

**DMG MORI**

High-Precision, High-Efficiency Integrated Mill Turn Center

# NTX 2500 2<sup>nd</sup> Generation NTX 3000 2<sup>nd</sup> Generation

NTX 2500 | 3000  
NTX 3000 | 3000



NEW

CLIMATE-NEUTRAL PRODUCTION  
OF OUR MACHINES



DMGMORI.COM

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

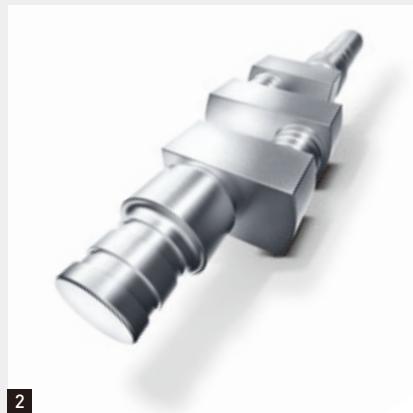
# High-quality turn-mill machining of long shafts

The NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation are all-round machines capable of cutting complex-shaped workpieces with high accuracy and efficiency for the aircraft, automotive, and ship industries.

These NTX models possess a large machining area as well as flexible cutting abilities by combining features of turning centers and machining centers. This ensures a wide range of machining from micro machining to cutting of large workpieces.

The efficient integration of processes realizes high-mix low-volume production as well as mass production, and greatly improves profitability.





2



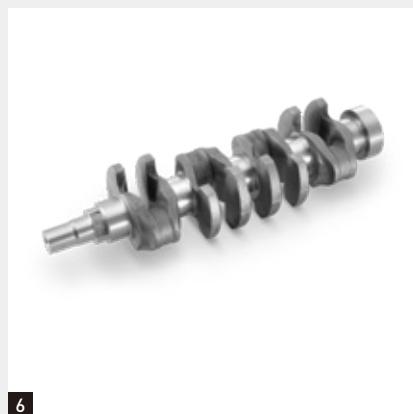
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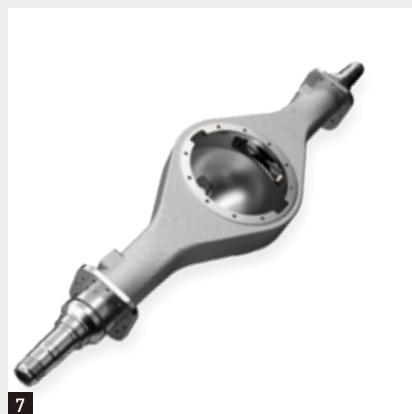
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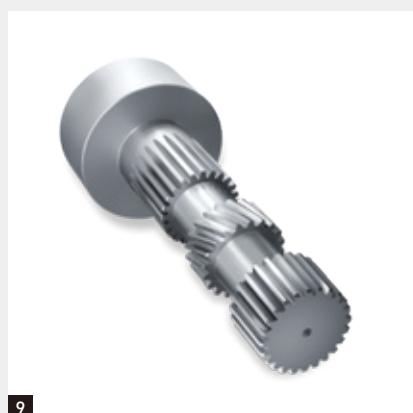
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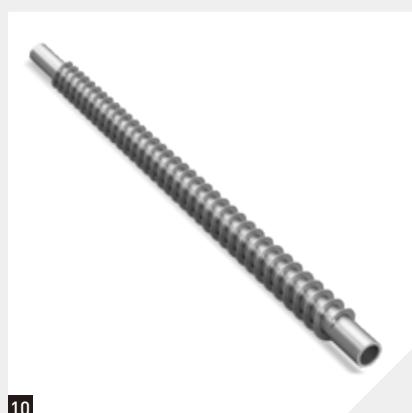
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8



9



10

03

#### Boats & Ships

- 1 Control shaft
- 2 Crank shaft
- 3 Cam

#### Aerospace

- 4 Propeller

#### Automobiles

- 5 Cylinder head
- 6 Crank shaft
- 7 Axle housing
- 8 Steering gear box

#### Industrial equipment

- 9 Drive shaft

#### Construction Machinery

- 10 Screw drills

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# High-precision and high-efficiency multitasking machining

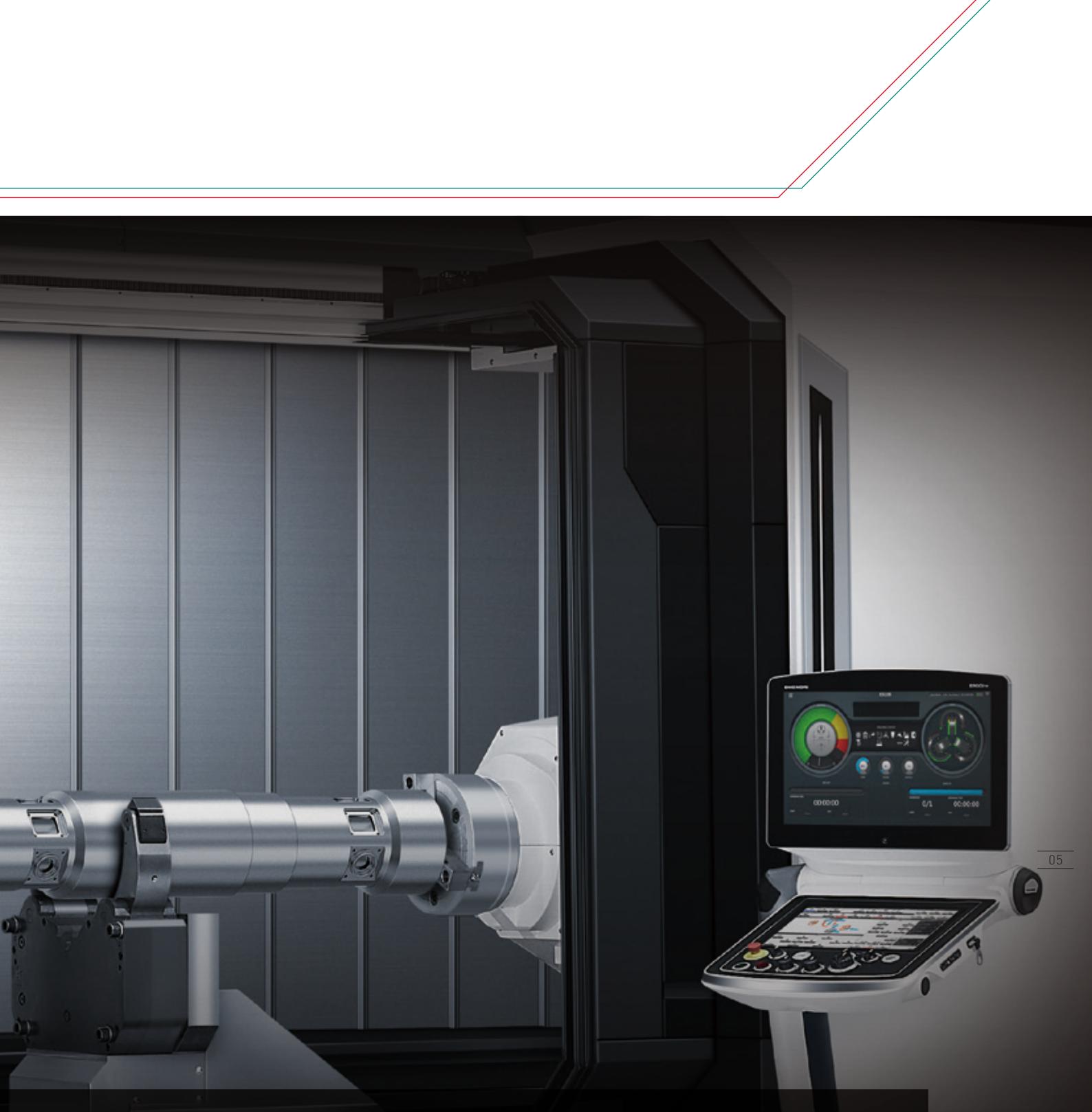
The NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation equipped with DMG MORI's newest technologies are capable of integrating various machining processes with high accuracy and superb cutting abilities within a wide machining area.

These models enable 6-face machining with the right spindle to complete all cutting processes on one single machine. With the user interface CELOS, setting of complex integrated machining has become easier than ever. The result is machining at the highest performance for customers in pursuit of high-efficiency production and cost reduction.



## High productivity

- + Higher machining flexibility with the turn-mill spindle compactMASTER with a full length of only 350 mm (13.8 in.)
- + Y-axis on Turret 2 <Option> for various use < $\pm 40$  mm (1.5 in.)>
- + The B-axis rotation range of 240° and rotation speed of 100 min<sup>-1</sup>, the X-axis travel of 675 mm <-125 — +550 mm (-4.9 — +21.6)>, the Y-axis travel of 300 mm (11.8 in.) < $\pm 150$  mm (5.9 in.)>
- + Turn-mill spindle equipped with Capto C6 as standard, max. spindle speed of 12,000 min<sup>-1</sup> & 20,000 min<sup>-1</sup> <Option>
- + Right spindle (option) for 6-face machining, and complete machining of parts on one machine
- + Workpiece transfer between left and right spindle possible without removing the automatic steady rest
- + Automatic door as standard for improved workability
- + Max. turning length: 3,029 mm (119.2 in.) <NTX 2500>, 3,018 mm (118.8 in.) <NTX 3000> <Right spindle specifications>



#### **Simultaneous 5-axis machining**

- + Simultaneous 5-axis machining of complex parts with the direct drive motor (DDM) installed in the B axis

#### **High precision**

- + Thoroughly controlled thermal displacement by cooling water circulation in the body
- + Full-closed loop control on all axes <Scale feedback> equipped as standard

#### **High rigidity**

- + High-rigidity bed and roller guides

#### **CELOS Operation System**

- + Comprehensive management, documentation and visualization of jobs, machining processes and machine data
- + Expansion of functions possible by adding applications. High affinity with existing information infrastructure and software.

#### **Unique energy-saving function**

- + GREENmode for visualizing power saving settings and saving effect

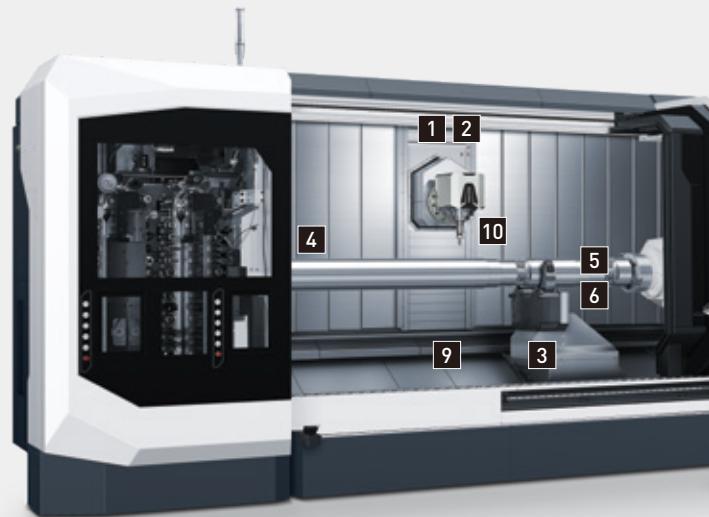
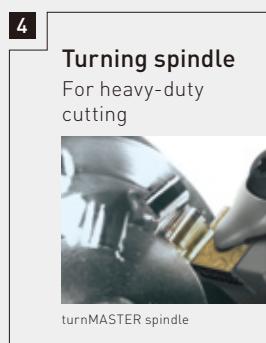
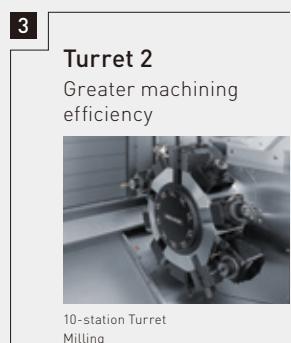
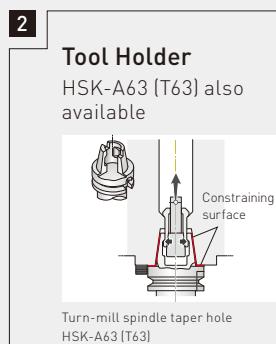
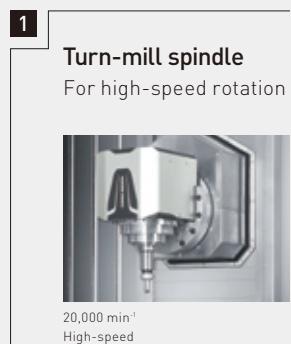
NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# Best Solutions for Your Shop Floor

The NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation provide solutions for higher machining accuracy and higher production efficiency by automation, improved chip disposal, maintainability and setup performance.

Together with various cutting-edge solutions, the NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation make full use of their capabilities and reach a higher level of machining performance.

DMG MORI is committed to providing the best solutions for your shop floor problems.



**7****Cutting technology**

Improving machining efficiency with  
Technology Cycles all at once



Efficient Production  
Package (High-speed  
canned cycle)



gearSKIVING



MVC  
(Machine Vibration Control)

**8****Mass production, automation**

Various automation /  
mass-production solutions



Bar feeder

**9****Machining accuracy**

Meeting high accuracy requirements



Full closed loop control  
<Scale feedback> [Standard features]



In-machine measuring system



Tool balancer



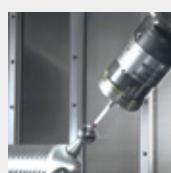
Coolant chiller  
[Standard features]

**8****10****Better setup performance**

Drastically shortened setup time



Automatic in-machine tool  
presetter



3D quickSET



External tool presetter



Tool measurement  
[Tool Visualizer]

**11****Chip disposal**

Higher cutting performance



Chip conveyor  
[Standard features]



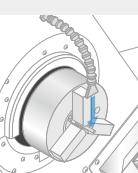
Super-high pressure  
coolant system



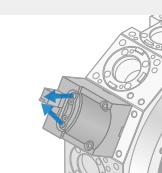
Zero sludge coolant tank  
[standard equipment]



Through-spindle coolant  
system



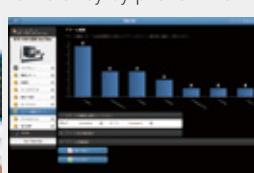
Coolant in upper part of  
chuck



Air blow [Tool tip]

**12****Maintenance**

Improved production efficiency by preventive maintenance



DMG MORI Messenger



MPC [Machine Protection  
Control]  
my DMG MORI



Air dryer



Oil skimmer



Mist collector  
[zeroFOG]

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# Various Functions Available for Your Best Choice

Turret 2 (Option) is available for the right spindle (Option) and the tailstock specifications.

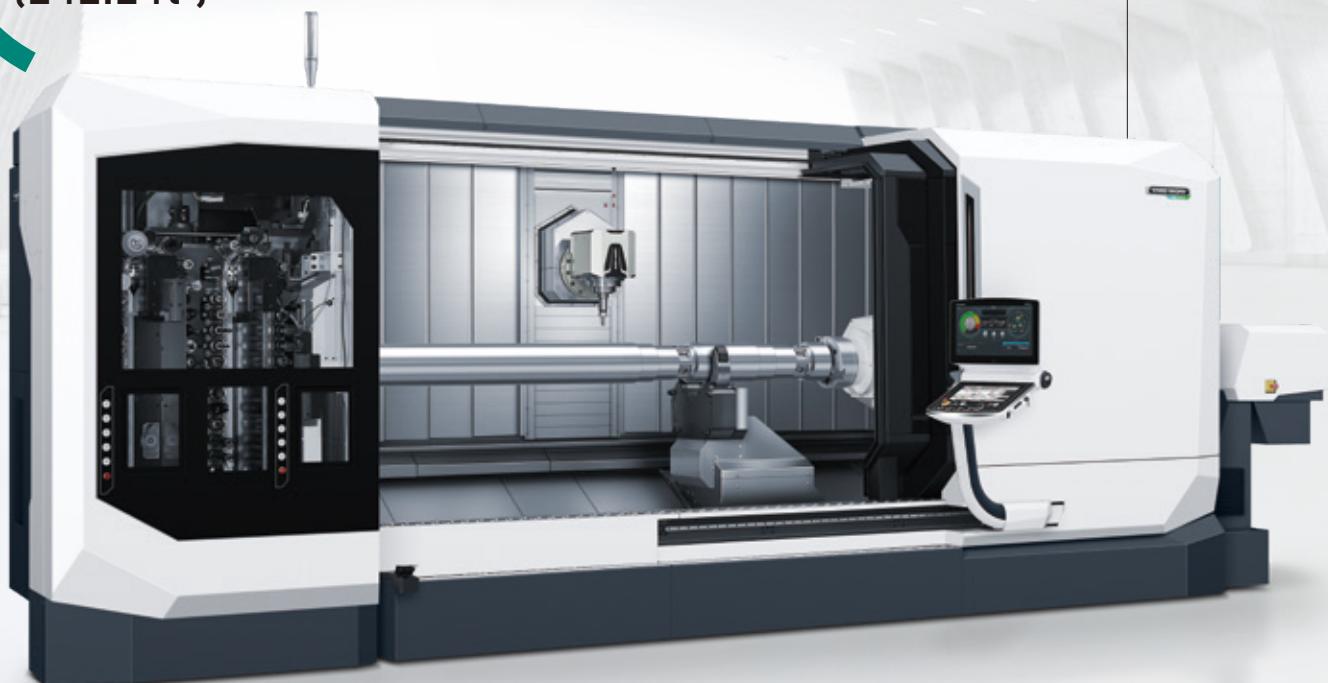
Turret 2 comes with a milling and Y-axis function. The NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation offer eight variations for different configurations to respond to the specific needs of all customers.

For long shaft-type workpieces, the steady rest specification can be selected from 3 patterns depending on the machining content.

Floor space required\*

**22.5 m<sup>2</sup>  
(242.2 ft<sup>2</sup>)**

NTX 2500 2<sup>nd</sup> Generation  
NTX 3000 2<sup>nd</sup> Generation



● Photo: Tool storage capacity 76 tools, Right spindle

\*NTX 3000 2<sup>nd</sup> Generation, Control unit for FANUC, Tool storage capacity 38 tools,  
Including the chip conveyor

<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>	

LS : Left spindle      RS : Right spindle  
TS : Tailstock

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

## Specifications

**Tailstock specification**

**Right spindle specification**

NTX 2500   3000 / NTX 3000   3000								
	T1 MC1 B1 Y1 LS TS							
	—	T2	T2 MC2	T2 MC2 Y2	RS	T2 RS	T2 MC2 RS	T2 MC2 Y2 RS
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

## Selection of steady rest specification

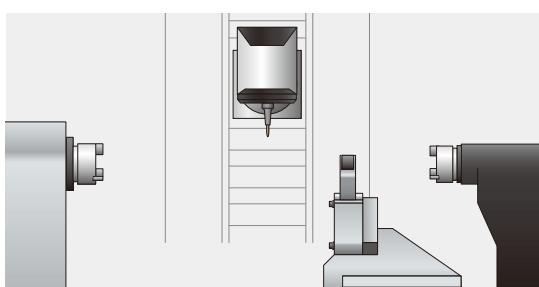
One of three patterns can be selected according to the machining content for long workpieces.

- The right spindle specification or the tailstock specification can also be selected.

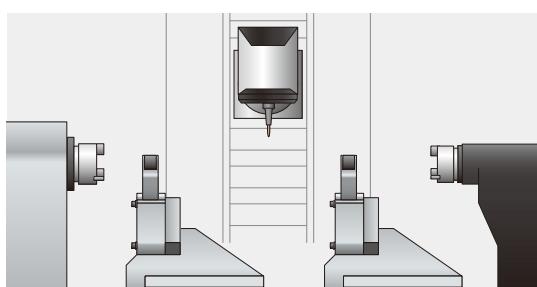
### Equipped with turret



### Automatic steady rest (1 unit)



### Automatic steady rest (2 units)



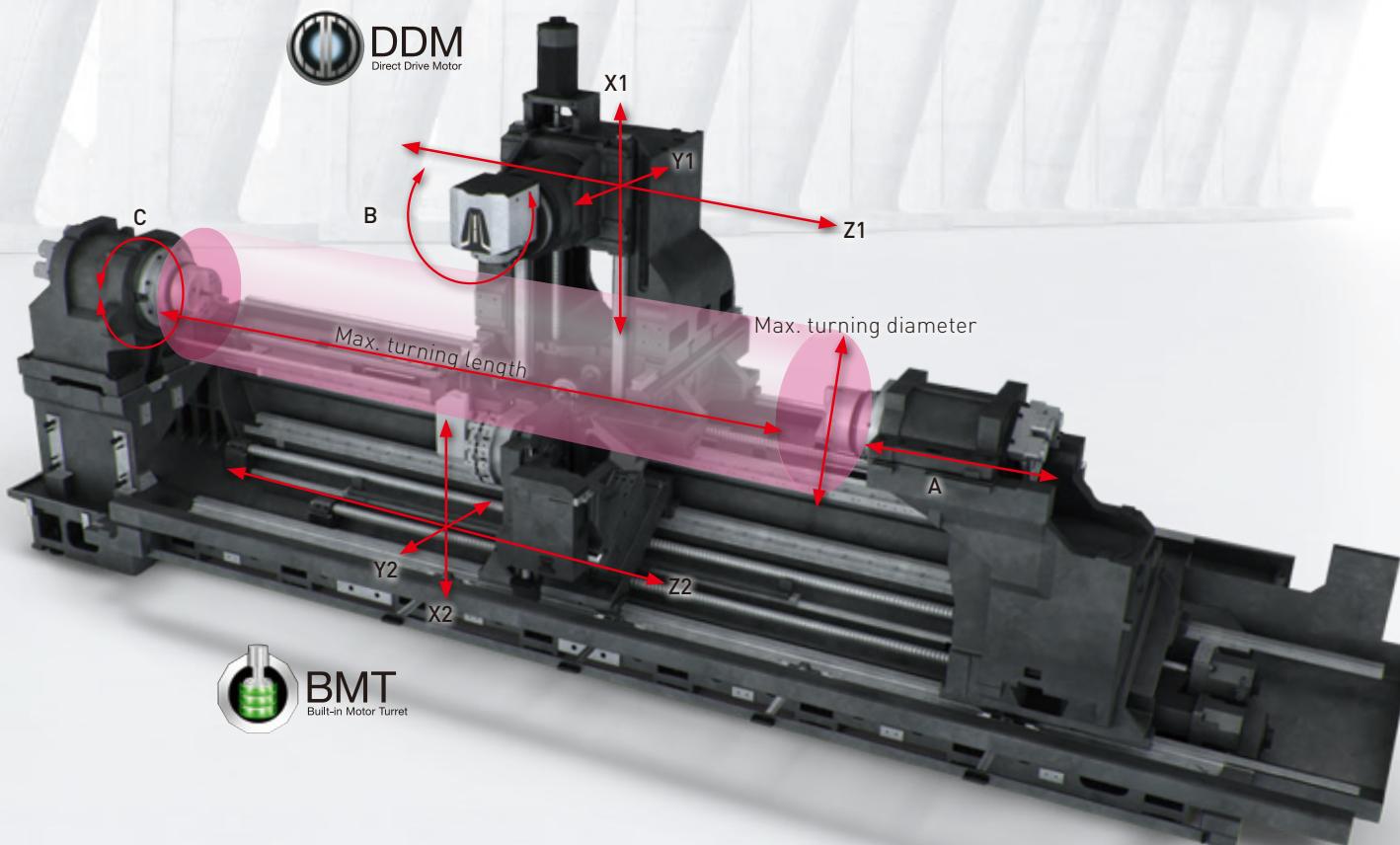
NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# Compact yet wide machining range for large workpieces

The wide working range enables machining of complex shapes with a max. machining diameter of  $\phi 670$  mm (26.3 in.) and a max. machining length of 3,029 mm (119.2 in.)\* (NTX 2500 / NTX 3000).

The best fitting specifications and options can be selected according to the machining content and workpiece size.

\* Right spindle specification



: 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).



## Travel

		NTX 2500   3000 / NTX 3000   3000							
Basic specification		T1 MC1 B1 Y1 LS TS							
Optional specifications		—	T2	T2 MC2	T2 MC2 Y2	RS	T2 RS	T2 MC1 RS	T2 MC2 RS
Turn-mill spindle	X1-axis	mm [in.]	675 (26.5) <-125 - +550 [-4.9 - +21.6>						
	Y1-axis	mm [in.]	300 (11.8) <±150 (±5.9)>						
	Z1-axis	mm [in.]	3,062 + 164 (120.5 + 6.4) <for ATC>						
	B-axis		240°						
Turret 2	X2-axis	mm [in.]	—	225 (8.8)	80 (3.1) <±40 (±1.5)>	—	225 (8.8)		
	Y2-axis	mm [in.]	—	—	—	—	—	80 (3.1) <±40 (±1.5)>	
	Z2-axis	mm [in.]	—	3,042 (119.7)	—	—	3,042 (119.7)		
Left spindle / Right spindle	C-axis		360° / —					360° / 360°	
Tailstock, Right spindle	FANUC: A-axis SIEMENS: Z3-axis	mm [in.]	3,042 + 250 (119.7 + 9.8) <Tailstock>					3,042 + 250 (119.7 + 9.8) <Right spindle>	

## Workpiece size

		NTX 2500   3000		NTX 3000   3000	
Max. distance between centers	mm [in.]	3,342 (131.5)		3,362 (132.3)	
Max. turning diameter [Turn-mill spindle]	mm [in.]		φ670 (φ26.3)		
Max. turning diameter [Turret 2]	mm [in.]		φ365 (φ14.3) <12-station>, φ325 (φ12.7) <10-station>		
Max. turning length	mm [in.]	3,029 (119.2) <sup>*1</sup>		3,018 (118.8) <sup>*1</sup>	
Bar work capacity <sup>*2 *3</sup>	Left spindle	mm [in.]	φ80 (φ3.1)	φ102 (φ4.0)	
	Right spindle	mm [in.]	φ80 (φ3.1)	φ80 (φ3.1)	

\*1 Right spindle specification

\*2 Bar work capacity: Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

\*3 When a specific chuck/cylinder is selected.

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# Highly rigid structure for maximum machining capacity

DMG MORI pursues high rigidity from the basic designing stage through FEM analysis.

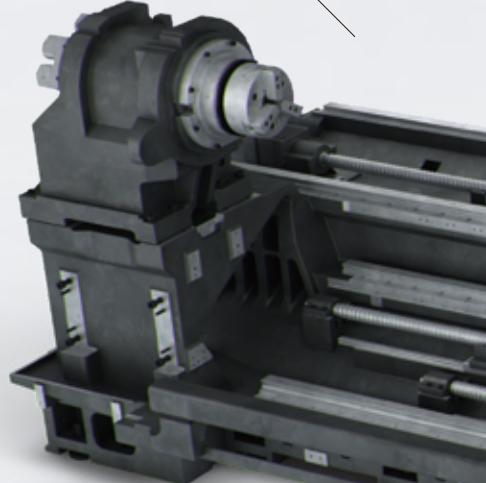
The NTX 2500 2<sup>nd</sup> Generation/NTX 3000 2<sup>nd</sup> Generation are equipped with a thick, high-rigidity bed to support the highly rigid turnMASTER spindle, the compactMASTER spindle with a wide range of motion, and Turret 2 for heavy-duty cutting. This maximizes the machining performance.

The models' aging resistance allows them to maintain high-accuracy machining for a long period of time.

## High-rigidity Machine Body

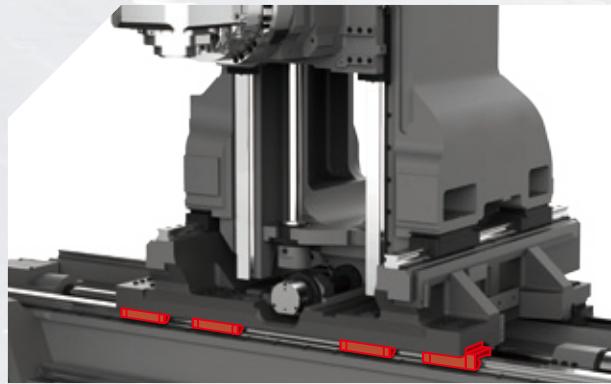
- + Thick and high-rigidity bed to stably support the moving units
- + Four sliders at the front bottom of the column
- + High-rigidity body designed using FEM analysis
- + Machine body with high vibration resistance designed by frequency response analysis
- + Roller guides allowing smooth movement and high rigidity for higher positioning accuracy
- + The double anchor method is employed for ball screws and support bearings, which ensures high rigidity for heavy-duty machining and high-accuracy machining.

FEM: Finite Element Method



## High Accuracy for Long Time

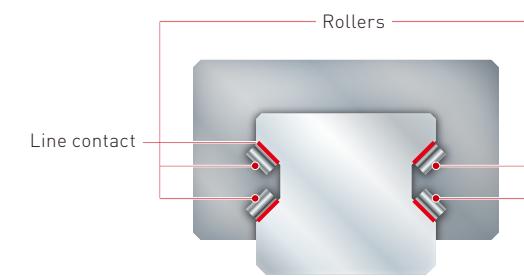
- + Circularity <Turning>  
Left spindle - Turn-mill spindle: 0.532 µm (Actual results)  
Material: Brass
- + Circularity <Milling>  
X - Y plane: 1.8 µm (Actual results)  
X - Z plane: 1.3 µm (Actual results)  
X - Y - Z plane: 2.2 µm (Actual results)  
Material: Aluminum



Four sliders at the front bottom of the column



turnMASTER



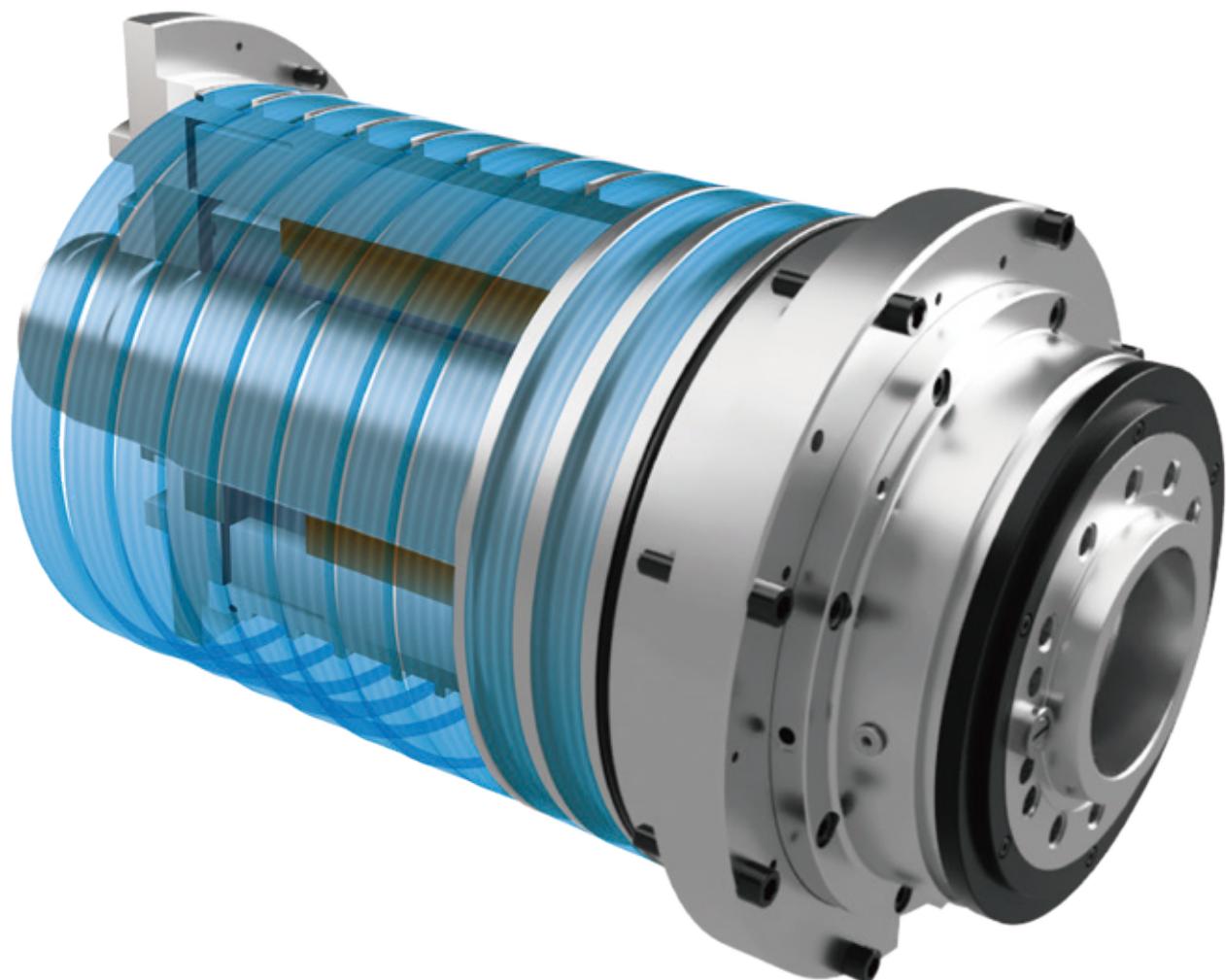
High-rigidity roller guide

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

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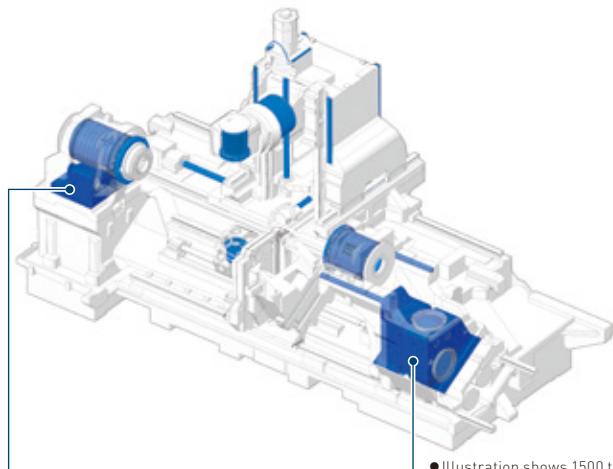
# Optimal control of thermal displacement for high-accuracy machining

The 2<sup>nd</sup> Generation models utilize innovative methods to achieve stable and high-accuracy machining. Thermal displacement is effectively controlled by optimizing the shapes of casting components and the circulation of cooling water in the machine body around heat sources such as spindle and turret motors, ball screws and ball nuts.



### Cooling water circulation in the machine body

DMG MORI developed "Cooling water circulation in the machine body" as a new technology against thermal displacement that directly affects machining accuracy. By circulating cooling water around heat sources such as spindle and turret motors, ball screws and ball nuts, this technology effectively minimizes thermal displacements and realizes high-accuracy machining.



Cooling water circulation in the machine body\*

● Illustration shows 1500 type.

\*Rights obtained in Japan, Germany, the U.S. and China.

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



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- + Superior machining accuracy with SmartSCALE made by Magnescale
- + Magnetic measuring system with a high resolution of  $0.01\mu\text{m}$
- + Resistance to oil and condensation due to a magnetic detection principle
- + Impact resistance of  $980 \text{ m/s}^2$  ( $38,582.7 \text{ in./s}^2$ )
- + Vibration resistance of  $250 \text{ m/s}^2$  ( $9,842.5 \text{ in./s}^2$ )
- + 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



### Coolant chiller <Separate type> (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.

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NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# High-quality, high-performance spindle turnMASTER



The in-house manufactured spindle with the company's long years of expertise and know-how delivers overwhelming performance in heavy-duty cutting that requires rigidity.

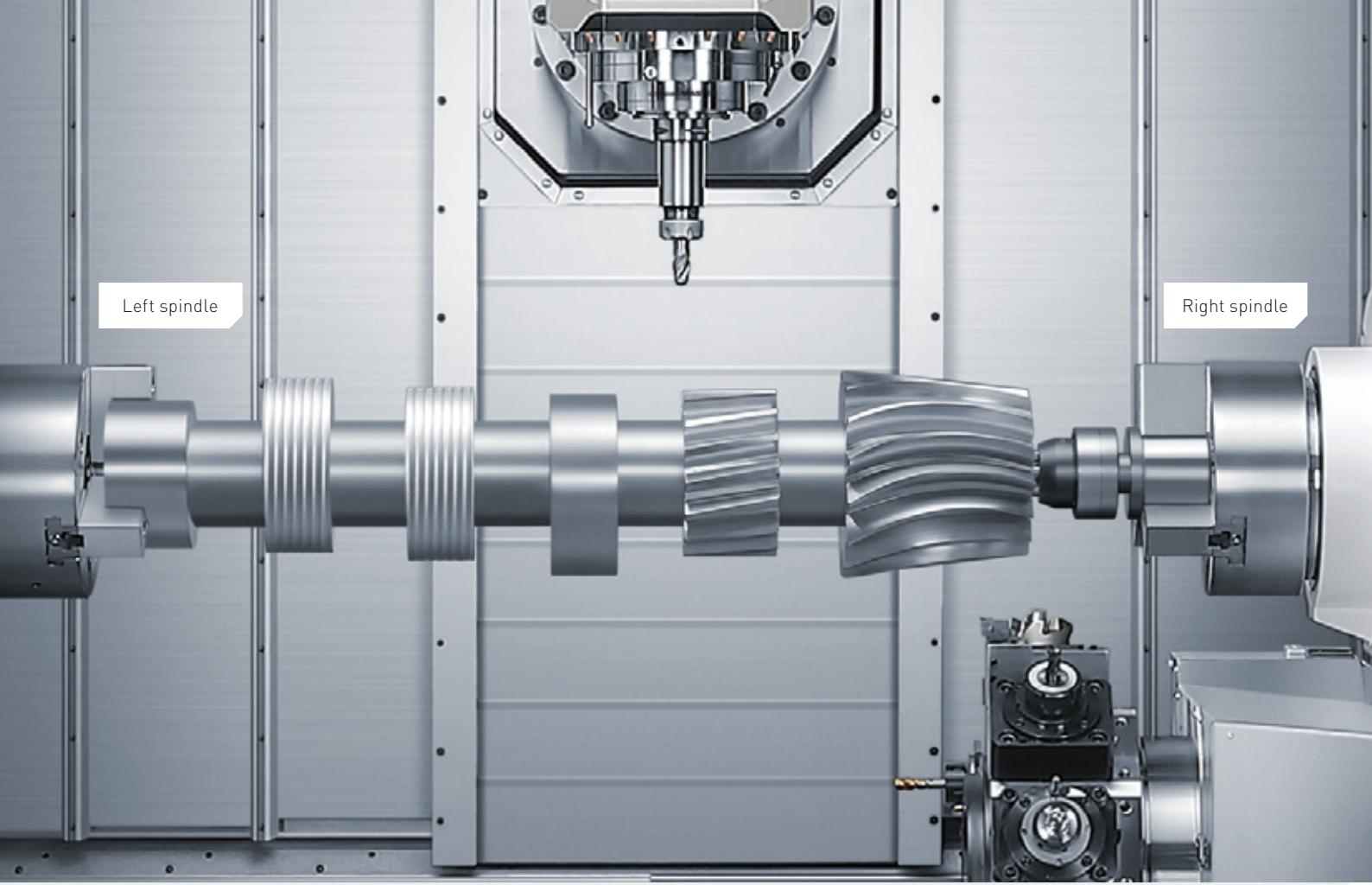
The high-performance spindle equipped with outstanding cutting capabilities and durability contributes to increasing your shop floor productivity.

\* No operation hour limit



## 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



#### **Chuck size <Left spindle / Right spindle>**

- + NTX 2500: 10-inch, 12-inch / 10-inch, 12-inch
- + NTX 3000: 12-inch, 15-inch / 10-inch, 12-inch

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#### **Max. spindle speed <Left spindle / Right spindle>**

- + NTX 2500: 4,000 min<sup>-1</sup> / 4,000 min<sup>-1</sup>
- + NTX 3000: 3,000 min<sup>-1</sup> / 4,000 min<sup>-1</sup>

#### **Spindle output <FANUC>**

- + NTX 2500: 18.5 / 18.5 / 15 kW (24.7 / 24.7 / 20 HP) (25%ED / 50%ED / cont) <Left spindle>  
18.5 / 18.5 / 15 kW (24.7 / 24.7 / 20 HP) (25%ED / 50%ED / cont) <Right spindle>
- + NTX 3000: 30 / 25 kW (40 / 33.3 HP) (30 min. / cont) <Left spindle>  
18.5 / 18.5 / 15 kW (24.7 / 24.7 / 20 HP) (25%ED / 50%ED / cont) <Right spindle>

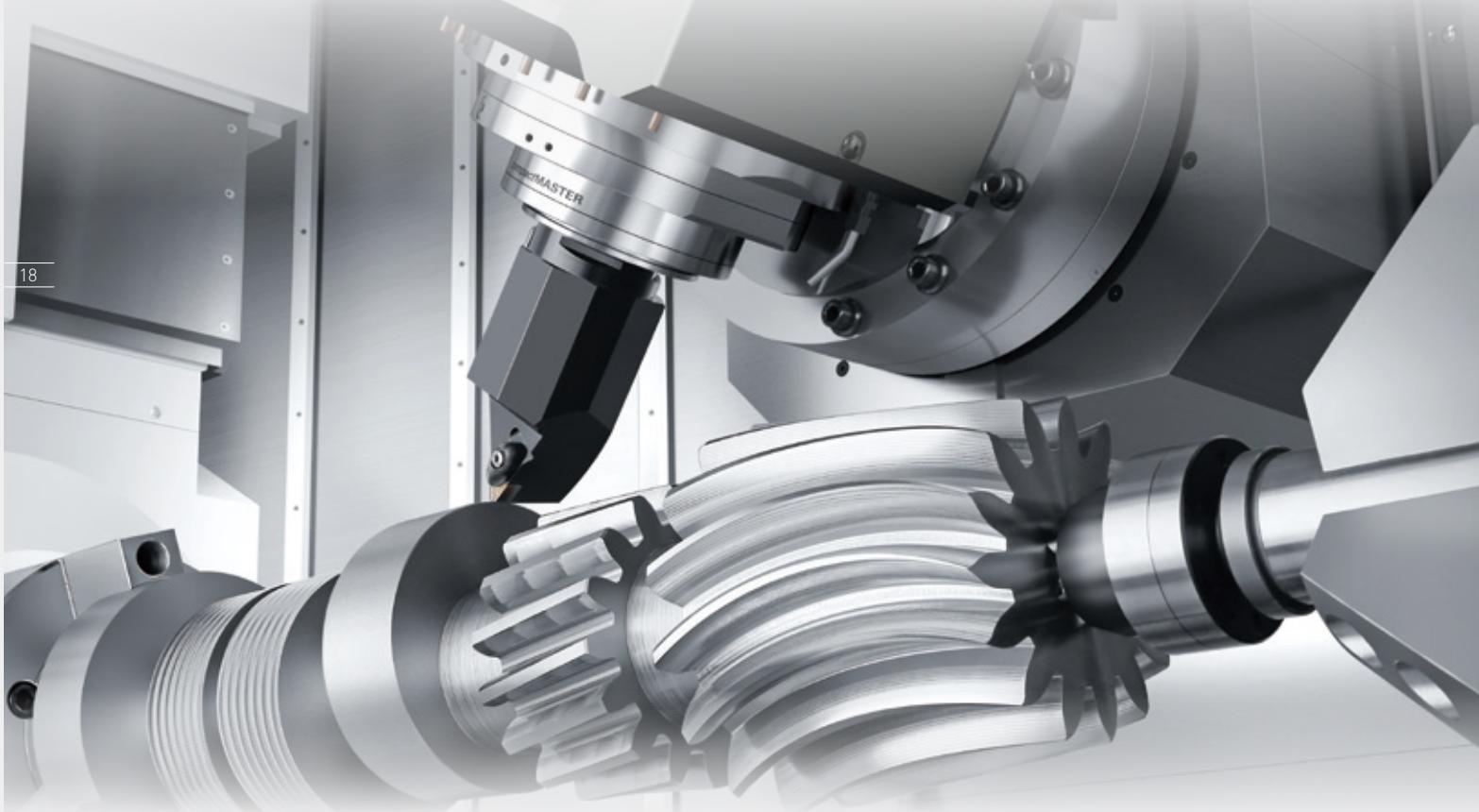
#### **Spindle output <SIEMENS>**

- + NTX 2500: 26 / 22 / 15 kW (34.7 / 30 / 20 HP) (10%ED / 40%ED / cont) <Left spindle>  
26 / 22 / 15 kW (34.7 / 30 / 20 HP) (10%ED / 40%ED / cont) <Right spindle>
- + NTX 3000: 36 / 30 / 25 kW (48.0 / 40 / 33.3 HP) (10%ED / 30 min / cont) <Left spindle>  
26 / 22 / 15 kW (34.7 / 30 / 20 HP) (10%ED / 40%ED / cont) <Right spindle>

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# The compactMASTER, the Most Compact Turn-mill Spindle in its class of only 350 mm (13.8 in.) with high rigidity

The high-rigidity spindle compactMASTER has a length of only 350 mm (13.8 in.) and is equipped with DDS (Direct Drive Spindle). Although very compact in size, compactMASTER can cover a large machining area and is able to handle a wide range of workpiece types. It is designed to increase your productivity by integrating your machining processes into one.



- + Turn-mill spindle utilizes Direct Drive Spindle (DDS)
- + Max. spindle speed: 12,000 min<sup>-1</sup>, 20,000 min<sup>-1</sup>
- + B-axis driven by a direct drive motor (DDM)
- + Full-closed loop control on B-axis <Scale feedback>
- + Highly rigid two-face contact specification: Capto C6, HSK-A63
- + Tool storage capacity: 38, 76, 114, 194, 246 tools
- + Max. tool diameter:  $\phi$ 130 mm ( $\phi$ 5.1 in.) <Without adjacent tools>,  $\phi$ 70 mm ( $\phi$ 2.7 in.) <With adjacent tools>

## 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 turn-mill spindle, ensuring high durability.

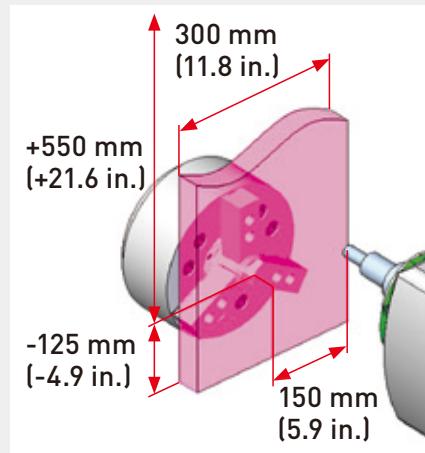


### X-axis travel in the negative direction

Thanks to the 125 mm (4.9 in.) X-axis stroke in the negative direction, the spindle can accurately machine to the lower side of the chuck only with the linear axis and no polar coordinate interpolation. Machining can be done with the X- / Y- / Z- / B-axis, and no C-axis is used, so operators can create programs in the same way as they do for machining centers.

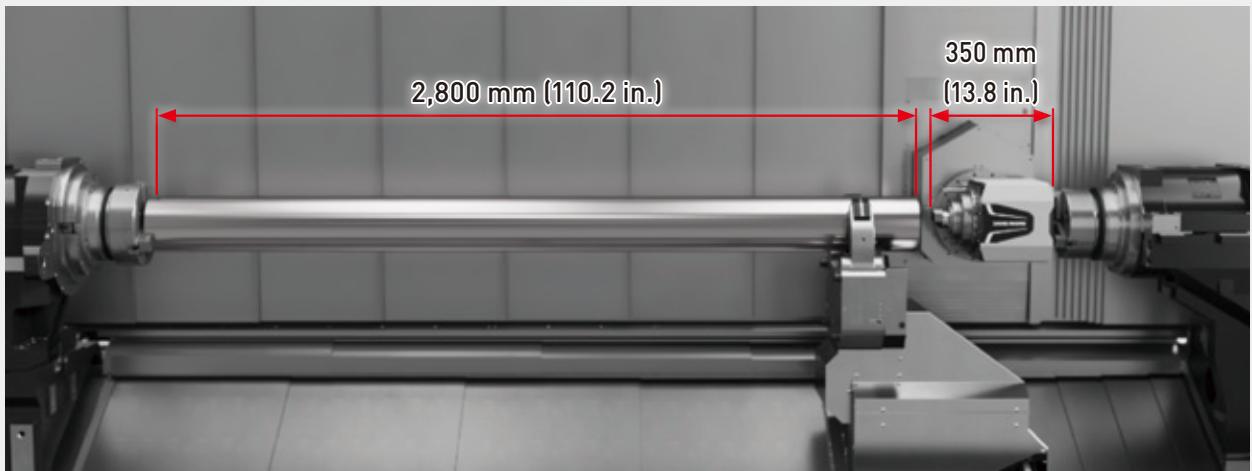


Workpiece samples: Housing  
Workpiece size:  $\phi 300$  mm ( $\phi 11.8$  in.)  
Machining possible without the C-axis



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

The turn-mill spindle has enough space for machining despite being located between the left and right spindle. The right spindle can retreat 250 mm (9.8 in.) from its home position, enabling end face machining up to a length of 2,800 mm (110.2 in.).



## Zero backlash achieved by high-speed turning Direct Drive Motor

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.

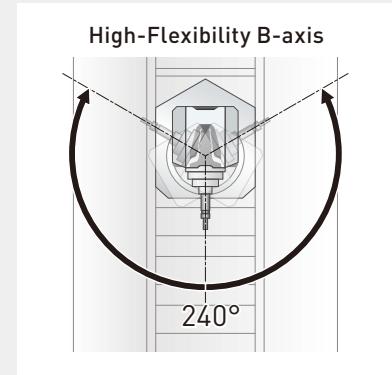


### Effects of DDM

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

DDM: Direct Drive Motor

NTX 2500   3000 NTX 3000   3000	
B-axis rotation range	240°
B-axis rotational speed min⁻¹	100
Min. indexing increment	0.0001°

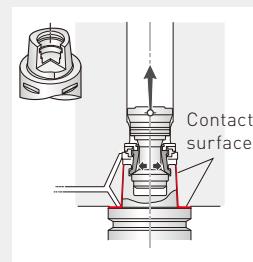


## Two-face contact specification

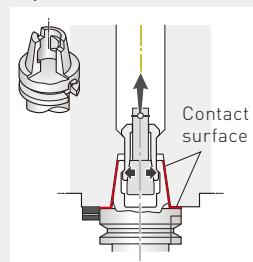
Flexural rigidity of tools has been improved by the contact with both the spindle taper and the end face. This extends tool life and improves cutting performance and machining accuracy.

● DMG MORI manufactures all the spindles in-house, including the two-face contact specification.

### Capo Specifications



### HSK Specifications (Option)



## Tool magazine



NTX 2500   3000 / NTX 3000   3000		
Tool storage capacity		38, 76, 114, 194, 246
Max. tool diameter	Without adjacent tools mm (in.)	φ130 (φ5.1)
	With adjacent tools mm (in.)	φ70 (φ2.7)
Max. tool length	mm (in.)	400 (15.7)
Max. tool mass	kg (lb.)	8 (17.6), 10 (22.0) (specification for 10 kg (22.0 lb.))
Max. tool mass moment (from spindle gage line)	N · m (ft · lbf)	7.84 (5.782)

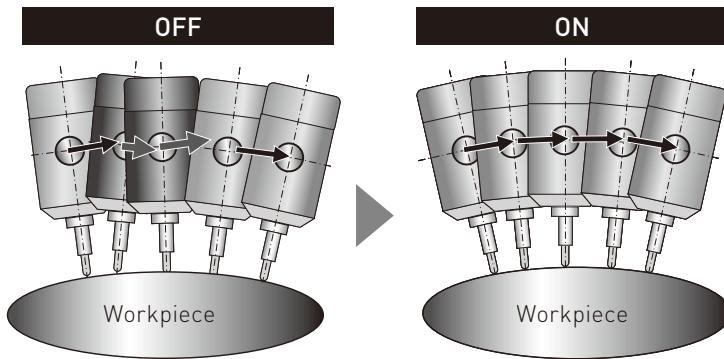
● Photo: Tool storage capacity 76 tools

## Function for supporting simultaneous 5-axis machining

### SVC function <FANUC> / Advanced Surface (CYCLE832) <SIEMENS>

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

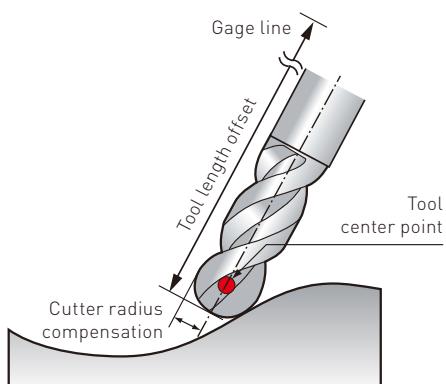


The SVC function includes the following functions:

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

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



#### 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 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# 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  $\pm 40$  mm ( $\pm 1.5$  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: 12, 10 tools
- + Max. milling spindle speed: 12,000 min<sup>-1</sup>, 6,000 min<sup>-1</sup>
- + The Y-axis specification (Option) with an axis travel of  $\pm 40$  mm ( $\pm 1.5$  in.) offers hobbing with the turn-mill spindle and Turret 2 synchronized.

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

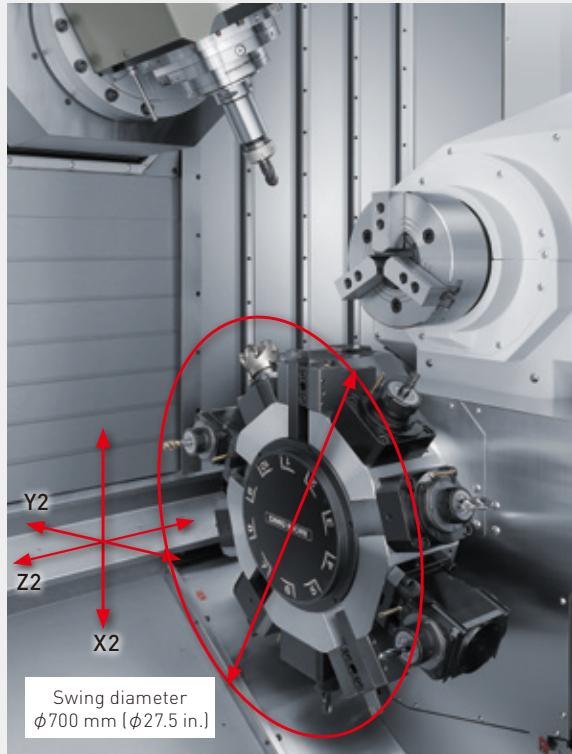
The 12-station turret with a swing diameter of 700 mm (27.5 in.) offers less interference with adjacent tools and achieves flexible tooling.

An end face milling holder can be mounted on Turret 2 to carry out end face milling on the Right spindle side, which leads to shorter cycle times.

## **Turret 2 with Y-axis (Option)**

Turret 2 is equipped with a Y-axis.

The  $\pm 40$  mm ( $\pm 1.5$  in.) axis travel enables not only machining with Turret 2, but also heavy-load hobbing with the synchronized turn-mill spindle and Turret 2.



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



BMT: Built-in Motor Turret

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

## **Holders for existing machines can be used.**

DMG MORI's holders are compatible with each other so that holders for existing machines can be used on a new machine.

Please consult our sales representative for more details.

### **Compatible holders**

12-station Turret (Standard) : NTX 1000 2<sup>nd</sup> Generation, NTX 2000

10-station Turret (Option) : NT 4000 Series, NL Series

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# Solutions for Chip Disposal & Fog Collection

Chips can be one of the main causes leading to machining failure and machine stop. DMG 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.



## Hinge type + Drum filter type chip conveyor (Standard features)

With the hinge type conveyor for long chips and the cleats (scrapers) on the hinge belt for short and fine chips, the conveyor can handle any type of chip regardless of size and material. The filter with the low-maintenance automatic washing function ensures high accuracy coolant filtration.



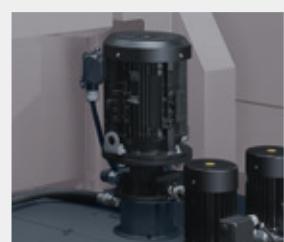
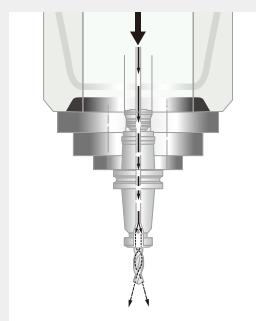
## Chip flushing coolant

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.

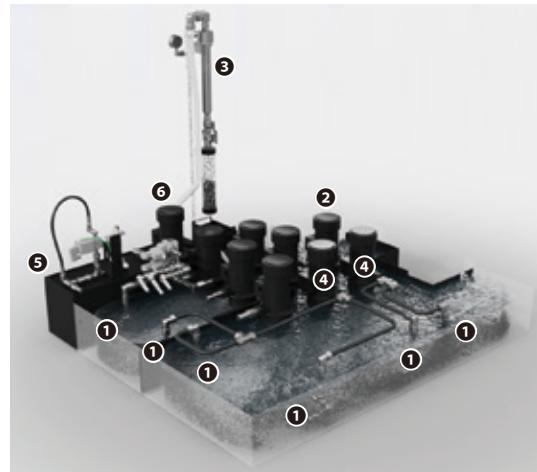
## Equipped with Zero Sludge Coolant Tank as standard

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.



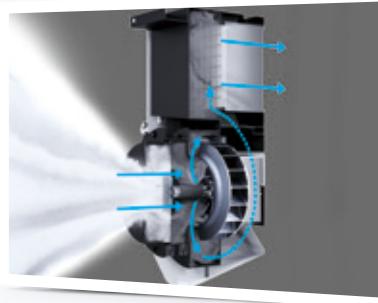
## High-performance built-in mist collector zeroFOG

### 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<sup>\*1</sup>

### COMPACT

- + Attachable to the machine body<sup>\*2</sup>  
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

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

<sup>\*2</sup>The method of mounting on the machine varies depending on the model and specifications.

**zeroFOG**

Find detailed information about  
zeroFOG here.



NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

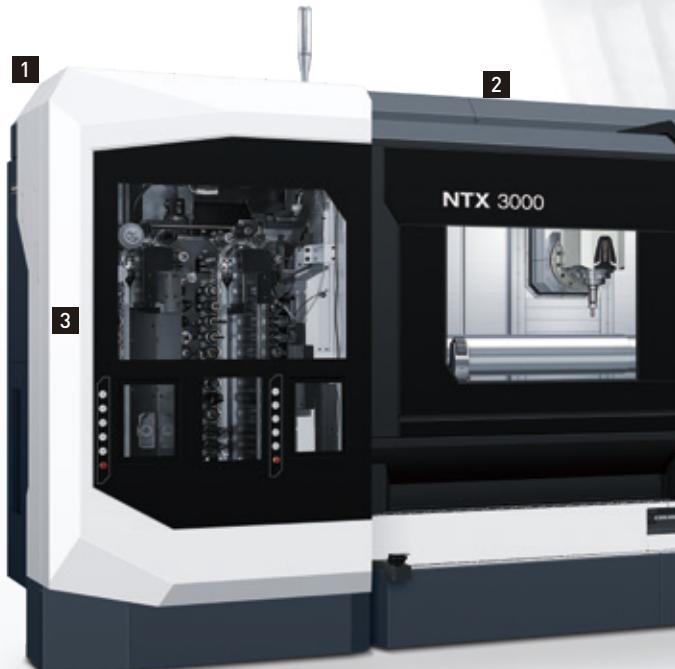
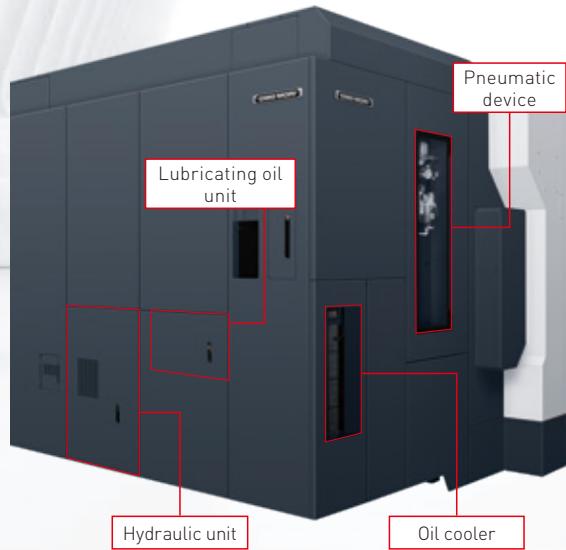
# Pursuit of Usability

The NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation 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.

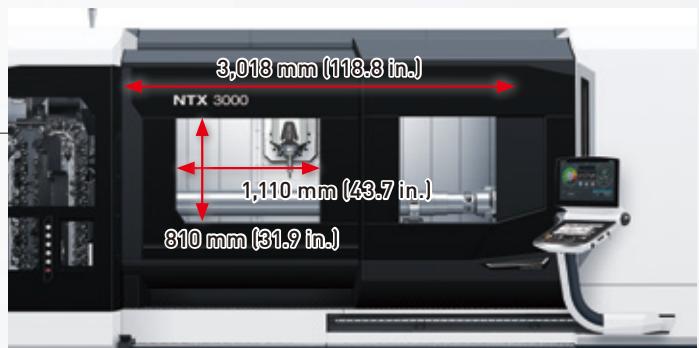
## 1 Maintenance points in one location for easy access

The equipment layout is designed for daily operation and maintenance.



## 2 Two doors with excellent visibility, automatic door as standard for improved operability

- + Door opening width:  
3,018 mm (118.8 in.)
- + Window size:  
810 mm (31.9 in.) <height>  
× 1,110 mm (43.7 in.) <width>



### 3 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 (optional), all operations necessary for tool setup can be performed from the magazine side, reducing operators' work time.



Wide-opening magazine door

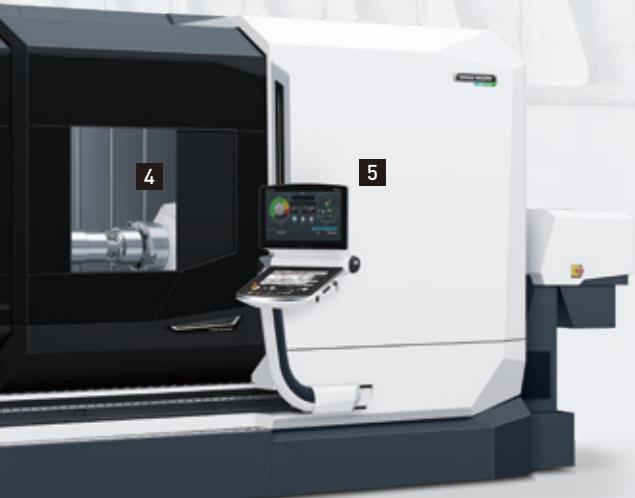


Tool removal with a single push of a button



7-inch touch panel

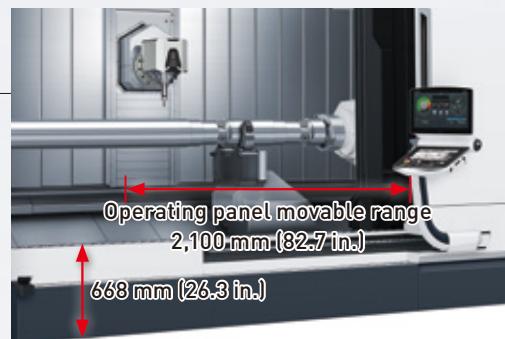
Find a video about the magazine operation panel here.



● Photo: Right spindle specifications

### 5 CELOS / ERGOLine Touch with Superior Operability

The movable, swivel touch-screen operation panel can move 2,100 mm [82.7 in.] in both the left and right directions to ensure better accessibility to the spindle and the workpiece.



NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# Various Solutions to Meet Your Needs

DMG MORI offers a variety of automation systems such as robot systems and bar feeder systems, as well as various functions to support automation. Automation systems make it possible to complete full processes from loading of materials to unloading of finished products on a single machine and reduce non-cutting time, thereby contributing to higher profitability.

## Large capacity magazine (194 or 246 tools)

DMG MORI provides flexible solutions such as the large capacity magazine to respond to the increasing high-mix low-volume production of customers. Despite its large capacity, the space-saving design of the tool magazine makes it ideal for automated systems. A bar feeder can also be attached for automatic material loading.



## Steady rest

Up to 2 automatic steady rests can be utilized for machining of long workpieces.

According to the machining contents, it is also possible to mount a steady rest on Turret 2.

### Turret 2 type



- **SLU-X1**  
 $\phi 6 - \phi 70$  mm ( $\phi 0.23 - \phi 2.7$  in.)
- **SLU-X2**  
 $\phi 8 - \phi 101$  mm ( $\phi 0.31 - \phi 3.9$  in.)
- **SLU-X3.1**  
 $\phi 20 - \phi 165$  mm ( $\phi 0.7 - \phi 6.4$  in.)
- **SLU-X3.2**  
 $\phi 50 - \phi 200$  mm ( $\phi 1.9 - \phi 7.8$  in.)

### Programmable

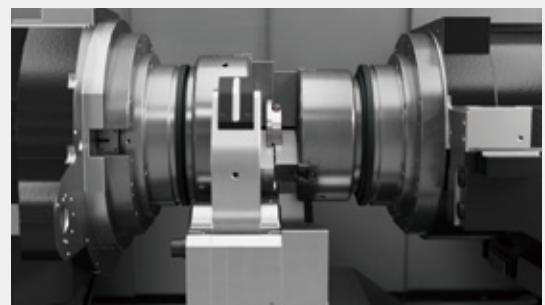


- **SLU-X1**  $\phi 6 - \phi 70$  mm ( $\phi 0.23 - \phi 2.7$  in.)
- **SLU-X2**  $\phi 8 - \phi 101$  mm ( $\phi 0.31 - \phi 3.9$  in.)
- **SLU-X3.1**  $\phi 20 - \phi 165$  mm ( $\phi 0.7 - \phi 6.4$  in.)
- **SLU-X3.2**  $\phi 50 - \phi 200$  mm ( $\phi 1.9 - \phi 7.8$  in.)
- **SLU-X4**  $\phi 30 - \phi 245$  mm ( $\phi 1.1 - \phi 9.6$  in.)
- **RX3**  $\phi 20 - \phi 270$  mm ( $\phi 0.7 - \phi 10.6$  in.)
- **RX4**  $\phi 35 - \phi 340$  mm ( $\phi 1.3 - \phi 13.3$  in.)
- **RX5**  $\phi 75 - \phi 430$  mm ( $\phi 2.9 - \phi 16.9$  in.)
- **RX6**  $\phi 100 - \phi 520$  mm ( $\phi 3.9 - \phi 20.4$  in.)

## Workpiece transfer

The indexing function of the turret and the retreat function of the steady rest enable workpiece transfer without removal of any unit for continuous machining of the first and second process.

When a steady rest of type RX4 or higher is used, the steady rest can retreat while remaining open, and workpiece transfer can be carried out.

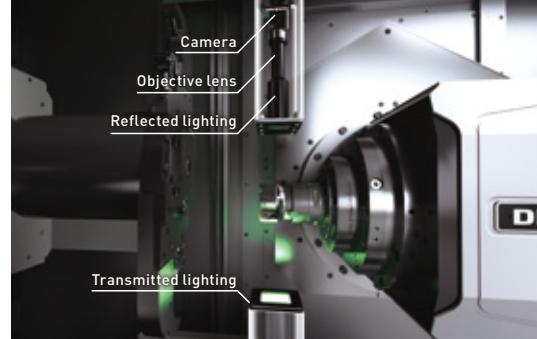


## Tool Visualizer

- + 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 system (Option)



A touch sensor is attached to the turn-mill spindle to ensure a machined workpiece.

## 3D quickSET (Option)



It corrects the rotation center deviation of a rotary axis and the positional deviation caused by thermal displacement or aging of a machine.

## Automatic in-machine tool presetter (Option)



It simplifies complex setup work after changing tools. Tool breakage detection is also possible by the comparison of measured values and setting values.

## Bar feeder system (Option) <Consultation is required>



Non-stop machining of bar material

## Recommended accessories for bar feeder specification

- |                 |                  |
|-----------------|------------------|
| + Bar feeder    | + Guide bushing  |
| + Multi counter | + Work stopper   |
| + Signal lamp   | + Mist collector |

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# 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.

Bar feeder



Hydraulic steady rest



High-pressure coolant pump



In-machine measuring system (workpiece)



In-machine tool presetter



Tool balancer



Air dryer



Air compressor



Oil skimmer



Rotary window



Tool cabinet



Cutting tools

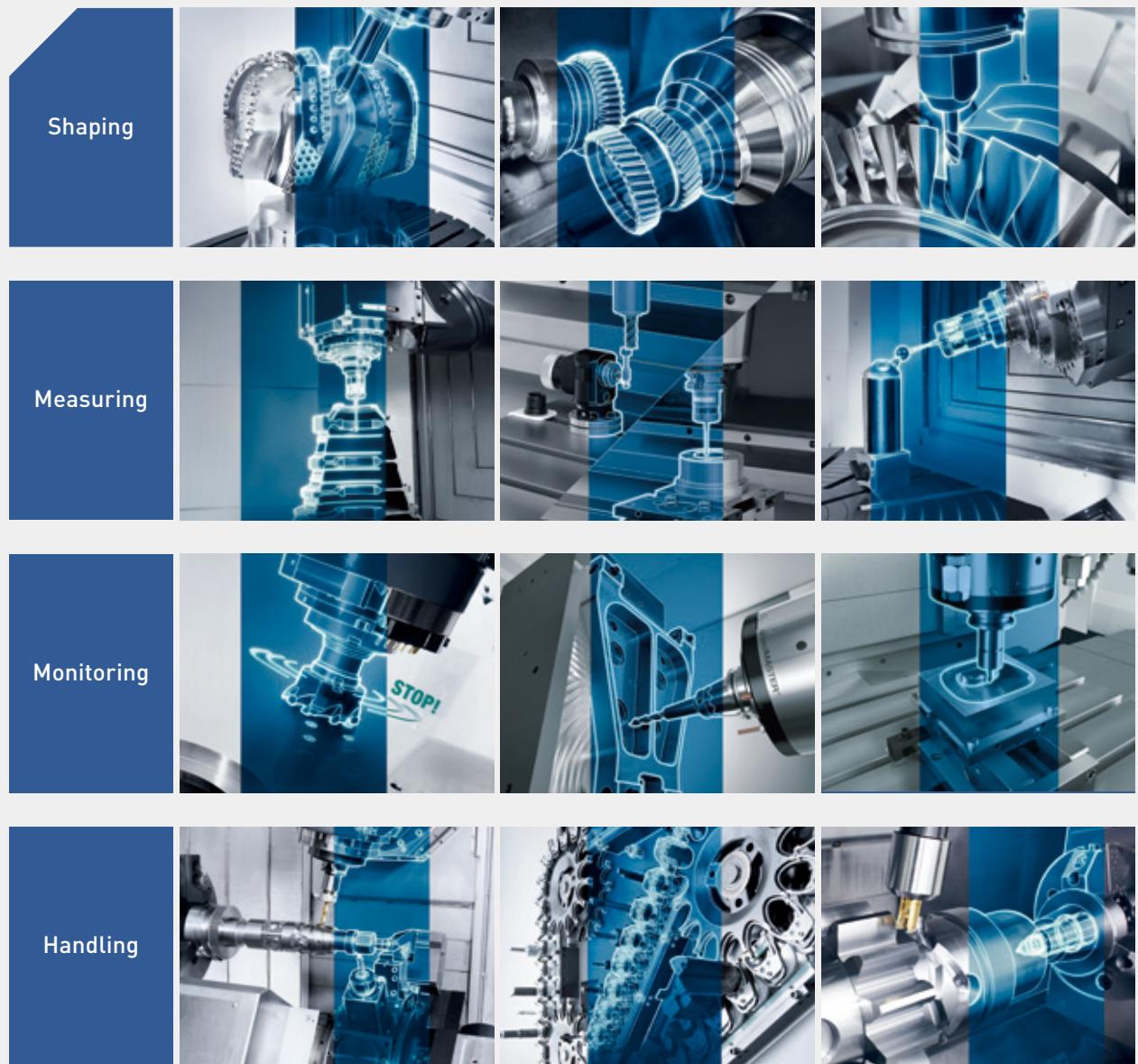


NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# 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.

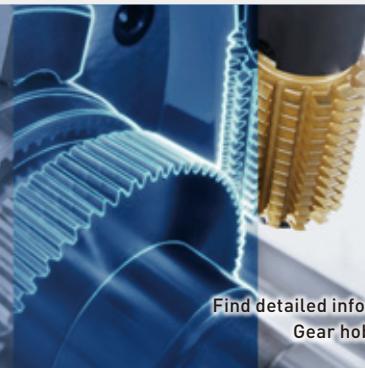
## Respond to Various Technology Cycles

### Shaping

#### Gear hobbing<sup>\*1</sup>

Optimal programming achieves hobbing with a general-purpose machine

Efficient    High precision



Find detailed information on Gear hobbing here.

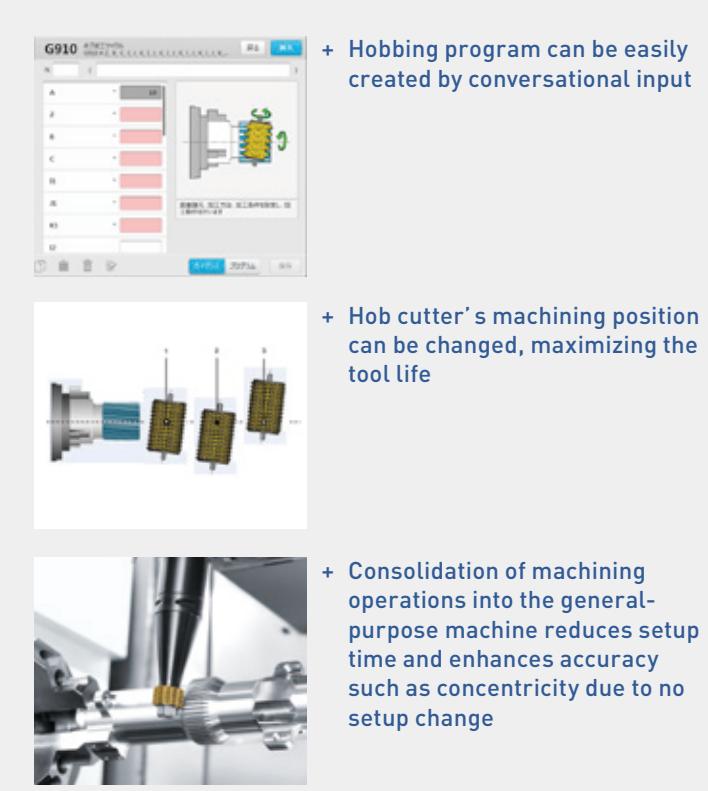


Issue (before introduction)



- + 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

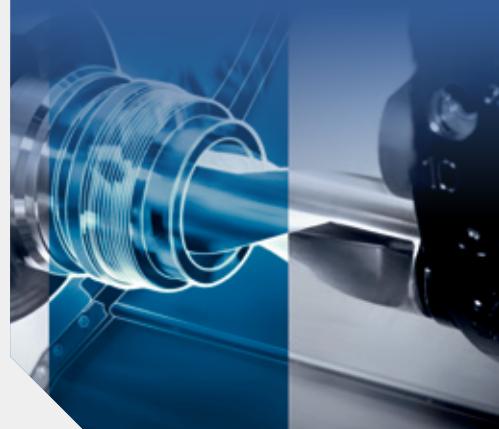
\*2 <Reference> Wikipedia: Hobbing; <https://ja.wikipedia.org/wiki/%E3%83%9B%E3%83%96%E7%9B%A4> [Quoted on March 14, 2022]

## Monitoring

### Easy tool monitoring

**Monitoring load of spindle and traveling axes**

 Efficient    Safe



**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**

 Efficient

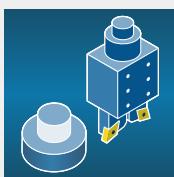


**Issue (before introduction)**

- + 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<sup>\*1</sup>

**Cutting special thread**

 Efficient

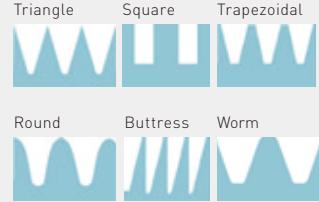


**Issue (before introduction)**

- + 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<sup>\*2</sup> is also available



 Find detailed information on Multi-threading 2.0 here.

\*1 Consultation is required

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

## Shaping

### Excentric machining\*



Find detailed information on  
Excentric machining here.



#### Easy programming of excentric machining

- + 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

## Shaping

### gearSKIVING\*



Find detailed information on  
gearSKIVING here.



#### High-speed gear cutting including internal teeth

- + 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

## Shaping

### Keyway broaching



Find a video about  
Keyway broaching here.



#### 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

## Shaping

### Polygon Cutting



Find a video about  
Polygon Cutting here.



#### Highly efficient cutting of polygons

- + Easy programming supported by guidance screen
- + Faster cutting time than end milling
- + Lower potential for interference than end milling
- + Chamfering possible with just one tool

## 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

## 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



High precision

## Measuring

### 3D quickSET



Find detailed information on  
3D quickSET here.



High precision

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

### ATC (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



Efficient

## Handling

### Tailstock for turret



Find detailed information on  
Tailstock for turret here.



Efficient

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

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

## Handling

### Steady rest for turret



Find detailed information on  
Steady rest for turret here.



Efficient

Support for programming of the steady rest operation when the automatic centering steady rest is mounted on Turret 2

- + Approach and clamp / unclamp of steady rest can be executed in the same cycle

## 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

Efficient

## Monitoring

### MVC (Machine Vibration Control)



Find detailed information on  
MVC here.



Efficient

Vibration data of the spindle-mounted sensor analyzed to suggest optimal conditions for preventing chatter on the screen

- + Automatic calculation of efficient cutting conditions for preventing chatter
- + Quick and easy reflection of recommended cutting conditions to a program
- + Less time and effort because optimal conditions can be determined by one trial machining

## 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



Efficient Safe

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# From the Idea to the Finished Product

DMG MORI's cutting-edge operation system, CELOS, enables consistent and centralized management, documentation and visualization of job orders, processes and machine data.

CELOS is compatible with various applications, allowing for extension of functions.

The operating system also ensures high affinity for the existing information infrastructure and software.



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

# CELOS

## APP MENU:

Central access to all available applications



## CELOS APPs facilitate quick and easy operation: four examples



### STATUS MONITOR

Status monitoring of the machine and machining



### JOB MANAGER

Systematic planning, administration and preparation of work orders



### APPLICATION CONNECTOR

CAD-CAM operation by remote access to external computer



### JOB ASSISTANT

Menu guided set-up of the machine and conversational processing of production orders

## 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

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

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# DMG MORI Digital Factory

Find detailed information on  
Digital Factory here.



## PLANNING

Production planner

## PREPARATION

Process designer

## PRODUCTION

Operator

### CELOS / CELOS PC Version

CELOS PC Version (PC)



#### JOB MANAGER

(on-machine and PC)

- + Registration of workpiece information (drawings, materials)



#### JOB SCHEDULER

(on-machine and PC)

- + Creation and change of work schedule by setting start / end dates of machining



#### ORGANIZER

(on-machine and PC)

- + Setting of memos and alarms



#### APPLICATION CONNECTOR

(on-machine and PC)



- + Remote connection with CAD / CAM, operation and check on CELOS



#### JOB MANAGER

(on-machine and PC)

- + Registration of cutting tools, clamping fixtures, machining programs, work instructions and setup procedures to centrally manage workpiece information



#### TECHNOLOGY CYCLE

(on-machine only)

- + Complex machining easily realized in a short time

### CELOS Machine



- + A wide variety of apps facilitate machining operation



#### JOB ASSISTANT

(on-machine only)



- + The operator can check the information registered in JOB MANAGER and do setups for machining
- + NC data and information about tools and a clamping device are transferred to the machine



#### TOOL HANDLING

(on-machine only)

- + Tool management by checking and registering tools to be used

DMG MORI realizes "Digital Factory" that drastically improves customer productivity and profits, using the cutting-edge technologies. The DMG MORI Digital Factory largely consists of five steps. Our cutting-edge operating system "CELOS" connects humans, machines and factories, enabling visualization and analysis of information which were difficult before. We make clear customers' production issues by shop digitization and provide optimal solutions for them.

## MONITORING

Factory manager

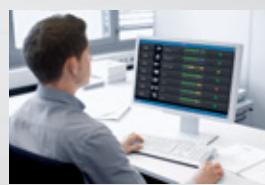
## SERVICE

Service engineer

# CELOS / CELOS PC Version



### MESSENGER (on-machine and PC)



- + Visualizes operating status of networked machines
- + Collects alarm history and identifies reasons for machine stops
- + Possible to check from a machines, PC or smartphone anytime, anywhere

[Find a video about MESSENGER here.](#)



### CONDITION ANALYZER

(on-machine only)

- + Allows for early identification of machine and machining problems based on machine data recorded by on-machine sensors



### IoT connector

- + Compatible with widely used communication protocols (MTConnect, OPC UA, MQTT, etc.)
- + Communication PC equipped with the enhanced data connection function to boost the machine's network performance



### Use of AI (under development)

- + AI learns information sent from a sensor and estimates & corrects thermal displacement to achieve higher machining accuracy
- + Preventive maintenance to prevent machine problems in advance

### myDMG MORI



- + Your online service manager
  - Visualize service history
  - Manage documents digitally
  - Order services online
  - Track & Trace Order status

### WERKBLIQ



Integral solution for the digital shop floor, available for both DMG MORI & 3rd party products

- + Manage documents centrally
- + Control service precisely
- + Implement service sustainably
- + Learn continuously with analyses



### NET SERVICE

(on-machine only)

- + Remote support by DMG MORI Service Center minimizes machine downtime caused by machine trouble



### SERVICE AGENT

(on-machine and PC)

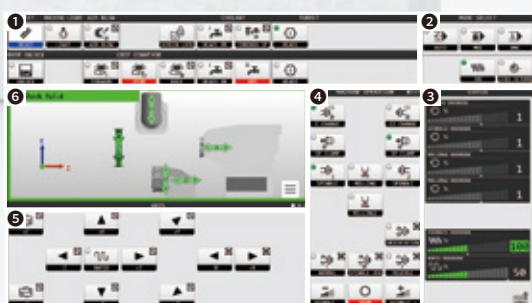
- + Regular machine maintenance in an accurate and attentive manner

● These functions may differ in your country. Please consult our local sales representative for more detailed information.

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# High-Performance Operation System MAPPS

MAPPS is a high-performance, smart operation system integrated with CELOS. It enables operators to easily control machine operation with touch operation.



## Lower Touch Panel Screen Layout

- ① Individual function operation area : Displays function buttons at all times regardless of the operation mode.
- ② Operation mode selection area : Displays mode selection buttons at all times.
- ③ Status display area : Displays the override status.
- ④ Machine operation area : Displays buttons related to spindle / turret operation and optional functions over multiple pages.
- ⑤ Mode-by-mode operation area : Displays buttons related to axis feed, zero return or automatic operation over multiple pages. The available buttons will change depending on the mode selected.
- ⑥ In-machine display area : Displays the image showing the controlled axes and their travel directions.

# Easy Programming with SIEMENS

Programs can be created automatically through interactive functions and easy-to-understand illustrations, reducing programming time by up to 60%\*.

\* Compared to without Technology Cycles



WITHOUT technology cycles

Classical DIN-programming

WITH technology cycles

Dialog based programming

# DMG MORI Achieved Carbon Neutral Production Worldwide

We achieved carbon neutrality throughout the entire production process from parts procurement to product shipment. As a proof of being produced carbon neutral, our products are shipped with the "GREENMACHINE" mark on them.



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

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



## 100% CLIMATE NEUTRAL MACHINE MANUFACTURING

### NEUTRAL PRODUCT CARBON FOOTPRINT



### NEUTRAL COMPANY CARBON FOOTPRINT

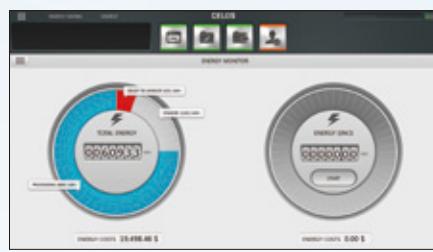


SUPPLIERS + **DMG MORI**

## 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.



#### GREENMODE

##### GREEN monitoring

- + Visualize power consumption and CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub> emissions and power consumption and improve customers' productivity.



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## 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

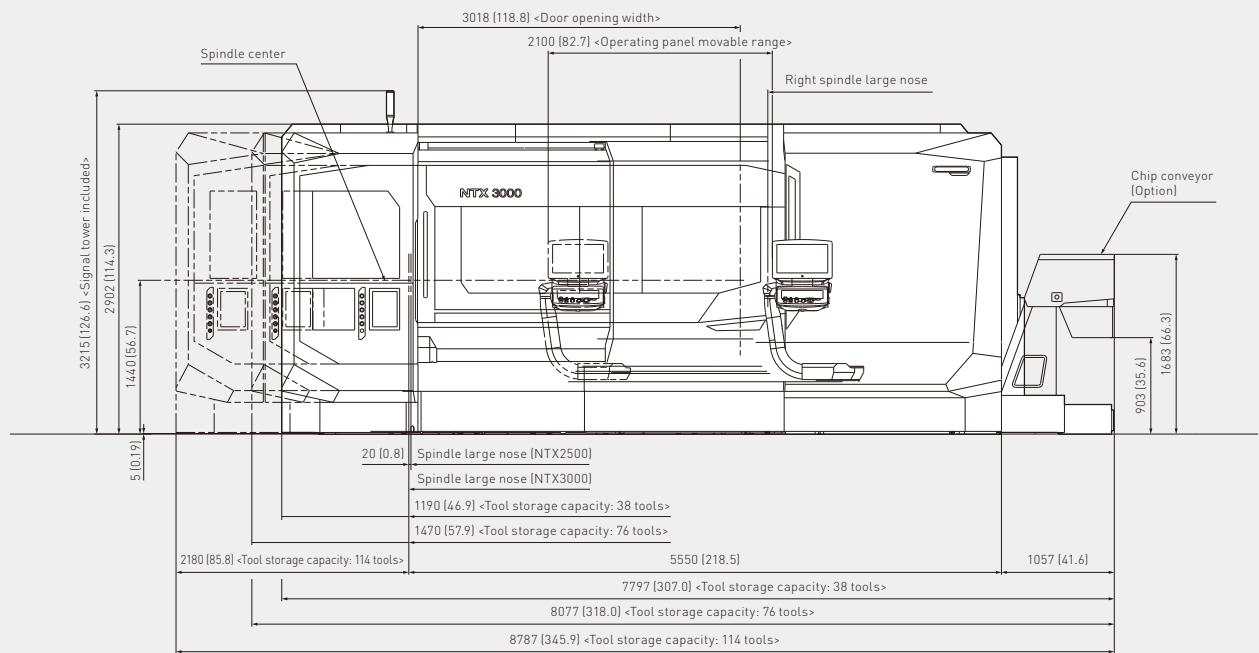
NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# Machine size

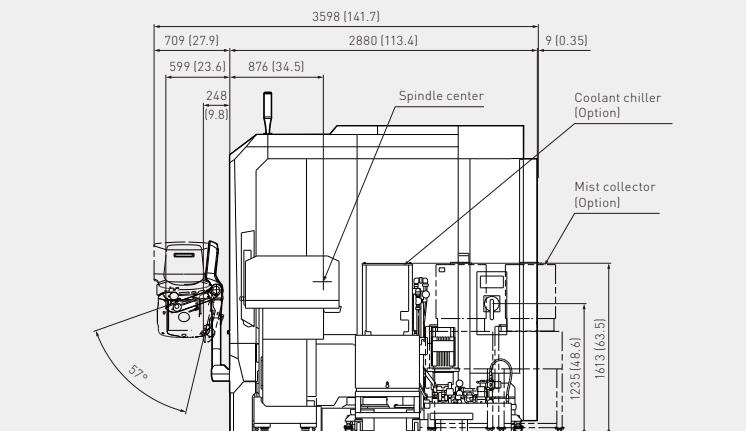
mm (in.)

NTX 2500 | 3000 / NTX 3000 | 3000

Front view



Side view



<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 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# Machine specifications (FANUC F31iB5)

NTX 2500   3000 / NTX 3000   3000								
	T1 MC1 B1 Y1 LS TS							
Basic specification	—	T2	T2 MC2	T2 MC2 Y2	RS	T2 RS	T2 MC2 RS	T2 MC2 Y2 RS
<b>Capacity</b>								
Swing over cross slide	mm (in.)				φ700 (φ27.6)			
Max. turning diameter [Turn-mill spindle / Turret 2]	mm (in.)	φ670 (φ26.3)		φ670 (φ26.3) / φ365 (φ14.3) <12-station>, φ325 (φ12.7) <10-station>	φ670 (φ26.3)		φ670 (φ26.3) / φ365 (φ14.3) <12-station>, φ325 (φ12.7) <10-station>	
Max. turning length	mm (in.)			3,135 (123.4) <NTX 2500> 3,125 (123.0) <NTX 3000>			3,029 (119.2) <NTX 2500> 3,018 (118.8) <NTX 3000>	
Bar work capacity*1 *2	mm (in.)	φ80 (φ3.1) <NTX 2500>	φ102 (φ4.0) <NTX 3000: Left spindle>		φ80 (φ3.1) <NTX 3000: Right spindle>			
<b>Travel</b>								
X1-axis (Turn-mill spindle)	mm (in.)			675 (26.5) <-125 - +550 [-4.9 - +21.6]>				
Y1-axis (Turn-mill spindle)	mm (in.)			300 (11.8) <±150 (±5.9)>				
Z1-axis (Turn-mill spindle) + for ATC	mm (in.)			3,062 (120.5) + 164 (6.4) <for ATC>				
B-axis (Turn-mill spindle)				240° (±120°)				
<b>Left spindle</b>								
Max. spindle speed	min <sup>-1</sup>			4,000 <NTX 2500>	3,000 <NTX 3000>			
<b>Right spindle</b>								
Max. spindle speed	min <sup>-1</sup>		—		4,000 <NTX 2500>	4,000 <NTX 3000>		
<b>Turn-mill spindle &lt;Turret 1&gt;</b>								
B-axis min. indexing increment				0.0001°				
Turn-mill spindle max. speed	min <sup>-1</sup>			12,000, 20,000 <High-speed>				
Turn-mill spindle taper hole				Capt o C6, HSK-A63 (T63)				
Tool storage capacity				38, 76, 114, 194, 246				
Max. tool diameter <With adjacent tools>	mm (in.)			φ70 (φ2.7)				
Max. tool diameter <Without adjacent tools>	mm (in.)			φ130 (φ5.1)				
Max. tool length	mm (in.)			400 (15.7)				
Max. tool mass	kg (lb.)			8 (17.6), 10 (22.0) <specification for 10 kg (22.0 lb.)>				
<b>Turret 2</b>								
Number of tool stations		—	12 <12-station>, 10 <10-station>		—	12 <12-station>, 10 <10-station>		
Shank height for square tool	mm (in.)	—	20 (0.8) <12-station>, 25 (1.0) <10-station>		—	20 (0.8) <12-station>, 25 (1.0) <10-station>		
Max. milling spindle speed	min <sup>-1</sup>	—	12,000, 6,000 <High-torque>		—	12,000, 6,000 <High-torque>		
<b>Tailstock</b>								
Taper hole of tailstock spindle			Built-in center (MT5)			—		
<b>Motors</b>								
Left spindle drive motor	kW (HP)		18.5 / 18.5 / 15 (24.7 / 24.7 / 20) <25%ED / 50%ED / cont> <NTX 2500> 30 / 25 (40 / 33.3) <30 min / cont> <NTX 3000>			18.5 / 18.5 / 15 (24.7 / 24.7 / 20) <25%ED / 50%ED / cont> <NTX 2500>		
Right spindle drive motor	kW (HP)		—			18.5 / 18.5 / 15 (24.7 / 24.7 / 20) <25%ED / 50%ED / cont> <NTX 3000>		
Turn-mill spindle drive motor <40% ED / cont>	kW (HP)		28 / 23 (37.3 / 30.7), 23 / 22.2 (30.7 / 29.6)			28 / 23 (37.3 / 30.7), 23 / 22.2 (30.7 / 29.6)		
Turret 2 milling spindle drive motor <15%ED / 25%ED / cont>	kW (HP)	—	5.5 / 5.5 / 3.7 (7.5 / 7.5 / 5) 16 / 16 / 11.5 (21.3 / 21.3 / 15.3) <25%ED / 40%ED / cont>		—	5.5 / 5.5 / 3.7 (7.5 / 7.5 / 5) 16 / 16 / 11.5 (21.3 / 21.3 / 15.3) <25%ED / 40%ED / cont>		
<b>Machine size</b>								
Machine height	mm (in.)			2,902 (114.3)				
Floor space (Width × Depth)	mm (in.)		«Tool storage capacity: 38 tools» 7,797 × 2,880 (307.0 × 113.4) <3,598 (141.7): Includes operation panel> «Including a conveyor with the hinge type + drum filter»					

\*1 Bar work capacity: Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

\*2 When a specific chuck / cylinder is selected.

● 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 April 2022.

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# Standard & optional features (FANUC F31iB5)

●: Standard ○: Option -: not applicable

F31iB5

Fixture / Steady rest	
SLU-X1 < $\phi$ 6 – $\phi$ 70 mm [ $\phi$ 0.23 – $\phi$ 2.7 in.]>*1, SLU-X2 < $\phi$ 8 – $\phi$ 101 mm [ $\phi$ 0.31 – $\phi$ 3.9 in.], SLU-X3.1 < $\phi$ 20 – $\phi$ 165 mm [ $\phi$ 0.7 – $\phi$ 6.4 in.], SLU-X3.2 < $\phi$ 50 – $\phi$ 200 mm [ $\phi$ 1.9 – $\phi$ 7.8 in.>> <Fixed at Turret 2>*2	○
Automatic centering type steady rest	SLU-X1 < $\phi$ 6 – $\phi$ 70 mm [ $\phi$ 0.23 – $\phi$ 2.7 in.]>*1, SLU-X2 < $\phi$ 8 – $\phi$ 101 mm [ $\phi$ 0.31 – $\phi$ 3.9 in.], SLU-X3.1 < $\phi$ 20 – $\phi$ 165 mm [ $\phi$ 0.7 – $\phi$ 6.4 in.], SLU-X3.2 < $\phi$ 50 – $\phi$ 200 mm [ $\phi$ 1.9 – $\phi$ 7.8 in.], SLU-X4 < $\phi$ 30 – $\phi$ 245 mm [ $\phi$ 1.1 – $\phi$ 9.6 in.], RX3 < $\phi$ 20 – $\phi$ 270 mm [ $\phi$ 0.7 – $\phi$ 10.6 in.], RX4 < $\phi$ 35 – $\phi$ 340 mm [ $\phi$ 1.3 – $\phi$ 13.3 in.], RX5 < $\phi$ 75 – $\phi$ 430 mm [ $\phi$ 2.9 – $\phi$ 16.9 in.], RX6 < $\phi$ 100 – $\phi$ 520 mm [ $\phi$ 3.9 – $\phi$ 20.4]> <Servo-Driven>
Coolant	
Chip flushing coolant	800 / 1,100 W [50 / 60 Hz]
For turn-mill spindle coolant	800 / 1,100 W [50 / 60 Hz]
Through-spindle coolant system (Turn-mill spindle)	Standard pressure (800 / 1,100 W <50 / 60 Hz>) Super-high-pressure*3 <3.5 Mpa (507.5 psi)> Super-high-pressure*3 <7.0 Mpa (1,015 psi)> Super-high-pressure interface*3
Zero sludge coolant tank	●
Chip disposal	
Chip conveyor	Right discharge, Hinge type + Drum filter type
Measurement	
Manual in-machine tool presetter	Left spindle (Removable)*4
Tool breakage detector	Touch type (Blum)
In-machine measuring system (Turn-mill spindle)	Touch sensor (Radio signal transmission type)*5
High-precision control	
Full closed loop control (Scale feedback) <Turn-mill spindle>	X1-, Y1-, Z1-axis
Automation	
Robot interface	○
Others	
• Built-in worklight (LED) • Leveling block • Hand tools	●
Chuck foot switch	1 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	RS	T2 RS	T2 MC2	T2 MC2
Measurement		-	-	-	-	●	●	●	●
Manual in-machine tool presetter	Right spindle (Removable)*4	-	-	-	-	●	●	●	●
	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	-	●	●	●	-	●	●	●

\* DMQP (DMG MORI Qualified Products)

\*1 Traveling in clamped state during machining is not possible.

\*2 Not available for Turret 2 with the milling function.

\*3 When ultra-high pressure coolant is selected, the standard pressure pump for through-spindle coolant (turn-mill spindle) is not included.

\*4 In-machine tool presetters are available for both left and right spindles. Please contact us for more information.

\*5 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.

● DMQP: Please see Page 30 for details.

● The information in this catalog is valid as of June 2022.

● 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.

<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 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# Machine specifications (SIEMENS 840D sl)

NTX 2500   3000 / NTX 3000   3000								
	T1 MC1 B1 Y1 LS TS							
Basic specification	—	T2	T2 MC2	T2 MC2 Y2	RS	T2 RS	T2 MC2 RS	T2 MC2 Y2 RS
<b>Capacity</b>								
Swing over cross slide	mm (in.)				φ700 (φ27.6)			
Max. turning diameter [Turn-mill spindle / Turret 2]	mm (in.)	φ670 (φ26.3)	φ670 (φ26.3) / φ365 (φ14.3) <12-station>, φ325 (φ12.7) <10-station>		φ670 (φ26.3)	φ670 (φ26.3) / φ365 (φ14.3) <12-station>, φ325 (φ12.7) <10-station>		
Max. turning length	mm (in.)		3,135 (123.4) <NTX 2500> 3,125 (123.0) <NTX 3000>			3,029 (119.2) <NTX 2500> 3,018 (118.8) <NTX 3000>		
Bar work capacity*1 *2	mm (in.)	φ80 (φ3.1) <NTX 2500>	φ102 (φ4.0) <NTX 3000: Left spindle>		φ80 (φ3.1) <NTX 3000: Right spindle>			
<b>Travel</b>								
X1-axis (Turn-mill spindle)	mm (in.)			675 (26.5) <-125° +550° (-4.9° +21.6°)>				
Y1-axis (Turn-mill spindle)	mm (in.)			300 (11.8) <±150° (±5.9°)>				
Z1-axis (Turn-mill spindle) + for ATC	mm (in.)			3,062 (120.5) + 164 (6.4) <for ATC>				
B-axis (Turn-mill spindle)				240° (-30° +210°)				
<b>Left spindle</b>								
Max. Spindle speed	min <sup>-1</sup>			4,000 <NTX 2500>	3,000 <NTX 3000>			
<b>Right spindle</b>								
Max. Spindle speed	min <sup>-1</sup>		—		4,000 <NTX 2500>	3,000 <NTX 3000>		
<b>Turn-mill spindle &lt;Turret 1&gt;</b>								
B-axis min. indexing increment				0.0001°				
Turn-mill spindle max. speed	min <sup>-1</sup>			12,000, 20,000 <High-speed>				
Turn-mill spindle taper hole				Capto C6, HSK-A63 (T63)				
Tool storage capacity				38, 76, 114, 194, 246				
Max. tool diameter <With adjacent tools>	mm (in.)			φ70 (φ2.7)				
Max. tool diameter <Without adjacent tools>	mm (in.)			φ130 (φ5.1)				
Max. tool length	mm (in.)			400 (15.7)				
Max. tool mass	kg (lb.)			8 (17.6), 10 (22.0) <specification for 10 kg (22.0 lb.)>				
<b>Turret 2</b>								
Number of tool stations		—	12 <12-station>, 10 <10-station>	—	12 <12-station>, 10 <10-station>			
Shank height for square tool	mm (in.)	—	20 (0.8) <12-station>, 25 (1.0) <10-station>	—	20 (0.8) <12-station>, 25 (1.0) <10-station>			
Max. milling spindle speed	min <sup>-1</sup>	—	12,000, 6,000 <High-torque>	—	12,000, 6,000 <High-torque>			
<b>Tailstock</b>								
Taper hole of tailstock spindle			Built-in center (MT5)			—		
<b>Motors</b>								
Left spindle drive motor	kW (HP)		26 / 22 / 15 (34.7 / 30 / 20) <10%ED / 40%ED / cont> <NTX 2500>		36 / 30 / 25 (48.0 / 40 / 20) <10%ED / 30 min / cont> <NTX 3000>			
Right spindle drive motor	kW (HP)		—		26 / 22 / 15 (34.7 / 30 / 20) <10%ED / 40%ED / cont> <NTX 2500>	26 / 22 / 15 (34.7 / 30 / 20) <10%ED / 40%ED / cont> <NTX 3000>		
Turn-mill spindle drive motor <40% ED / cont>	kW (HP)		20.2 / 18.8 (26.9 / 25.1), 20.2 / 18.8 (26.9 / 25.1)					
Turret 2 milling spindle drive motor <15%ED / 25%ED / cont>	kW (HP)	—	7.5 / 5.5 / 3.7 (10 / 7.5 / 5), 16 / 16 / 11.5 (21.3 / 21.3 / 15.3) <25%ED / 40%ED / cont>	—	7.5 / 5.5 / 3.7 (10 / 7.5 / 5), 16 / 16 / 11.5 (21.3 / 21.3 / 15.3) <25%ED / 40%ED / cont>			
<b>Machine size</b>								
Machine height	mm (in.)			2,902 (114.3)				
Floor space (Width × Depth)	mm (in.)		<Tool storage capacity: 38 tools> 7,797 × 2,880 (307.0 × 113.4) <3,598 (141.7): Includes operation panel>		<Including a conveyor with the hinge type + drum filter>			

\*1 Bar work capacity: Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

\*2 When a specific chuck / cylinder is selected.

● SIEMENS specifications utilize 400V, so a transformer is required for customers in Japan and other countries.

● 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 April 2022.

Standard Option

T1 : Turn-mill spindle

T2 : Turret 2

LS : Left spindle

MC1 : Turn-mill spindle &lt;Millig&gt;

MC2 : Turret 2 (Milling)

RS : Right spindle

Y1 : Turn-mill spindle &lt;Y-axis&gt;

Y2 : Turret 2 (Y-axis)

TS : Tailstock

B1 : Turn-mill spindle &lt;B-axis&gt;

B2 : Turn-mill spindle &lt;B-axis&gt;

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

NTX 2500 2<sup>nd</sup> Generation / NTX 3000 2<sup>nd</sup> Generation

# Standard & optional features (SIEMENS 840D sl)

●: Standard ○: Option -: not applicable

F31iB5

Fixture / Steady rest		
SLU-X1 < $\phi$ 6 – $\phi$ 70 mm [ $\phi$ 0.23 – $\phi$ 2.7 in.]> <sup>*1</sup> , SLU-X2 < $\phi$ 8 – $\phi$ 101 mm [ $\phi$ 0.31 – $\phi$ 3.9 in.]>, SLU-X3.1 < $\phi$ 20 – $\phi$ 165 mm [ $\phi$ 0.7 – $\phi$ 6.4 in.]>, SLU-X3.2 < $\phi$ 50 – $\phi$ 200 mm [ $\phi$ 1.9 – $\phi$ 7.8 in.]> <Fixed at Turret 2> <sup>*2</sup>	○	
Automatic centering type steady rest		
SLU-X1 < $\phi$ 6 – $\phi$ 70 mm [ $\phi$ 0.23 – $\phi$ 2.7 in.]> <sup>*1</sup> , SLU-X2 < $\phi$ 8 – $\phi$ 101 mm [ $\phi$ 0.31 – $\phi$ 3.9 in.]>, SLU-X3.1 < $\phi$ 20 – $\phi$ 165 mm [ $\phi$ 0.7 – $\phi$ 6.4 in.]>, SLU-X3.2 < $\phi$ 50 – $\phi$ 200 mm [ $\phi$ 1.9 – $\phi$ 7.8 in.]>, SLU-X4 < $\phi$ 30 – $\phi$ 245 mm [ $\phi$ 1.1 – $\phi$ 9.6 in.]>, RX3 < $\phi$ 20 – $\phi$ 270 mm [ $\phi$ 0.7 – $\phi$ 10.6 in.]>, RX4 < $\phi$ 35 – $\phi$ 340 mm [ $\phi$ 1.3 – $\phi$ 13.3 in.]>, RX5 < $\phi$ 75 – $\phi$ 430 mm [ $\phi$ 2.9 – $\phi$ 16.9 in.]>, RX6 < $\phi$ 100 – $\phi$ 520 mm [ $\phi$ 3.9 – $\phi$ 20.4]> <Servo-Driven>	○	
Coolant	●	
Chip flushing coolant	800 / 1,100 W [50 / 60 Hz]	
For turn-mill spindle coolant	800 / 1,100 W [50 / 60 Hz]	
Standard pressure (800 / 1,100 W <50 / 60 Hz>)	●	
Super-high-pressure <sup>*3</sup> <3.5 Mpa (507.5 psi)>	○*	
Super-high-pressure <sup>*3</sup> <7.0 Mpa (1,015 psi)>	○*	
Super-high-pressure interface <sup>*3</sup>	○	
Zero sludge coolant tank	●	
Chip disposal	●	
Chip conveyor	Right discharge, Hinge type + Drum filter type	
Measurement	●	
Manual in-machine tool presetter	Left spindle (Removable) <sup>*4</sup>	
Tool breakage detector	Touch type (Blum)	○
In-machine measuring system (Turn-mill spindle)	Touch sensor (Radio signal transmission type) <sup>*5</sup>	○
High-precision control		
Full closed loop control [Scale feedback] <Turn-mill spindle>	X1-, Y1-, Z1-axis	○
Automation		
Robot interface	○	
Others		
• Built-in worklight (LED) • Leveling block • Hand tools	●	
Chuck foot switch	1 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	Y1	LS	TS	RS	T2	RS	T2	MC2	RS	T2	MC2	Y2	RS
Measurement																				
Manual in-machine tool presetter	Right spindle (Removable) <sup>*4</sup>	-	-	-	-	-	-	●	●	●	●	●	●	●	●	●	●	●	●	
Turn-mill spindle (Renishaw)	○	-	-	-	-	-	-	○	-	-	-	-	-	-	-	-	-	-	-	
Automatic in-machine tool presetter <sup>*6</sup> (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	-	●	●	●	●	-	●	●	●	●	●	●	●	●	●	●	●	●	

\* DMQP (DMO MORI Qualified Products)

\*1 Traveling in clamped state during machining is not possible.

\*2 Not available for Turret 2 with the milling function.

\*3 When ultra-high pressure coolant is selected, the standard pressure pump for through-spindle coolant (turn-mill spindle) is not included.

\*4 In-machine tool presetters are available for both left and right spindles. Please contact us for more information.

\*5 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.

\*6 When the tool breakage detector is selected, the in-machine tool presetter (automatic) is not available.

● DMQP: Please see Page 30 for details.

● The information in this catalog is valid as of June 2022.

● 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.







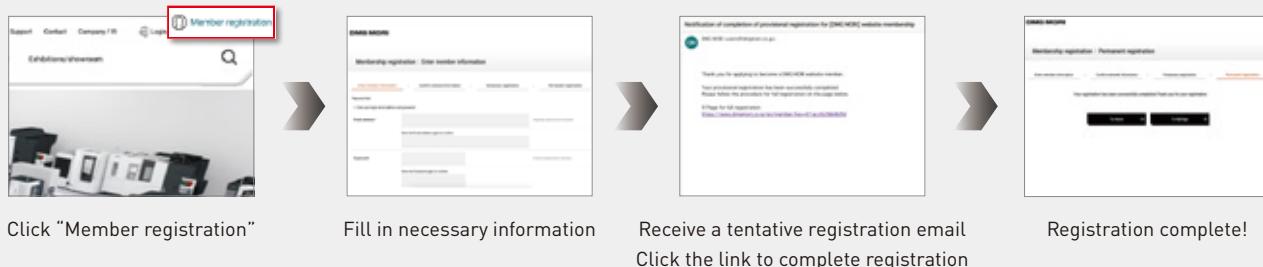
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### <Precautions for Machine Relocation>

This product is deemed regulated cargo when exported under the Japanese government's Foreign Exchange and Foreign Control Trade Law. Government authorization is required when exporting this product. The product shipped to you (the machine and accessory equipment) has been manufactured in accordance with the laws and standards that prevail in the relevant country or region. If it is exported, sold, or relocated to a destination in a country with different laws or standards, it may be subject to export restrictions of that country.

This product detects machine relocation. Once the machine is relocated, it is not operable unless its legitimate relocation is confirmed by DMG MORI or its distributor representative. If the restart of the machine can result in unauthorized export of cargo or technology or will violate legitimate export controls, DMG MORI and its distributor representative can refuse to restart the machine. In that case, DMG MORI and its distributor representative do not assume any loss due to the inability to operate the machine or any liability during the warranty period.

+ DCG, DDM, BMT, ORC, compactMASTER, turnMASTER, DMQP, MATRIS, Robo2Go, Zero sludge coolant tank, CELOS, ERGOline, COMPACTline, DMG MORI SMARTkey, proTIME and names of each Technology Cycle are trademarks or registered trademarks of DMG MORI CO., LTD. or its group companies in Japan, the USA and other countries.

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

+ The information in this catalog is valid as of July 2022. 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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