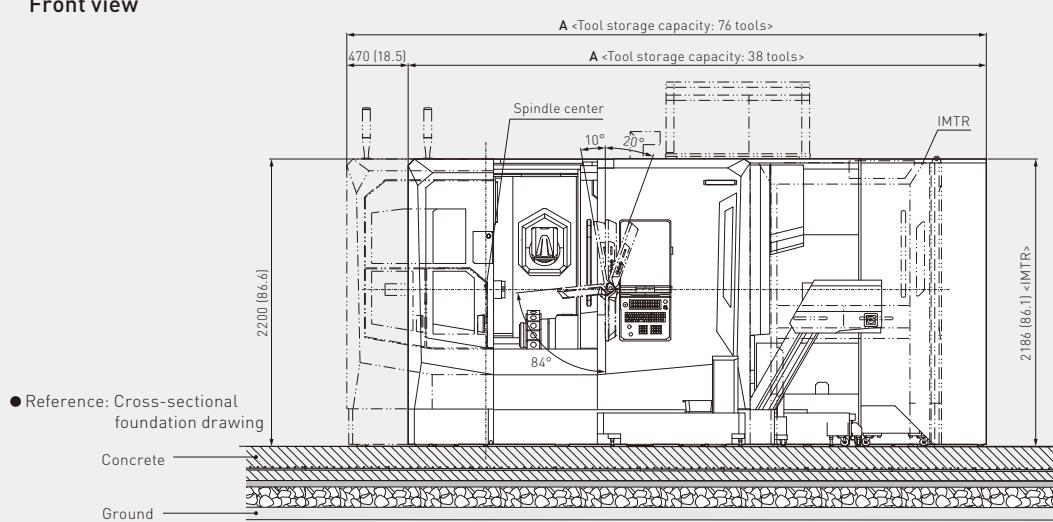
NTX 500

Machine size

NTX 500 (FANUC)

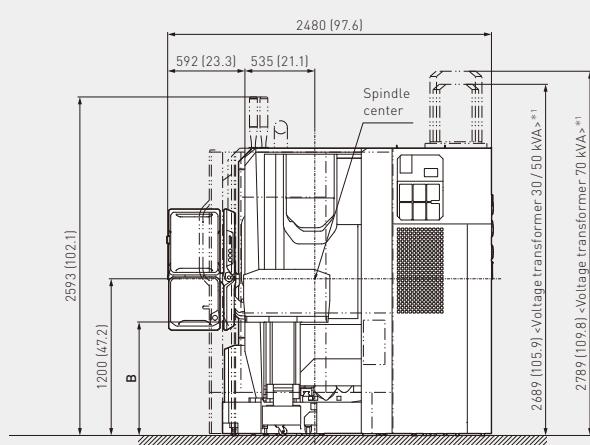
mm (in.)

Front view



- Appropriate floor surface flatness and ground strength are required to maximize performance. Details of foundation and soil bearing capacity are included in the drawing documents. For details, please consult our sales representative.

Side view



- Appropriate ambient temperature and temperature fluctuation range are required to maximize performance. For details, please consult our sales representative.

5441601_002

NTX 500

Chip conveyor	No conveyor	Hinge type + With box filter
A Machine width ^{*2}	Tool storage capacity: 38 tools mm (in.)	4,430 (174.4)
	Tool storage capacity: 76 tools mm (in.)	4,900 [192.9]
B Discharge height of chip conveyor	mm (in.)	850 [33.5]

*1 For 200 / 240V regions.

*2 Dimensions do not include coolant chiller and machine-body cooling system.

<input checked="" type="checkbox"/> Standard	<input type="checkbox"/> Option
T1 : Turn-mill spindle	T2 : Turret 2
MC1 : Turn-mill spindle <Milling>	MC2 : Turret 2 [Milling]
Y1 : Turn-mill spindle <Y-axis>	Y2 : Turret 2 [Y-axis]
B1 : Turn-mill spindle <B-axis>	

●The Right spindle specification (RS) is not equipped with a tailstock (TS).

NTX 500

Machine specifications

		T1	MC1	B1	Y1	LS	TS	T2	Y2	RS	MC2			
Basic specification														
Optional specifications		—	T2	T2	T2	Y2	MC2	RS	T2	RS	T2	Y2	RS	MC2
Capacity														
Swing over cross slide	mm [in.]							380 [14.9]						
Max. turning diameter	Turn-mill spindle Turret 2	mm [in.]						φ350 [φ13.7]						
Max. turning length	mm [in.]	—		φ90 [φ3.5]		—		φ90 [φ3.5]						
Bar work capacity	mm [in.]	640 [25.1] <Through-spindle hole diameter: φ50 [φ1.9]>	580 [22.8] <Through-spindle hole diameter: φ83 [φ3.2]>	φ32 [φ1.2] <Through-spindle hole diameter: φ50 [φ1.9]>	φ40 [φ1.5] <Through-spindle hole diameter: φ50 [φ1.9]>	φ65 <Through-spindle hole diameter: φ83 [3.2]>								
Travel														
X1-axis (Turn-mill spindle)	mm [in.]							375 [14.7] <-75 — +300 [-2.9 — +11.8]>						
Y1-axis (Turn-mill spindle)	mm [in.]							150 [5.9] <±75 [±2.9]>						
Z1-axis (Turn-mill spindle) + for ATC	mm [in.]							610 + 140 [24.0 + 5.5] <for ATC>						
B-axis (Turn-mill spindle)								240° [±120°] <FANUC>, 240° [-30° — +210°] <SIEMENS>						
Left spindle														
Max. spindle speed	min⁻¹	8,000 <Through-spindle hole diameter: φ50 [φ1.9]>						5,000 <Through-spindle hole diameter: φ83 [φ3.2]>						
Right spindle														
Max. spindle speed	min⁻¹			—				8,000 <Through-spindle hole diameter: φ50 [φ1.9]>						
Turn-mill spindle <Turret 1>														
B-axis min. indexing increment								0.0001°						
Turn-mill spindle max. speed	min⁻¹							30,000, 42,000 (High-speed)						
Turn-mill spindle taper hole								Capt o C4, HSK-T40						
Tool storage capacity								38, 76, 114						
Max. tool diameter <With adjacent tools>	mm [in.]							φ60 [φ2.3]						
Max. tool diameter <Without adjacent tools>	mm [in.]							φ100 [φ3.9]						
Max. tool length	mm [in.]							150 [5.9]						
Max. tool mass	kg [lb.]							5 [11.0]						
Turret 2														
Number of tool stations		—	16 [16-station], 12 [12-station]		—	16 [16-station], 12 [12-station]								
Shank height for square tool	mm [in.]	—	20 [0.8]		—	20 [0.8]								
Max. milling spindle speed	min⁻¹	—	12,000		—	12,000								
Tailstock														
Taper hole of tailstock spindle				Live center [MT3]				—						
Feedrate														
Turn-mill spindle	mm/min (ipm)		X1: 40,000 [1,574.8]	Y1: 40,000 [1,574.8]	Z1: 50,000 [1,968.5]									
Turret 2	mm/min (ipm)	—	X2: 15,000 [590.6]	Y2: 15,000 [590.6]	Z2: 36,000 [1,417.3]	—	X2: 15,000 [590.6]	Y2: 15,000 [590.6]	Z2: 36,000 [1,417.3]	X2: 15,000 [590.6]	Y2: 15,000 [590.6]	Z2: 36,000 [1,417.3]		
Rapid traverse rate	mm/min (ipm)	—												
Tailstock spindle / Right spindle	mm/min (ipm)		Tailstock spindle A: 36,000 [1,417.3] <FANUC>		Tailstock spindle Z3: 36,000 [1,417.3] <SIEMENS>			Right spindle A: 36,000 [1,417.3] <FANUC>						
	min⁻¹						B: 100	C: 400						
Motors														
Left spindle drive motor <15%ED (10 min) / 25%ED (10 min) / cont>	kW (HP)		11 / 11 / 7.5 [15 / 15 / 10] <Through-spindle hole diameter: φ50 [φ1.9]>		20 / 18 [26.7 / 24.0] <40%ED / cont> <Through-spindle hole diameter: φ83 [φ3.2]>									
Right spindle drive motor <15%ED (10 min) / 25%ED (10 min) / cont>	kW (HP)		—		11 / 11 / 7.5 [15 / 15 / 10]									
Turn-mill spindle drive motor <15%ED (10 min) / 25%ED (10 min) / cont>	kW (HP)				18.5 / 18.5 / 15 [24.7 / 24.7 / 20]									
Turret 2 Milling spindle drive motor <Max. / 25%ED (3 min) / cont>	kW (HP)	—	4.0 / 3.4 / 2.2 (5.3 / 4.5 / 3)		—	—	—	4.0 / 3.4 / 2.2 (5.3 / 4.5 / 3)						
Machine size														
Machine height	mm [in.]				2,200 [86.6]									
Floor space (Width × Depth)* ¹	mm [in.]		4,430 × 2,080* ² [174.4 × 81.9] <FANUC>, 4,900 × 2,080* ³ [192.9 × 81.9] <FANUC>											
Control unit														
FANUC					F31iB5 Plus									
SIEMENS					Sinumerik ONE									

*1 Floor space dimensions include the coolant chiller and machine cooling system.

*2 Tool storage capacity: 38 tools

*3 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, Max. milling 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 September 2024.

Standard Option

T1 : Turn-mill spindle

T2 : Turret 2

LS : Left spindle

MC1 : Turn-mill spindle <Milling>

MC2 : Turret 2 (Milling)

RS : Right spindle

Y1 : Turn-mill spindle <Y-axis>

Y2 : Turret 2 (Y-axis)

TS : Tailstock

B1 : Turn-mill spindle <B-axis>

● The Right spindle specification (RS) is not equipped with a tailstock (TS).

NTX 500

Standard & optional features

●: Standard ○: Option
—: not applicable

F31iB5 Plus	Sinumerik ONE
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Chuck							
Soft jaws					○	○	
Hydraulic chuck	Left spindle (5-inch)				○	○	
	Left spindle (6-inch)				○	○	
Coolant							
For chip flushing coolant	750 / 1,100 W (50 / 60 Hz)				●	●	
For turn-mill spindle side-through coolant	2,200 W (Inverter drive)				●	●	
	Standard pressure (750 / 1,100 W <50 / 60 Hz>)				●	●	
Through-spindle coolant system (Turn-mill spindle)	Ultra-high pressure*1 [10 MPa variable] (Standard pressure pump not included if selected)				○	○	
Chip disposal							
Chip conveyor	Right discharge, Hinge type + With box filter				●	●	
Measurement							
Manual in-machine tool presetter	Left spindle (Removable)*2				●	●	
	Turn-mill spindle (In-out type) <Specification without Turret 2>				○	○	
Automatic in-machine tool presetter	Turn-mill spindle + Turret 2 (Renishaw) <Specification with Turret 2>				○	○	
	Turn-mill spindle + Turret 2 (BLUM) <Specification with Turret 2>				○	○	
Tool breakage detector	Touch type (Blum)				○	○	
In-machine measuring system (Turn-mill spindle)	Touch sensor (Radio signal transmission type)*3				○	○	
High-precision control							
Full closed loop control <Scale feedback> (Turn-mill spindle)	X1-, Y1-, Z1-axis				●	●	
Automation							
Programmable chuck pressure switch					●	●	
Workpiece Handling System (in-machine traveling robot)					○	○	
Workpiece unloader	Turret-mounting type				○	○	
	Swing type				○	○	
	Right spindle type				○	○	
	EtherNet /IP				○	—	
Robot interface	with terminal block				○	—	
	Profinet				—	○	
	Profibus				—	○	
Others							
Turn-mill spindle	C1-axis zero point of turn-mill spindle (CTX-TC compatible)				—	●	
• Built-in worklight (LED) • In-magazine lighting					●	●	
• Leveling block • Hand tools					●	●	
Chuck foot switch	2 foot switches				●	●	
Dry anchor					○	○	
Multi dry filter					○	○	
Signal lamp	4 colors (LED type: red, yellow, green, blue)				○	○	

Basic specification	T1 MC1 B1 Y1 LS TS							
Optional specifications	—	T2	T2 MC2	T2 MC2 Y2	RS	T2 RS	T2 MC2 RS	T2 MC2 Y2 RS
Measurement								
Manual in-machine tool presetter	Right spindle (Removable)*2	—	—	—	—	●	●	● ●
	Turn-mill spindle (Renishaw)	○	—	—	—	○	—	—
Automatic in-machine tool presetter (In-out type)	Turn-mill spindle (Renishaw) + Turret 2 (Renishaw)	—	○	○	○	—	○	○ ○
	Turn-mill spindle (Renishaw) + Turret 2 (BLUM)	—	○	○	○	—	○	○ ○
High-precision control								
Full closed loop control (Scale feedback) <[Turret 2>	X2-, Z2-axis	—	●	●	●	—	●	● ●
	Y2-axis	—	—	—	●	—	—	— ●

*1 A coolant cooling system is recommended when using ultra-high pressure coolant. For details, please contact our sales representative.

*2 In-machine tool presetters are available for both left and right spindles. Please contact us for more information.

*3 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 September 2024.

● 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.

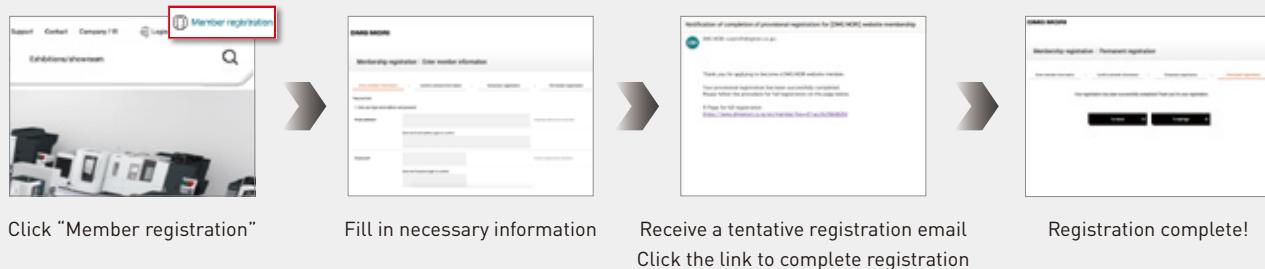
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+ The machines shown in the catalog may differ from the actual machines. The location and the size of the nameplates may also differ from the actual machines, or the nameplates may not be attached to some machines.

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