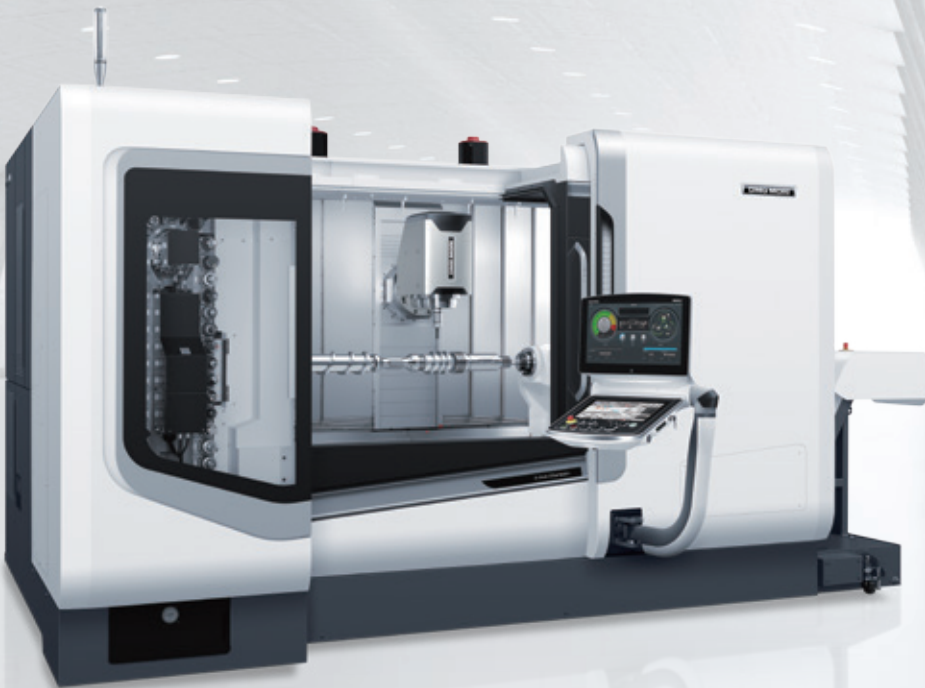


High-Precision, High-Efficiency Integrated Mill Turn Center

NTX 2000

NTX 2000

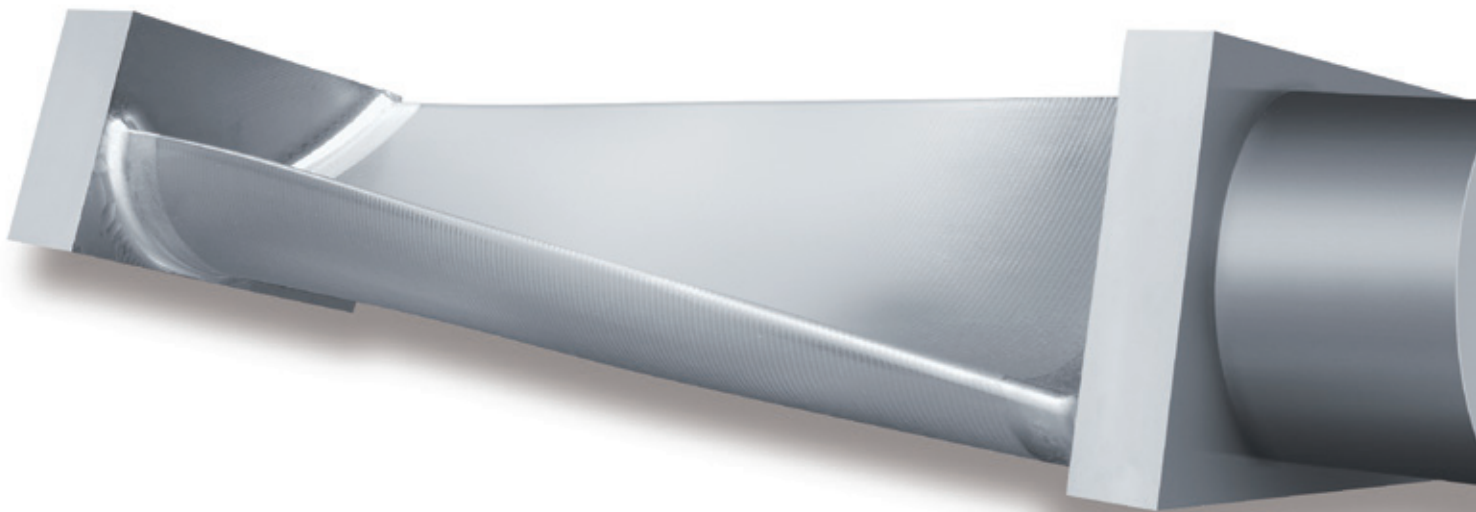


NTX 2000

Covering Extensive Range of Machining Across All Fields

The NTX 2000 is an all-round machine for machining workpieces with increasingly complex geometries in fields including aviation, medical equipment, automotive, die & mold, and precision instruments, efficiently and to high levels of accuracy.

The NTX 2000 is capable of handling an extensive range of machining, from micro-fine machining to machining of large workpieces, with its high machining performance resulting from integration of a turning center and a machining center and a large work envelope. Efficient process integration across the range from high-mix, low-volume part production to mass production brings great benefits to customers.

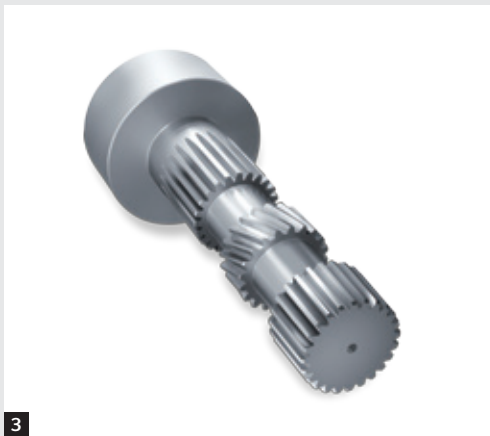




2



5



3



6



4



7

Aerospace

- Turbine blade
- Landing gear

Industrial Machinery

- Drive shaft

Automotives

- Cylinder head

Tools

- Tool holder
- Face mill

Medical Equipment

- Knee joint

NTX 2000

Incorporating Two Cutting-edge Technologies: Turning Centers and Machining Centers

Incorporating DMG MORI's new technology to the fullest extent possible, the NTX 2000 integrates a variety of machining processes in its large work envelope with its high accuracy and high machining capability.

The NTX 2000 features the "CELOS" touch-panel-type user interface, that achieves smooth setup even for complex multi-axis machining. It offers customers seeking more efficient production processes and cost reductions the highest level of performance.





Simultaneous 5-axis machining

- + Simultaneous 5-axis machining of complex parts with the direct drive motor (DDM) installed in the B axis
- + B-axis rotation range: $\pm 120^\circ$, rotational speed: 100 min⁻¹
- + Equipped with a Capto C6 tool spindle as standard, max. spindle speed of 12,000 min⁻¹

Ease of operation

- + Digital tailstock adopted for the tailstock specifications
- + CELOS+MAPPS IV

High precision

- + Thorough suppression of thermal displacement
- + Zero-center-displacement spindles employed for spindle 1 and spindle 2

High rigidity

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

Energy-saving

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

MAPPS: Mori Advanced Programming Production System
CELOS: Control Efficiency Lead Operation System

NTX 2000

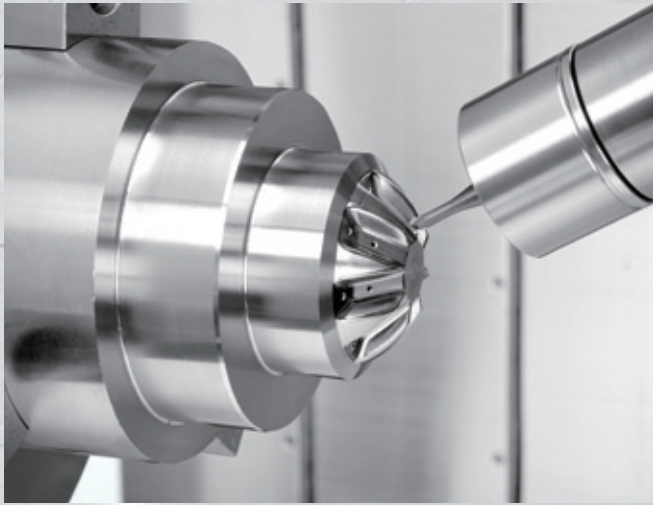
Six Variations Selectable According to Purpose

The NTX 2000 is equipped with either a spindle 2 or tailstock, each of which can mount a turret 2, and the turret 2 can feature the milling function, giving a total of six types. With the spindle 2 specifications, a spindle with performance equivalent to that of spindle 1 is mounted as spindle 2, and both of them can accommodate an 8-inch chuck or a 10-inch chuck.

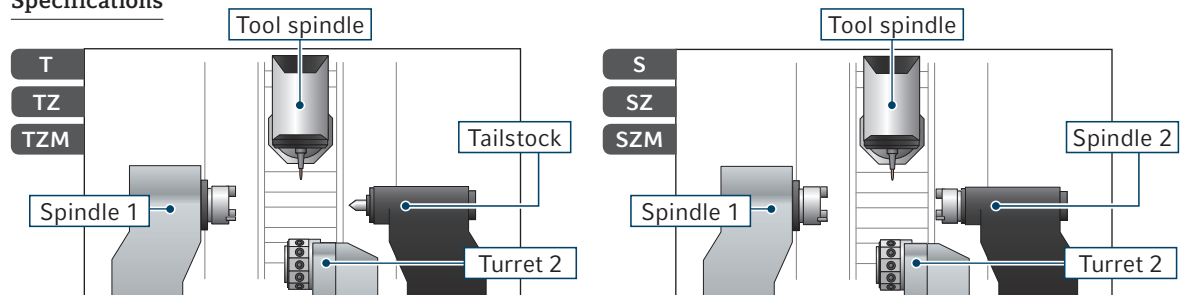
CELOS
FROM DMG MORI



Floor space
required
16.6 m² (178.7 ft²)
(Tool storage capacity: 38 tools,
including hinge type
chip conveyor)



Specifications



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

● Standard features — Not applicable

NTX 2000

High-rigidity Construction not Susceptible to Aging

DMG MORI pursues high rigidity from the basic design stage through FEM analysis. With a thick, highly rigid bed, the NTX 2000 is not affected by aging, and maintains high machining accuracy over the long term.

8

1 High-rigidity bed

Thick and highly rigid bed, providing stable support even for movable parts

2 FEM analysis

High-rigidity body designed using FEM analysis

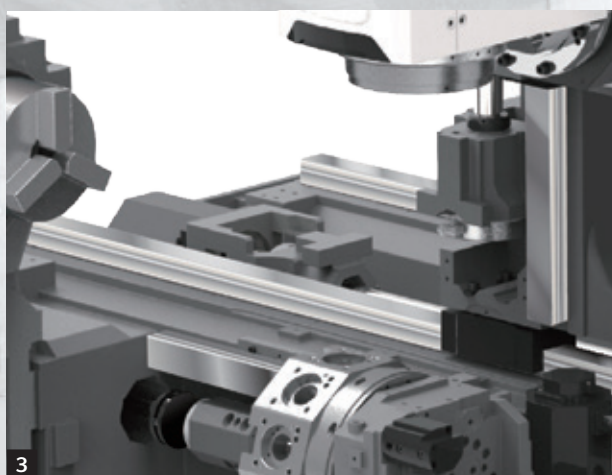
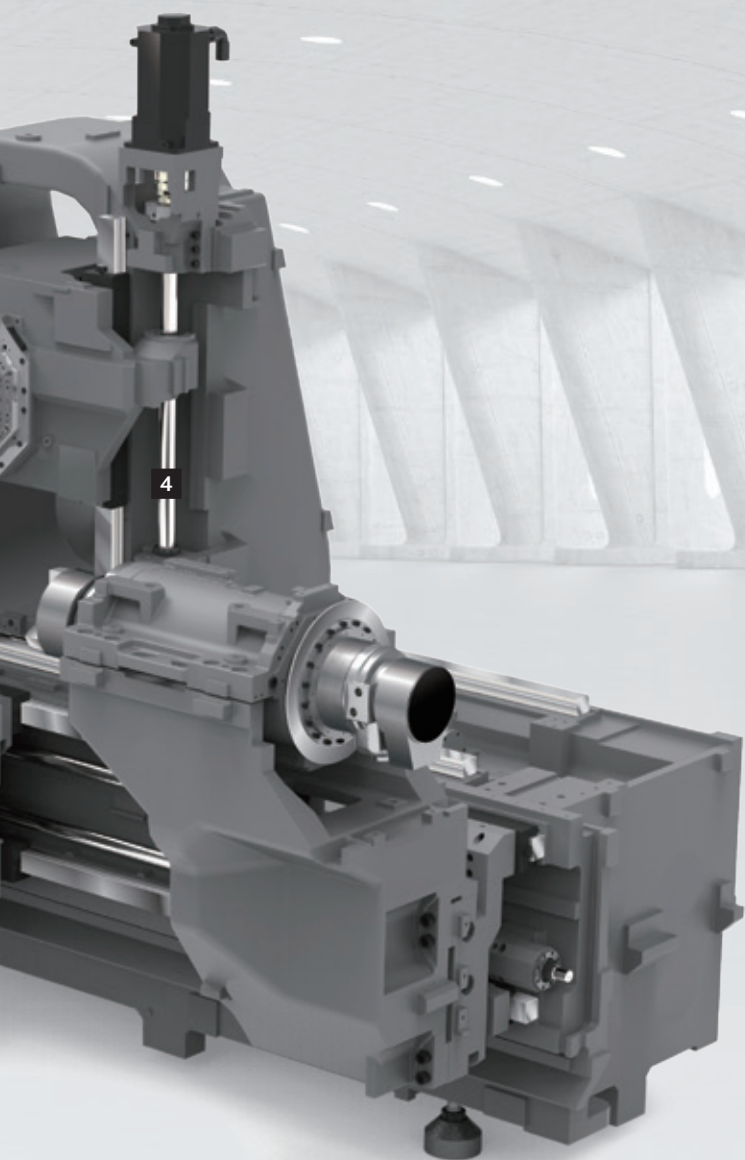
3 linear motion guide

Smooth movements and high rigidity are realized by adopting roller guides

4 Increased ball screw rigidity

Greater X-axis and Z-axis ball screw rigidity allows heavy-duty cutting and high-accuracy machining

1



NTX 2000

Fully Equipped to Support High-accuracy Machining

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

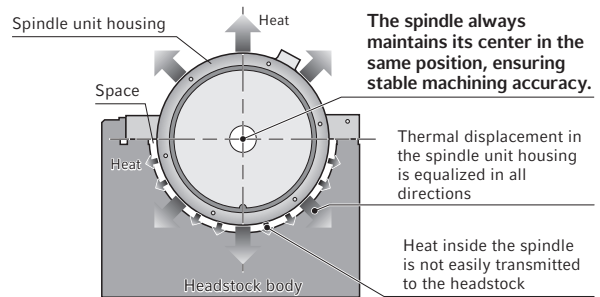


Zero-center-displacement spindle

- + The heat inside the spindle is not easily transmitted to the headstock as the spindle unit housing is separated from the headstock.
- + The spindle unit housing is fixed to the headstock on the horizontal center line of the spindle, so thermal displacement is equalized in all directions from the spindle center.

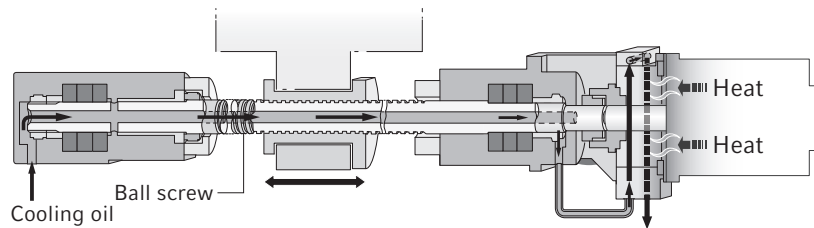


The spindle always maintains its center in the same position, ensuring stable machining accuracy.



Ball screw core cooling

A ball screw core cooling system is equipped as standard, maintaining stable positioning accuracy.



Coolant chiller <Separate type> (Option)



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

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

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

Direct scale feedback (Option)



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

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



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

NTX 2000

High-accuracy Spindles Matched to the Customer's Requirements

Both the spindle 1 and spindle 2 of the NTX 2000 can accommodate an 8-inch chuck or a 10-inch chuck. The zero-center-displacement spindles that maintain a fixed center height regardless of heat generation are adopted realize high accuracy. The NTX 2000 is available with three different outputs to flexibly suit customers' requirements. In addition, the cartridge type spindle units that can be replaced as an entire unit improve maintainability.

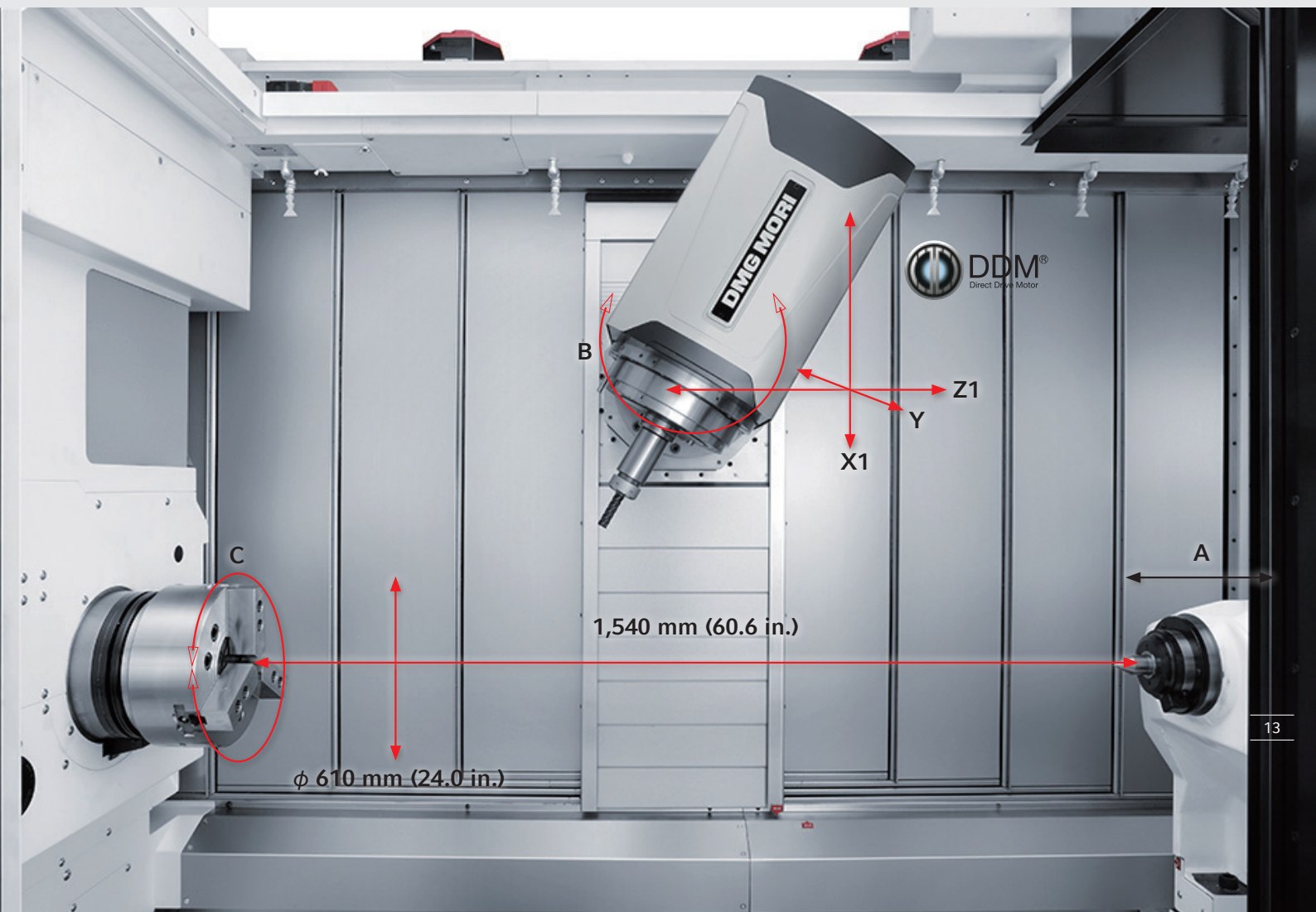
Zero-center-displacement spindles and more sophisticated spindle labyrinth structure

- + Zero-center-displacement spindles that maintain a fixed center height regardless of heat generation adopted for both spindle 1 and spindle 2
- + 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*: Both spindle 1 and spindle 2 accommodate an 8-inch or a 10-inch chuck.

Spindle 2 and tailstock

- + Like the spindle 1, the spindle 2 features a maximum spindle speed of 5,000 min⁻¹ and is available in standard or high-torque specifications.
- + The tailstock is available in the optional built-in center MT4 specifications (tailstock center included) in addition to the standard live center MT5 specifications (tailstock center not included).

* The chuck is optional.



Travel

NTX 2000			
Tool spindle	X1-axis	mm (in.)	495 (19.5)
	Y-axis	mm (in.)	±125 (±4.9)
	Z1-axis	mm (in.)	1,560+215*1 (61.4+8.5*1)
	B-axis		±120°
Turret 2	X2-axis	mm (in.)	160 (6.3)
	Z2-axis	mm (in.)	1,402 (55.2)*2
Spindle 1 / Spindle 2*3	C-axis		360° / [360°]
Tailstock	A-axis	mm (in.)	1,500 (59.1)*4

[] Option

*1 for ATC

*2 1,302 mm (51.3 in.) for TZ and TZM types

*3 S, SZ and SZM types

*4 1,400 mm (55.1 in.) for TZ and TZM types

Workpiece size

NTX 2000		
Max. turning diameter	mm (in.)	φ 610 (φ 24.0)
Max. turning length	mm (in.)	1,540 (60.6)
Bar work capacity*1	mm (in.)	φ 65 (φ 2.5) [φ 80 (φ 3.1)]*2

[] Option

*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 Spindle 1 only

NTX 2000

Tool Spindle with Wide Range of Motion

Thanks to an axis configuration including X-, Y-, Z- and B-axes, the tool spindle can easily approach the targeted faces of complex workpieces. Its capability to machine workpieces that required set up changes up until now in one chucking facilitates process integration. And employing a direct drive motor (DDM) and octagonal ram enables high-speed, high-accuracy machining.

14

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

- + A direct drive spindle (DDS) adopted as the tool spindle
- + Max. tool spindle speed: 12,000 min⁻¹
- + B-axis driven by a direct drive motor (DDM)
- + A variety of two-face contact specifications: Capto C6、BT40 (Option), CAT40 (Option), HSK-A63 (Option), KM-63 (Option)

- + **Tool storage capacity:** 38 [76, 180, 240] tools
- + **Max. tool diameter:** ϕ 125 mm (ϕ 4.9 in.) <Without adjacent tools>, ϕ 70 mm (ϕ 2.8 in.) <With adjacent tools>
- + **Tool changing time:** 1.25 sec. <Tool-to-tool>

[] Option

5-Axis-Champion

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

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



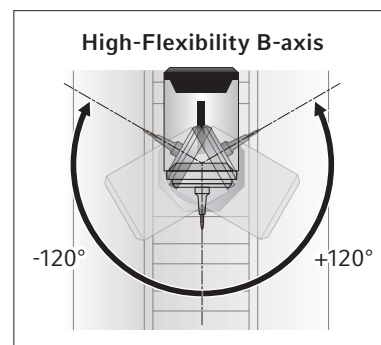
- + Effects of DDM
- + High-speed rotation
- + High-precision indexing
- + Less maintenance
- + Longer product life

NTX 2000		
B-axis rotation range		$\pm 120^\circ$
B-axis indexing time* (90°)	sec.	0.55
B-axis rotational speed	min ⁻¹	100
Min. indexing increment		0.0001

* Indexing time: clamping, unclamping time are not included.

DDM: Direct Drive Motor

- Full indexing specification B-axis: with the F31iB, up to four axes can be controlled simultaneously. For simultaneous 5-axis control, please use the F31iB5.



A revolutionary structure which controls thermal displacement and offers outstanding straightness

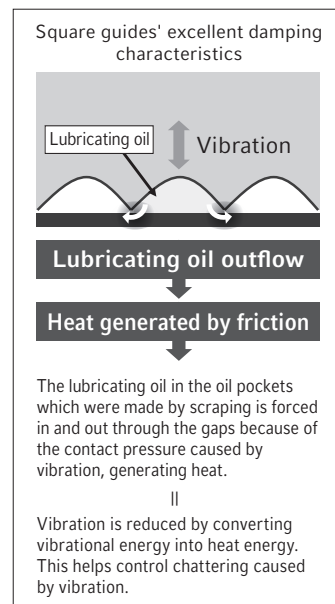
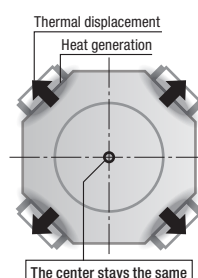
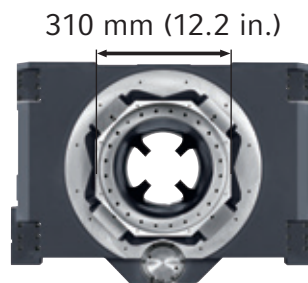
The 4 guideways are located diagonally from each other, so they distort symmetrically in response to the heat generated by high-speed travel. This means that the center stays in the same position, offering high-speed, high-precision feed.

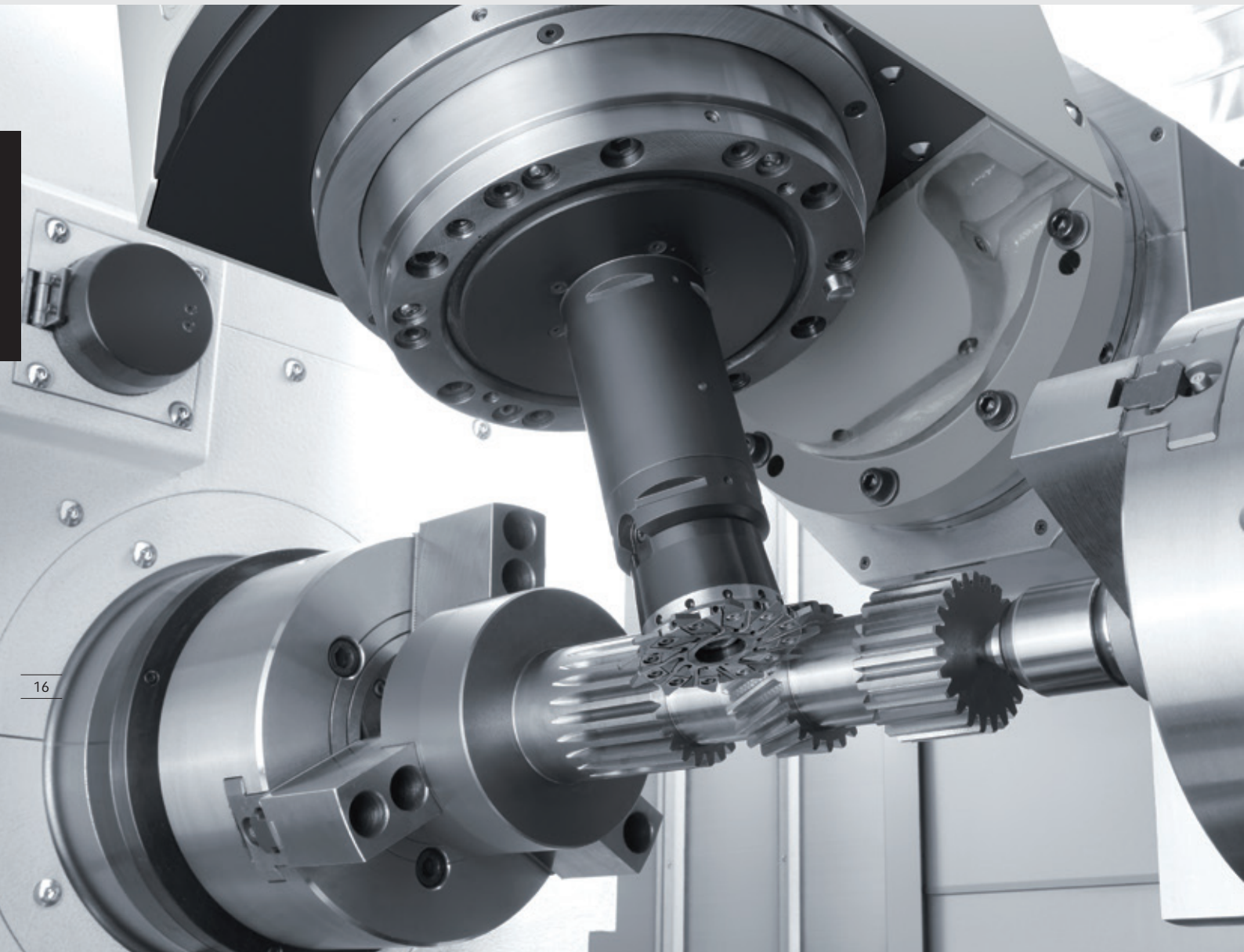


Effects of ORC

- + Superior damping characteristics
- + Controls thermal displacement
- + Achieves high-speed, high-precision feed

ORC: Octagonal Ram Construction

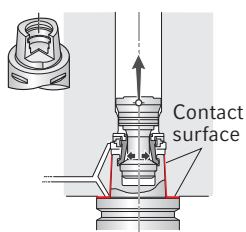




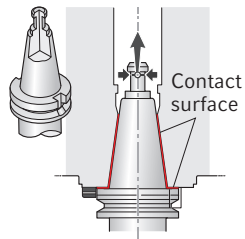
Two-face contact

Tool rigidity has been improved by contact of both the spindle taper and the tool flange. This extends the useful life of a tool, raises cutting power and improves the machining precision.

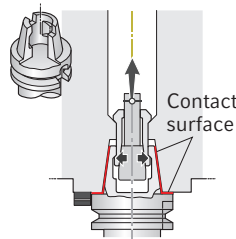
Capto Specifications



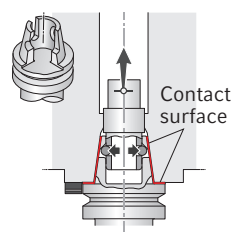
BT specifications (Option)



HSK Specifications (Option)



KM Specifications (Option)

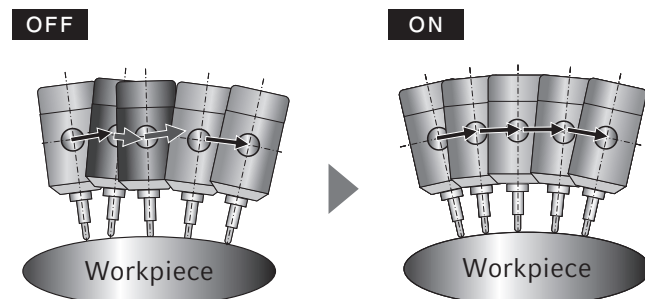


- When selecting the two-face contact tool specification, be sure to use a two-face contact tool.
- DMG MORI builds all the spindles in house.

SVC function (Standard features for F31iB5)

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

Motion of the SVC function

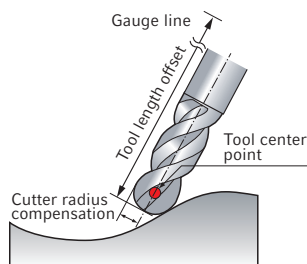


The SVC function includes the following functions:

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

Tool center point control (Standard features for F31iB5)

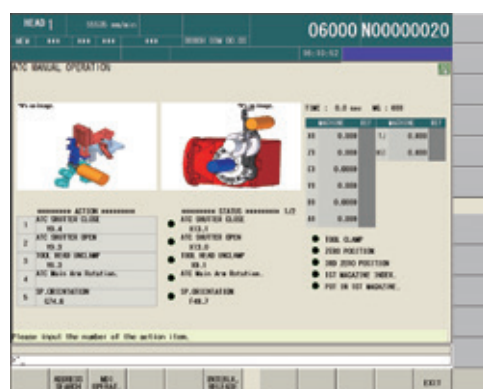
Tool center point control



Main features

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

Independent operation of the ATC



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

NTX 2000

Continuous Front / Back Face Machining Improves Production Efficiency

The provision of a turret 2 enables a diverse range of machining that increases production efficiency, including the whole sequence from turning to secondary machining and back face machining, and multi-axis machining. In addition, sufficient space has been secured to perform simultaneous machining with the tool spindle and turret 2.



Turret 2 featuring BMT technology <SZM, TZM>

- + Number of tool stations: 10 tools
- + Max. rotary tool spindle speed: 10,000 min⁻¹
- + Turret indexing time (1-station): 0.19 sec.

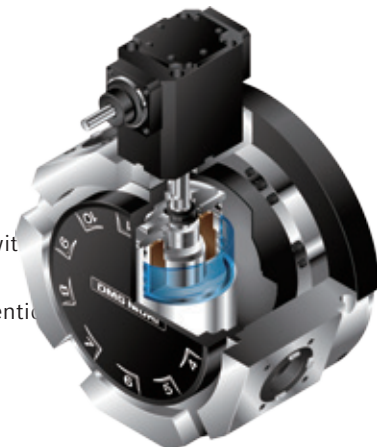
“Mature” and “Evolved” BMT Technology <SZM, TZM>

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



Effects of BMT

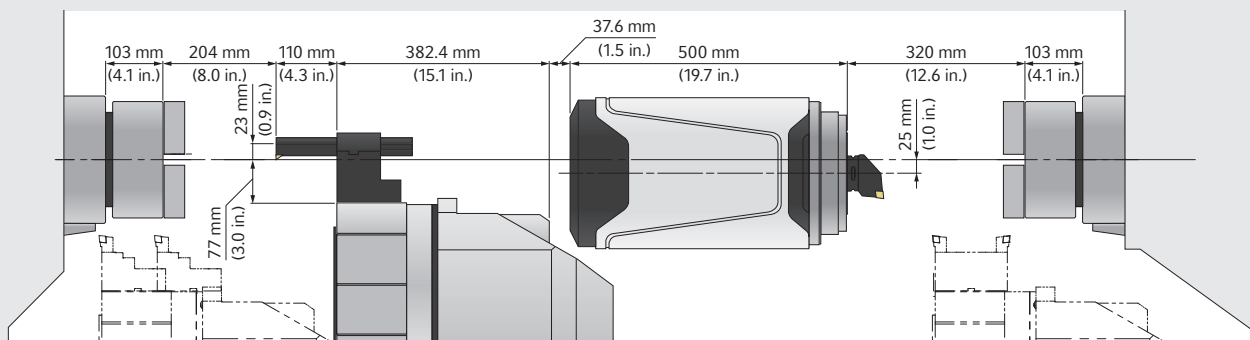
- + Improved milling power
- + Improved milling accuracy
- + Controls the turret's heat and vibration
- + Reduced energy loss
- + Turret temperature increases: Compared with conventional machine 1/10 or less
- + Vibration amplitude: Compared with conventional machine 1/3 or less



BMT: Built-in Motor Turret

Turret 2 that does not interfere with the tool spindle's machining area <SZ, SZM>

Sufficient area is secured for machining even when the tool spindle is located in-between spindle 1 and spindle 2.



Q52896A03

NTX 2000

Open Innovation to Maintain Ideal Machining Quality

Many high-performance peripherals have been prepared to suit the customers’ workpieces and requirements. Combining the high-performance NTX 2000 with superior peripherals achieves high-accuracy machining and high durability. DMQP (DMG MORI Qualified Products) – peripherals that have been carefully selected based on their quality, performance, maintainability and so on – are also available.

Chip conveyor (Option)

+ Provides highly efficient chip disposal

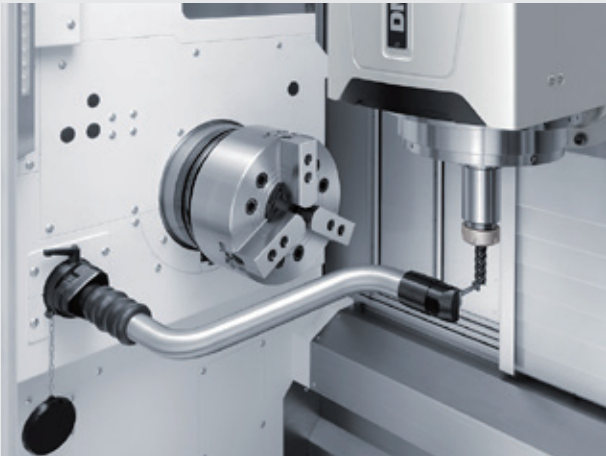
Workpiece material and chip size	Steel			Cast iron	Aluminum, non-ferrous metal		
	Long	Short	Powdery	Short	Long	Short	Powdery
Hinge type	○	—	—	—	○	—	—
Hinge type + Scraper type + Drum filter type	○	○	○	○	○	○	○

○: Suitable —: Not suitable

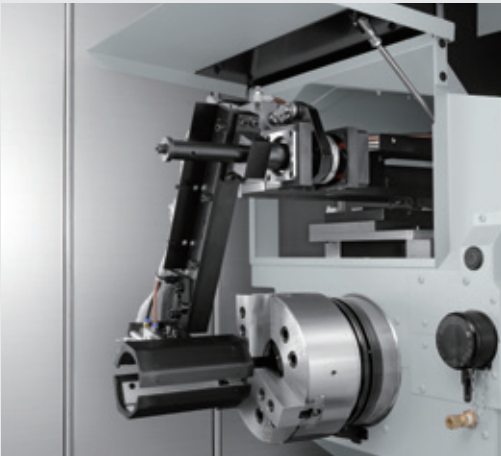
Chip size guidelines
Short: chips 50 mm (2.0 in.) or less in length, bundles of chips ϕ 40 mm (ϕ 1.6 in.) or less
Long: bigger than the above

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

Manual type in-machine tool presetter



Workpiece unloader <S, SZ, SZM> (Option)



Super-high pressure coolant system (Option)



Coolant chiller (Option)



Mist collector (Option)



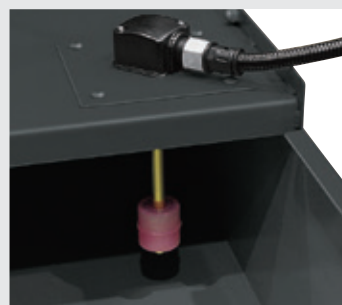
Hydraulic chuck (Option)



Coolant gun (Option)



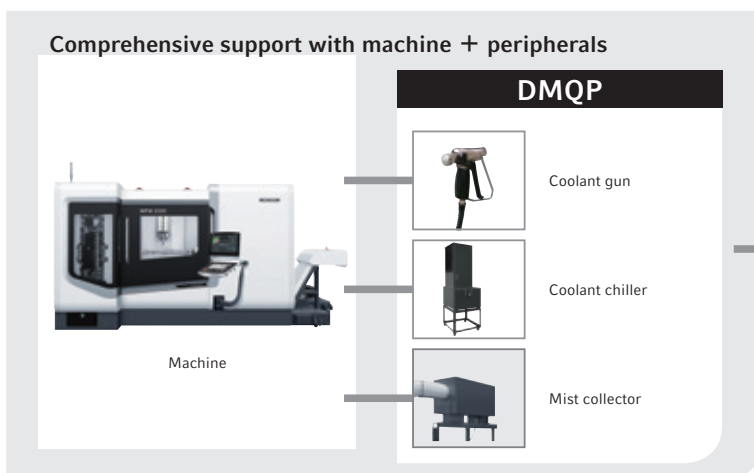
Coolant float switch (Option)



DMQP (Option)

The DMQP program is designed to certify peripherals that meet DMG MORI standards in quality, performance and maintainability.

DMQP provides customers with greater peace of mind.



Service Center

+ Qualified peripherals are arranged by DMG MORI

+ Toll-free phone support is available 24 hours a day, 365 days a year (Japan only)

● For more details on DMQP items, please consult our sales representative.
DMQP: DMG MORI Qualified Products

NTX 2000

Cutting-edge Design Pursuing Usability

As well as featuring an elegant cover design, the NTX 2000 is designed with careful consideration to factors such as the accessibility to the spindle and the visibility of the working area. Also, various means have been adopted to enhance maintainability, such as centralizing the hydraulic units and instruments in a location that provides easy access.

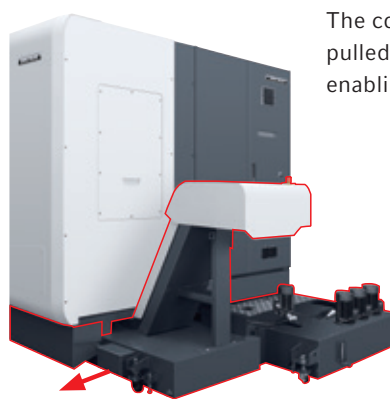


1 Magazine



The tool magazine is placed on the front side of the machine so that the operator can check and exchange tools at the operating position.

4 Coolant tank



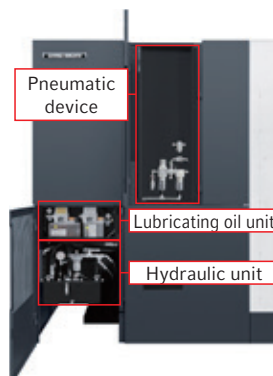
The coolant tank can be pulled out to the front side, enabling space saving.

2 Swivel-type operation panel



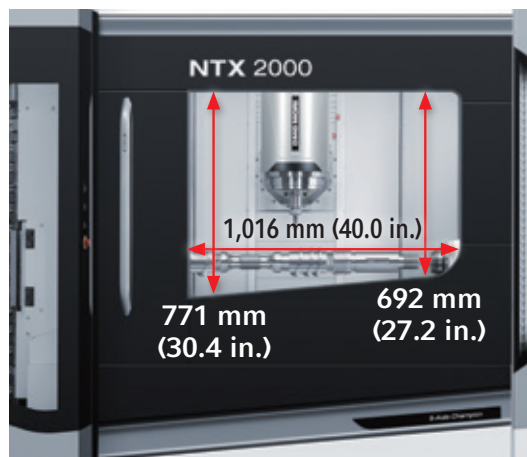
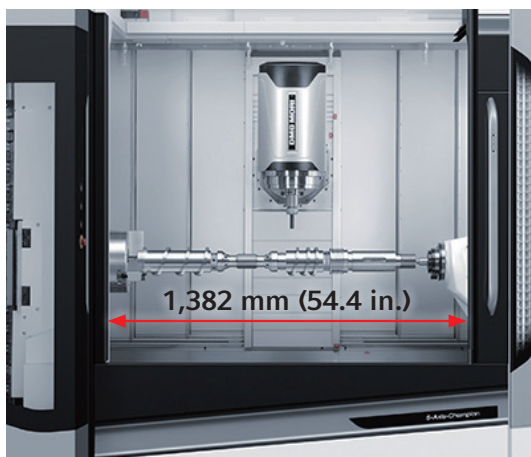
Adopting a touch-screen type operation panel with a swivel mechanism has improved access to the spindle and workpiece.

5 Equipment layout



The equipment layout is designed for daily operation and maintenance.

3 Door opening width and size of the front door window



NTX 2000

From the Idea to the Finished Product

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

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

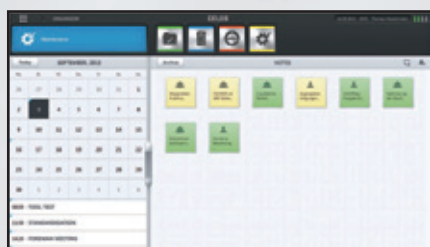
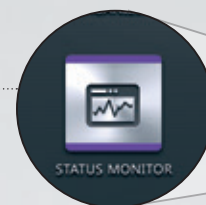
The operation system also ensures high affinity for the existing information infrastructure and software.

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



STATUS MONITOR

Status monitoring of the machine and machining



ORGANIZER

Schedule management function



CAD-CAM VIEW

Visualize workpieces and improve program data

- + Direct remote access to external CAD / CAM workstations
- + Central master data as basis for component viewing
- + Immediate change options for machining steps, NC programs and CAM strategies, directly in the CNC system

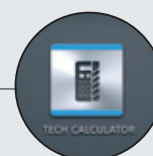


CELOS: Control Efficiency Lead Operation System



TECH CALCULATOR

Calculation support for cutting conditions and dimensions conforming to industrial standards



CELOS: Control Efficiency Lead Operation System

CELOS |

APP MENU:

Central access to all available applications



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

25

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

PPS: Production Planning and Scheduling System
ERP: Enterprise Resource Planning

Others

- MAPPS IV

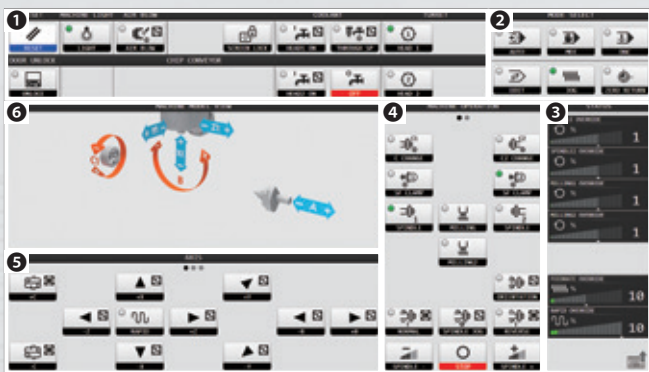
Machine specifications

NTX 2000

High-Performance Operation System MAPPS IV

MAPPS IV is a high-performance, smart operation system mounted on 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.

Conversational automatic programming function

This function allows users to create programs simply by following the guidance on the screen. Much of the programming process has been simplified due to the minimal key entry required for even the most complex shapes.

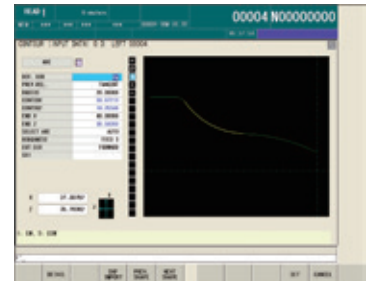
Machining menu



List display function



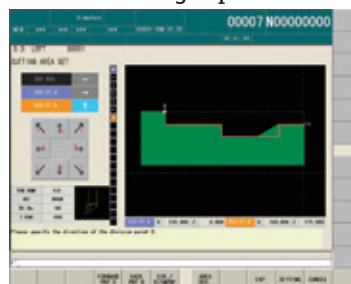
Contour input



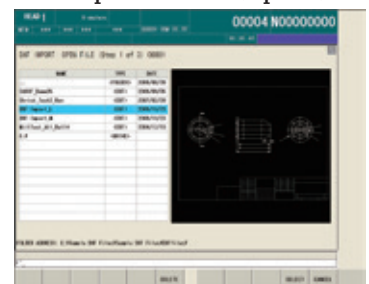
B-axis command function



Relief machining (Option)



DXF import function (Option)



Others

- › Energy-saving

Machine specifications

- › General view

NTX 2000

Reduction in Environmental Burden

To conserve limited resources and protect global environment. The NTX 2000 Series pursues a high “environmental performance” that is required of machine tools.

Power-saving Functions

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

Energy-saving Setting and Visualization of Energy-saving Effect

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



Running time

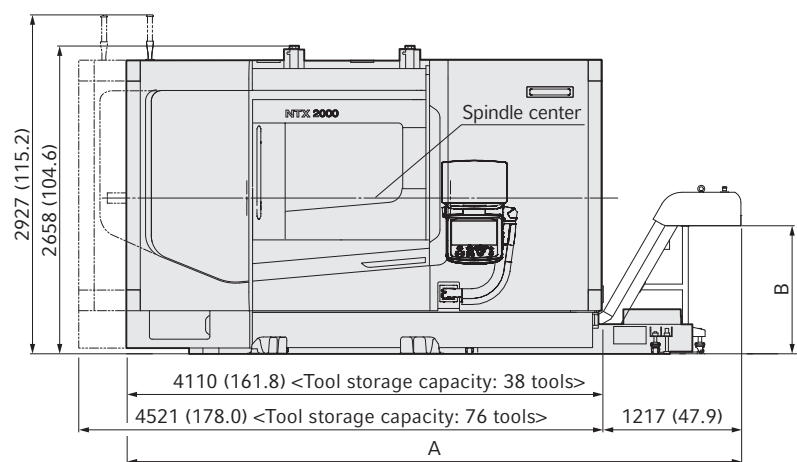
Reduced Cycle Times

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

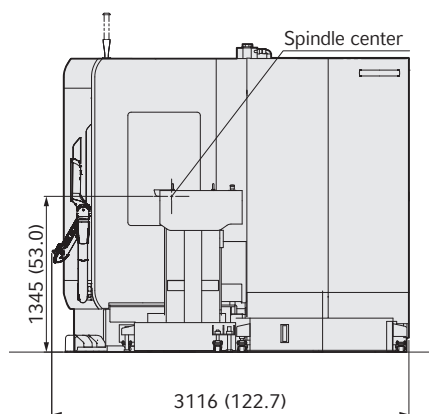
NTX 2000

General view

Front view



Side view



Q56307A03
Q56321A02

mm (in.)

Chip conveyor	Machine width		Discharge height
	A 38 tools	A [76 tools]	B
[Hinge type]	5,309 (209.0)	5,720 (225.2)	1,106 (43.5)
[Hinge type] EN type	5,595 (220.3)	6,006 (236.5)	1,051 (41.4)
[Hinge type + Scraper type + Drum filter type]	5,470 (215.4)	5,881 (231.5)	1,065 (41.9)
[Hinge type + Scraper type + Drum filter type] EN type	5,708 (224.7)	6,119 (240.9)	1,026 (40.4)

[] Option
EN: European Norm (European Standards)

NTX 2000

Main Machine Specifications T, TZ, TZM

			NTX 2000 1500T	NTX 2000 1500TZ	NTX 2000 1500TzM
Capacity					
Swing over cross slide	mm (in.)		φ 660 (φ 25.9)	φ 660 (φ 25.9) <Turret 2 φ 300 (φ 11.8)>	
Max. turning diameter	mm (in.)		φ 610 (φ 24.0) <φ 660 (φ 25.9)*1>	φ 610 (φ 24.0) <φ 660 (φ 25.9)*1> <Turret 2 φ 274 (φ 10.7)>	
Bar work capacity	mm (in.)		φ 65 (φ 2.5) [φ 65 (φ 2.5)*2] [φ 80 (φ 3.1)*3]		
Travel					
X-axis (Tool spindle)	mm (in.)		495 (19.5) <470 (18.5)+25 (1.0)>		
Y-axis (Tool spindle)	mm (in.)		±125 (±4.9)		
Z-axis (Tool spindle)	mm (in.)		1,560 (61.4)+215 (8.5) <for ATC>		
B-axis (Tool spindle)			±120°		
X2-axis (Turret 2)	mm (in.)		—	160 (6.3)	
Z2-axis (Turret 2)	mm (in.)		—	1,302 (51.3)	
Spindle 1					
Max. spindle speed	min ⁻¹		5,000 [5,000*2] [4,000*3]		
Tool spindle (Turret 1)					
Min. B-axis indexing increment			0.0001°		
Max. tool spindle speed	min ⁻¹		12,000		
Taper hole of tool spindle			Capto C6 [BT40*4] [CAT40] [HSK-A63] [KM-63]		
Tool storage capacity			38 [76] [180] [240]		
Max. tool diameter	With adjacent tools	mm (in.)	φ 70 (φ 2.7)		
	Without adjacent tools	mm (in.)	φ 125 (φ 4.9)		
Max. tool length		mm (in.)	300 (11.8)		
Max. tool mass		kg (lb.)	8 (17.6) [10 (22)]		
Turret 2					
Number of tool stations			—	10	
Shank height for square tool	mm (in.)		—	20 (0.8)	
Max. rotary tool spindle speed	min ⁻¹		—		10,000
Tailstock					
Taper hole of tailstock spindle			Live center (MT5) [Built-in center (MT4)]		
Motors					
Motor for Spindle 1 (30 min. / cont)	kW (HP)		22 / 18.5 (30 / 24.7) [22 / 18.5 (30 / 24.7)*2] [26 / 22 (34.7 / 30)*3]		
Tool spindle drive motor (10 min. / cont)	kW (HP)		30 / 11 (40 / 15)		
Turret 2 rotary tool spindle drive motor (15%ED / cont)	kW (HP)		—		1.5 / 1.2 (2 / 1.6)
Machine size					
Machine height	mm (in.)		2,658 (104.6)		
Floor space (Width×Depth)	mm (in.)		5,327 (209.7)*5 [5,738 (225.9)*6]×3,116 (122.7) <excluding chip conveyor>		
Control unit					
FANUC			F31iB / F31iB5		

[] Option
*1 For when B-axis is at 90° position.
*2 High-torque
*3 For φ80 mm (φ3.1 in.) bar work capacity specifications.
*4 When selecting the two-face contact tool specification, be sure to use a two-face contact tool.
*5 Tool storage capacity: 38 tools
*6 Tool storage capacity: 76 tools
● Bar work capacity: Depending on the chuck/cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
● Max. spindle speed: Depending on restrictions imposed by the workpiece clamping device, fixture and tool used, it may not be possible to rotate at the maximum spindle speed.
● Machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.
● The information in this catalog is valid as of October 2016.

Main Machine Specifications S, SZ, SZM

			NTX 2000 1500S	NTX 2000 1500SZ	NTX 2000 1500SZM
Capacity					
Swing over cross slide	mm (in.)		φ 660 (φ 25.9)	φ 660 (φ 25.9) <Turret 2 φ 300 (φ 11.8)>	
Max. turning diameter	mm (in.)		φ 610 (φ 24.0) <φ 660 (φ 25.9)*1>	φ 610 (φ 24.0) <φ 660 (φ 25.9)*1> <Turret 2 φ 274 (φ 10.7)>	
Bar work capacity	mm (in.)		φ 65 (φ 2.5) [φ 65 (φ 2.5)*2] [φ 80 (φ 3.1)*3]		
Travel					
X-axis (Tool spindle)	mm (in.)		495 (19.5) <470 (18.5)+25 (1.0)>		
Y-axis (Tool spindle)	mm (in.)		±125 (±4.9)		
Z-axis (Tool spindle)	mm (in.)		1,560 (61.4)+215 (8.5) <for ATC>		
B-axis (Tool spindle)			±120°		
X2-axis (Turret 2)	mm (in.)		–	160 (6.3)	
Z2-axis (Turret 2)	mm (in.)		–	1,402 (55.2)	
Spindle 1					
Max. spindle speed	min ⁻¹		5,000 [5,000*2] [4,000*3]		
Spindle 2					
Max. spindle speed	min ⁻¹		5,000 [5,000*2]		
Tool spindle (Turret 1)					
Min. B-axis indexing increment			0.0001°		
Max. tool spindle speed	min ⁻¹		12,000		
Taper hole of tool spindle			Capto C6 [BT40*4] [CAT40] [HSK-A63] [KM-63]		
Tool storage capacity			38 [76] [180] [240]		
Max. tool diameter	With adjacent tools	mm (in.)	φ 70 (φ 2.7)		
	Without adjacent tools	mm (in.)	φ 125 (φ 4.9)		
Max. tool length		mm (in.)	300 (11.8)		
Max. tool mass		kg (lb.)	8 (17.6) [10 (22)]		
Turret 2					
Number of tool stations			–	10	
Shank height for square tool		mm (in.)	–	20 (0.8)	
Max. rotary tool spindle speed		min ⁻¹	–	10,000	
Motors					
Motor for Spindle 1 (30 min. / cont)		kW (HP)	22 / 18.5 (30 / 24.7) [22 / 18.5 (30 / 24.7)*2] [26 / 22 (34.7 / 30)*3]		
Spindle 2 drive motor (30 min. / cont)		kW (HP)	22 / 18.5 (30 / 24.7) [22 / 18.5 (30 / 24.7)*2]		
Tool spindle drive motor (10 min. / cont)		kW (HP)	30 / 11 (40 / 15)		
Turret 2 rotary tool spindle drive motor (15%ED / cont)		kW (HP)	–	1.5 / 1.2 (2 / 1.6)	
Machine size					
Machine height		mm (in.)	2,658 (104.6)		
Floor space (Width×Depth)		mm (in.)	5,327 (209.7)*5 [5,738 (225.9)*6] ×3,116 (122.7) <excluding chip conveyor>		
Control unit					
FANUC			F31iB / F31iB5		

[] Option

*1 For when B-axis is at 90° position.

*2 High-torque

*3 For φ80 mm (φ3.1 in.) bar work capacity specifications.

*4 When selecting the two-face contact tool specification, be sure to use a two-face contact tool.

*5 Tool storage capacity: 38 tools

*6 Tool storage capacity: 76 tools

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

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

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

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NTX 2000

Main Standard & Optional Features

● : Standard
○ : Option

Spindle 1		
5,000 min ⁻¹ : 22/18.5 kW (30/24.7 HP) <30 min./cont>		●
5,000 min ⁻¹ : 467 / 247 / 223 N·m (344.4 / 182.2 / 164.5 ft·lbf) <25%ED / 30 min. / cont> <High-torque>		○
4,000 min ⁻¹ : 26 / 22 kW (34.7 / 30 HP) <30 min. / cont> <Through-spindle hole diameter ϕ91 mm (ϕ3.5 in.)>		○
Tool spindle		
12,000 min ⁻¹ : 30 / 11 kW (40 / 15 HP) <10 min. / cont>		●
B-axis min. indexing increment	Full indexing specifications (0.0001°)	●
	With B-axis direct scale feedback	●
	Capto C6	●
	BT40 (Two-face contact)*1	○
Type of tool shank	HSK-A63 (T63)	○
	KM-63	○
Magazine		
Tool storage capacity	38 tools (chain-type)	●
	76 tools (chain-type)	○
	180 tools (rack-type)	○
	240 tools (rack-type)	○
Coolant		
Coolant system (Tool spindle)	800 / 1,100 W (50 / 60 Hz)	●
Through-spindle coolant system (Tool spindle)	Standard pressure (800 / 1,100 W <50 / 60 Hz>) <Center through / Side through>	●
Chip disposal		
Chip conveyor	Right discharge, Hinge type	○
	Right discharge, Hinge type + Scraper type + Drum filter type	○
Measurement		
Manual in-machine tool presetter	Spindle 1 (removable)	●
In-machine measuring system (Tool spindle)	Radio signal transmission type*2	○
Tool breakage detection system touch sensor		○
Improved accuracy		
Direct scale feedback (tool spindle)	X, Y, Z-axis	○
Automation		
Automatic power off device		●
Automatic door		○
Workpiece unloader (Headstock 2 side)		○
Gantry loader	LG-10	○
	Work stocker (Number of pallet tables: 10 / 20)	○
	Work stocker arrangement (Right)	○
	Loader system interface	○
Other		
•Built-in worklight (LED) •Leveling block •Hand tools		●
Chuck foot switch	1 foot switch	●
Signal light	4 layers (LED type Red, yellow, green, Blue)	○
Buzzer for signal light		○

●: Standard ○: Option
—: Not applicable

		NTX 2000 1500					
		T	TZ	TZM	S	SZ	SZM
Spindle 2							
5,000 min ⁻¹ : 22/18.5 kW (30/24.7 HP) <30 min./cont>		—	—	—	●	●	●
5,000 min ⁻¹ : 467 / 247 / 223 N•m (344.4 / 182.2 / 164.5 ft-lbf) <25%ED / 30 min. / cont> <High-torque>		—	—	—	○	○	○
Turret 2							
10-station bolt-tightened turret		—	●	●	—	●	●
Rotary tool spindle	10,000 min ⁻¹ : 1.5 / 1.2 kW (2 / 1.6 HP) <15%ED / cont>	—	—	●	—	—	●
Tailstock / Tailstock spindle							
Tailstock spindle	Live center specifications: MT5 ("Center" not included)	●	●	●	—	—	—
	Live center (MT5)	○*	○*	○*	—	—	—
	Built-in center: MT4 (with Center)	○	○	○	—	—	—
Measurement							
Manual in-machine tool presetter	Spindle 2 (removable)* ³	—	—	—	—	●	●
Automatic in-machine tool presetter	For tool spindle	○	—	—	○	—	—
	For tool spindle + Turret 2	—	○	○	—	○	○
Improved accuracy							
Direct scale feedback (Turret 2)	X2, Z2-axis	—	○	○	—	○	○

* DMQP (DMG MORI Qualified Products)

*1 When selecting the two-face contact tool specification, be sure to use a two-face contact tool.

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

For further details, please consult our sales representative.


*3 Not provided when the spindle 1 features the automatic in-machine tool presetter

● DMQP: Please see Page 21 for details.

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

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

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

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

<Precautions for Machine Relocation>

EXPORTATION:

All contracts are subject to export permit by the Government of Japan.
Customer shall comply with the laws and regulations of the exporting country governing the exportation or re-exportation of the Equipment, including but not limited to the Export Administration Regulations. The Equipment is subject to export restrictions imposed by Japan and other exporting countries and the Customer will not export or permit the export of the Equipment anywhere outside the exporting country without proper government authorization.
To prevent the illegal diversion of the Equipment to individuals or nations that threaten international security, it may include a "Relocation Machine Security Function" that automatically disables the Equipment if it is moved following installation.
If the Equipment is so-disabled, it can only be re-enabled by contacting DMG MORI or its distributor representative. DMG MORI and its distributor representative may refuse to re-enable the Equipment if it determines that doing so would be an unauthorized export of technology or otherwise violates applicable export restrictions.
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+ If you have any questions regarding the content, please consult our sales representative.

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

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

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

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