

DMG MORI

NT6600 DCG/3000
NT6600 DCG/4000
NT6600 DCG/6000

High-Precision, High-Efficiency Integrated Mill Turn Center

NT6600 DCG

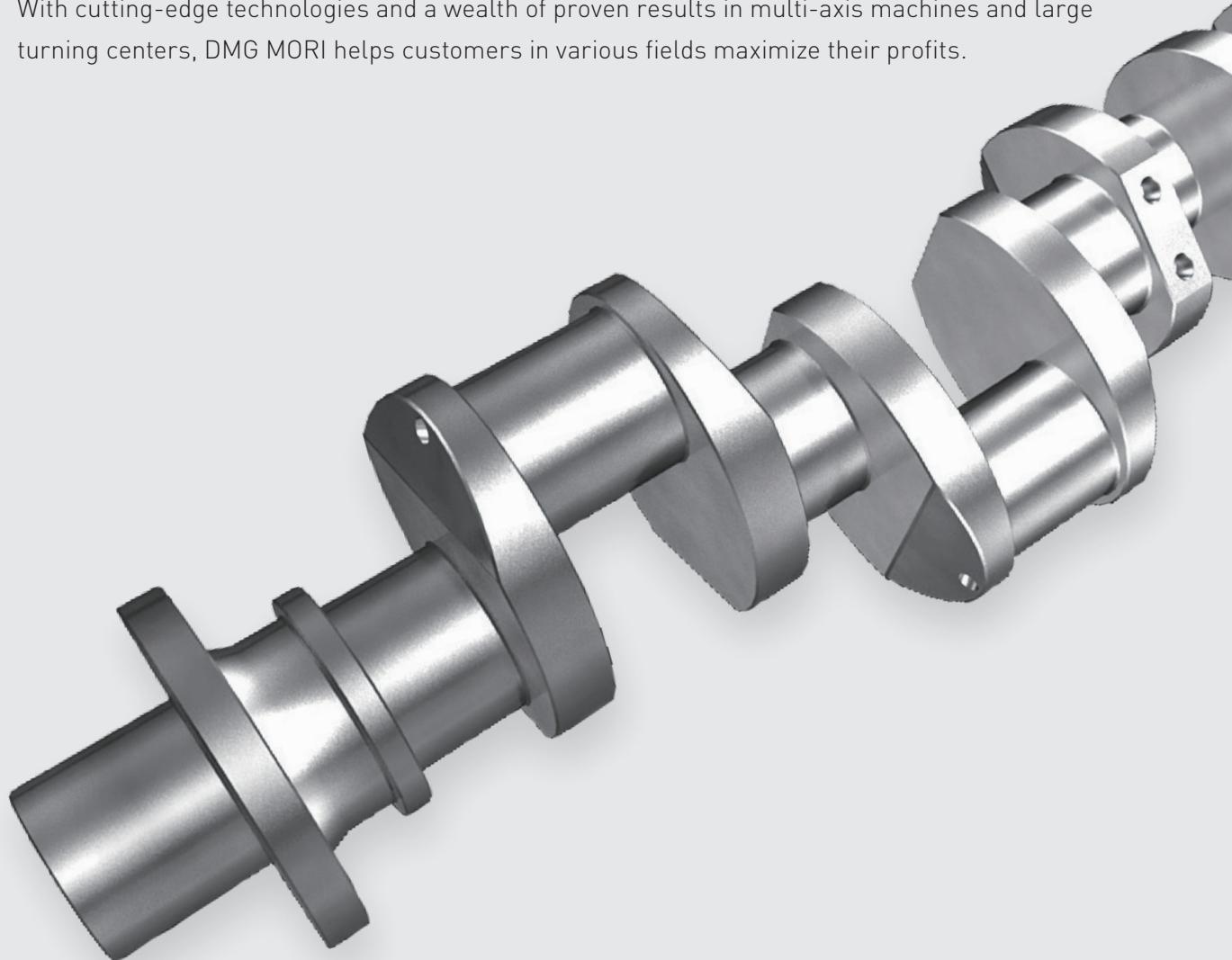


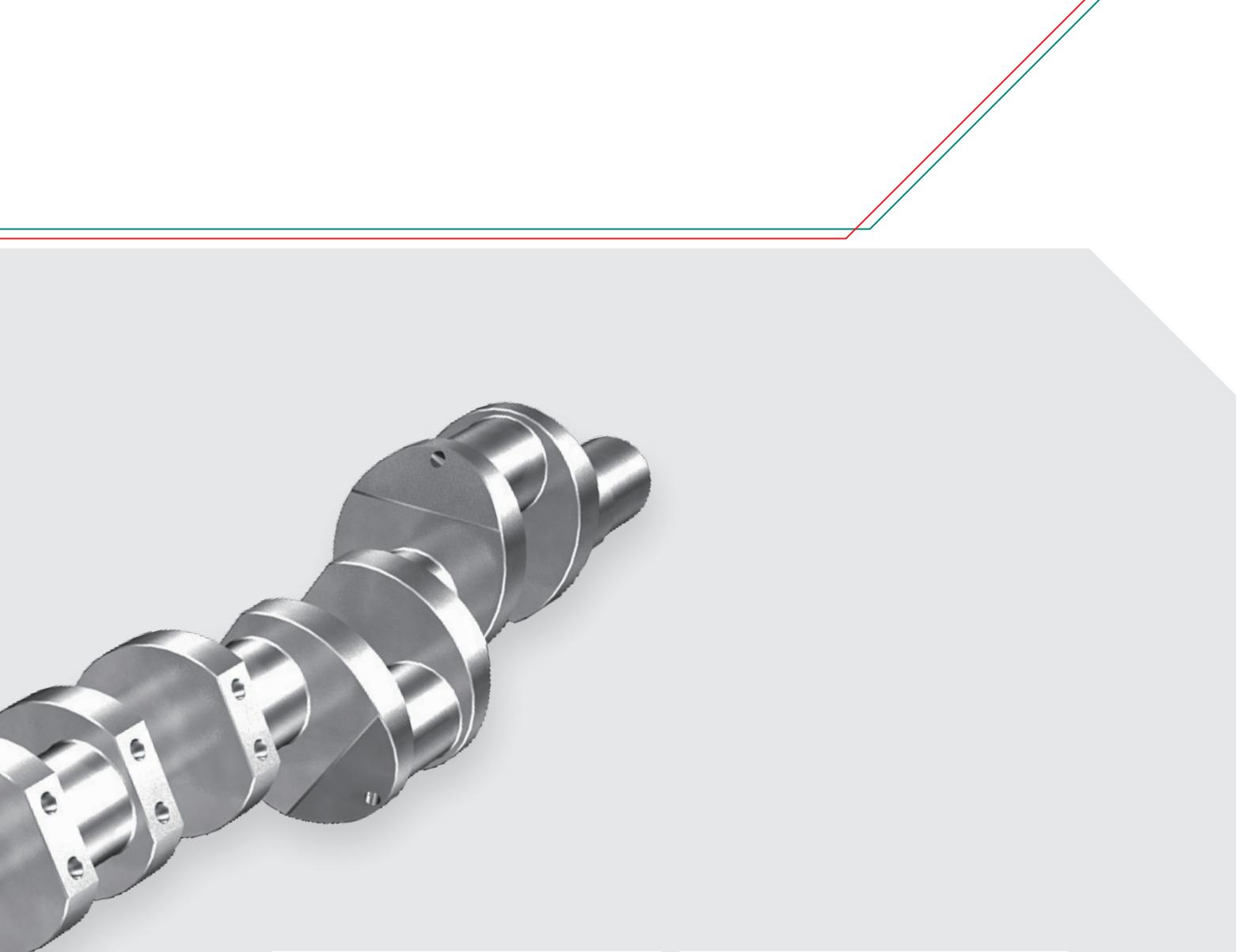
NT6600

Large Integrated Mill Turn Center for High-rigidity, High accuracy, High-value-added Machining of Long, Large Workpieces

The NT6600 achieves the complex machining process of long, large-diameter workpieces such as aircraft and ship components on one machine, taking advantage of its large spindle and a wide machining area.

With cutting-edge technologies and a wealth of proven results in multi-axis machines and large turning centers, DMG MORI helps customers in various fields maximize their profits.





Boats & Ships

- 1** Crank shaft
- 2** Crank shaft
- 3** Camshaft

Oil well

- 4** Oil well pipe

[Applications and Parts](#)[Highlights](#)[Machine and Technology](#)[Others](#)[Machine specifications](#)

NT6600

Integrated Mill Turn Center with the Largest Y-axis Travel in Its Class

In the NT series of high-precision, high-efficiency integrated mill turn centers, the NT6600 is designed specifically for long, large-diameter workpieces.

Boasting the largest Y-axis travel in the class of 660 mm (26.0 in.), the machine can handle the complex machining processes of a long workpiece in one chucking, enabling process integration. The NT6600 provides the best performance for customers seeking higher production efficiency and further cost reduction.





Simultaneous 5-axis machining

- + Simultaneous 5-axis machining of complex parts with the direct drive motor (DDM) <Option> installed in the B-axis
- + B-axis rotation range $\pm 120^\circ$

Operability

- + Movable + swivel operation panel for comfortable setups

High precision

- + High-speed, high-accuracy machining achieved by NT6600 original Box in Box structure and Driven at the Center of Gravity
- + Tool spindle: Higher cutting performance and machining accuracy with 2-face contact Capto specification
- + ORC (Octagonal Ram Construction) as a solution for heat control to ensure high-speed, high-accuracy feed

Peripherals

- + Various peripherals, including a $\phi 120 \text{ mm} \times 1,270 \text{ mm}$ ($\phi 4.7 \text{ in.} \times 50.0 \text{ in.}$) boring bar, which is the largest in its class, and a steady rest with a servo motor for significantly shortened setup times, can be mounted.

Energy-saving

- + Energy-saving settings

DDM: Direct Drive Motor
ORC: Octagonal Ram Construction

NT6600

Variations for Individual Needs

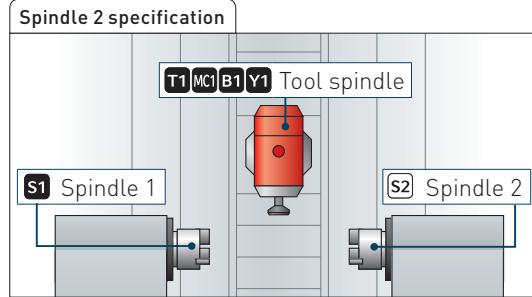
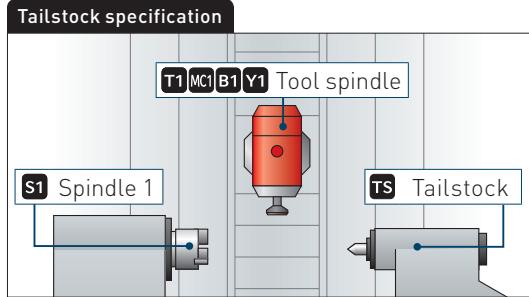
The NT6600 has three distance between centers: 3,000, 4,000 and 6,000 models, and provides "Spindle 1 + Tailstock" as standard and Spindle 2 with the same performance as Spindle 1 as an option. The $1,500 \text{ min}^{-1}$ spindle is mounted as standard and $1,000 \text{ min}^{-1}$ as an option. A steady rest suitable for long workpieces is also optionally available.

The NT6600 with extensive specification variations meets diverse needs of customers.



: Standard : Option
T1: Tool spindle **Y1**: Tool spindle Y-axis **S1**: Spindle 1
MC1: Tool spindle Milling **B1**: Tool spindle B-axis **S2**: Spindle 2
TS: Tailstock
● When spindle 2 (S2) is selected, the tailstock (TS) is not provided.

Specifications



		NT6600 DCG		
		/3000	/4000	/6000
Basic specification		T1 MC1 B1 Y1 S1 TS	T1 MC1 B1 Y1 S1 TS	T1 MC1 B1 Y1 S1 TS
Tool spindle / Spindle 1		●	●	●
Spindle 2		—	○	—
Tailstock		●	—	●
		Tool spindle	Spindle 1 / Spindle 2 (Option)	
		Z-axis travel	Through-spindle hole diameter φ185 mm (φ7.2 in.)	Through-spindle hole diameter φ275 mm (φ10.8 in.)
NT6600 DCG		3,150 mm (124.0 in.)	●	○
/3000		4,150 mm (163.3 in.)	●	○
/4000		6,150 mm (242.1 in.)	●	○
/6000				

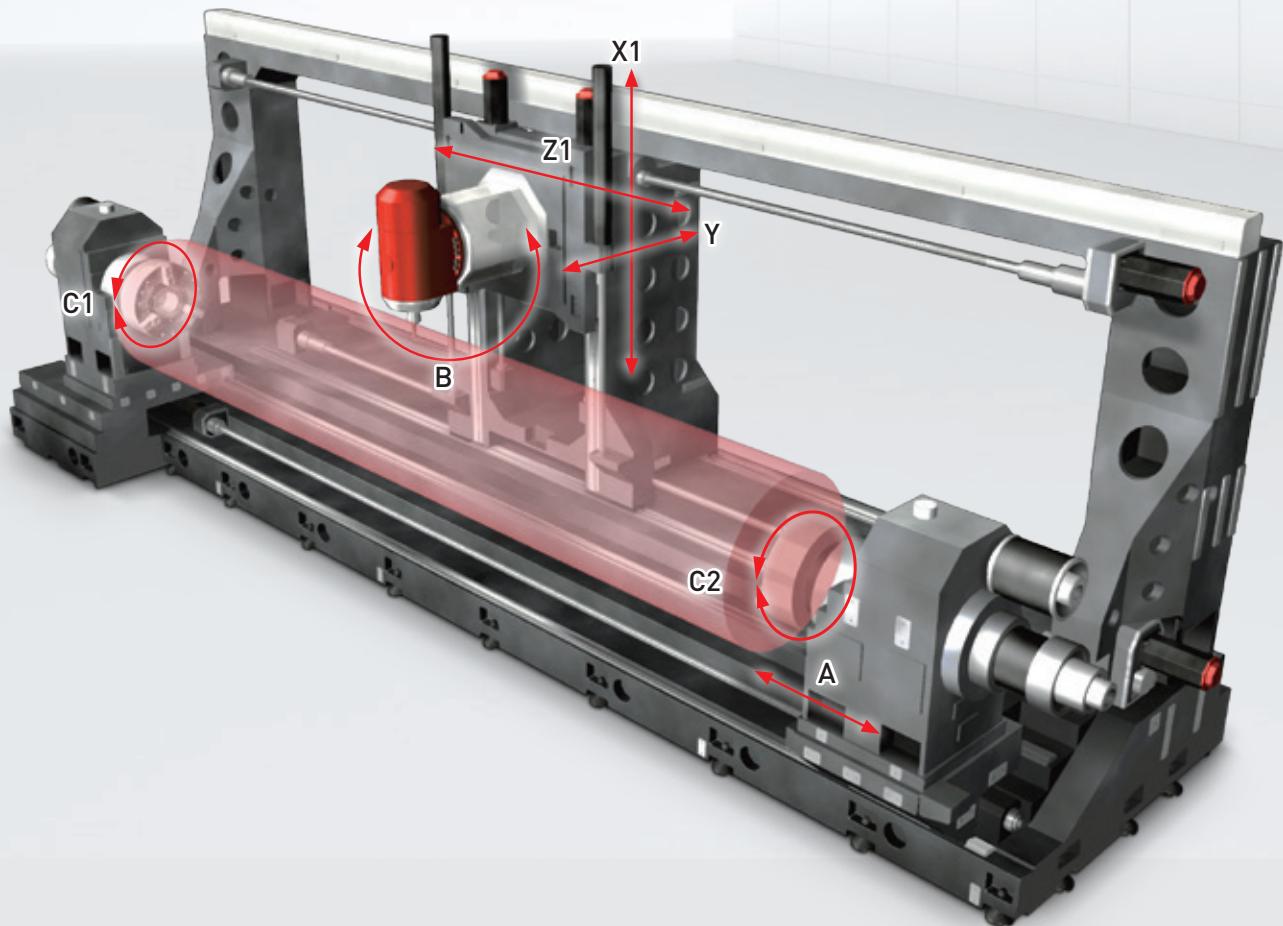
●: Standard ○: Option —: Not applicable



NT6600

For Varieties of Workpieces

The NT 6600 has specifications specialized for large-diameter workpieces in addition to a variety of options to answer customers' specific needs.



- + Spindle 2 specification: 1,500 min⁻¹ or 1,000 min⁻¹ can be selected for Spindle 2.
- + Tailstock specification: Tailstock comes with the MT5 built-in center as standard, and can employ MT6 as an option.
- + Standard chuck sizes: 18, 21, 24 inches

Travel

		NT6600		
		/3000	/4000	/6000
Tool spindle	X1-axis	mm (in.)	1,040 (40.9) <1,000 (39.3) + 40 (1.5)>	
	Y-axis	mm (in.)	$\pm 330 (\pm 12.9)$ +330 [+12.9] -280 [-11.0] (Long boring bar specifications)	
	Z1-axis	mm (in.)	3,150 (124.0)	4,150 (163.3)
	B-axis			$\pm 120^\circ$
Max. turning diameter	mm (in.)		1,070 (42.1)	
Max. turning length	mm (in.)	3,076 (121.1)	4,076 (160.4)	6,076 (239.2)

Max. workpiece mass

NT6600 /3000 • /4000 • /6000		
Through-spindle hole diameter	$\phi 185$ mm ($\phi 7.2$ in.) <Standard>	$\phi 275$ mm ($\phi 10.8$ in.) <Option>
Spindle 2 specification (Both-end chucking)	kg (lb.)	3,500 (7,700) 7,000 (15,400)
Tailstock specification (Both-end supporting)	MT5 kg (lb.)	2,090 (4,598) 3,900 (8,580)
	MT6 kg (lb.)	2,140 (4,708) 4,080 (8,976)

Tool spindle

NT6600 /3000 • /4000 • /6000		
Max. tool spindle speed	min ⁻¹	8,000
Taper hole of tool spindle		Capto C8, BT50 ^{*1} , CAT50, HSK- A100 (T100)
Tool storage capacity		50, 100, 140

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

Spindle 1 / Spindle 2 (Option)

NT6600 /3000 • /4000 • /6000		
Through-spindle hole diameter	$\phi 185$ mm ($\phi 7.2$ in.) <Standard>	$\phi 275$ mm ($\phi 10.8$ in.) <Option>
Max. spindle speed	min ⁻¹	1,500 1,000
Spindle nose		JIS A ₂ -15 JIS A-20
Spindle torque	Low speed N•m	3,254 / 2,386 [2,400.0 / 1,759.8] <25%ED / cont> 6,784 / 5,574 [5,003.6 / 4,111.2] <30 min / cont>
	High speed N•m	1,447 / 1,061 [1,067.2 / 782.6] <25%ED / cont> 3,016 / 2,481 [2,224.5 / 1,829.9] <30 min / cont>

Tailstock

NT6600 /3000 • /4000 • /6000		
Tailstock spindle diameter	mm (in.)	150 (5.9), 180 (7.1)
Taper hole of tailstock spindle		MT5, MT6 (Built-in)
Tailstock spindle travel	mm (in.)	150 (5.9)

NT6600

High-rigidity Structure for High Accuracy

High rigidity is essential to achieve the cutting capability, high-accuracy and high productivity expected of integrated mill turn centers. The machine structure of the NT6600 was developed with DMG MORI original technologies to fully demonstrate outstanding performance of turning centers and machining centers. The model equipped with high rigidity ensures a high level of cutting capability and machining accuracy for a long time.

Increased ball screw rigidity

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

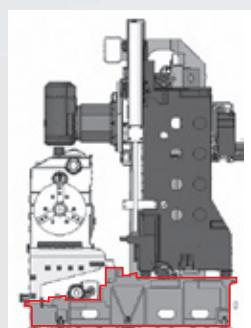
In-house manufactured high-rigidity spindles

- + Highly reliable spindles with controlled thermal displacement
- + Beltless drive with the built-in motor
- + High output and high torque through gears

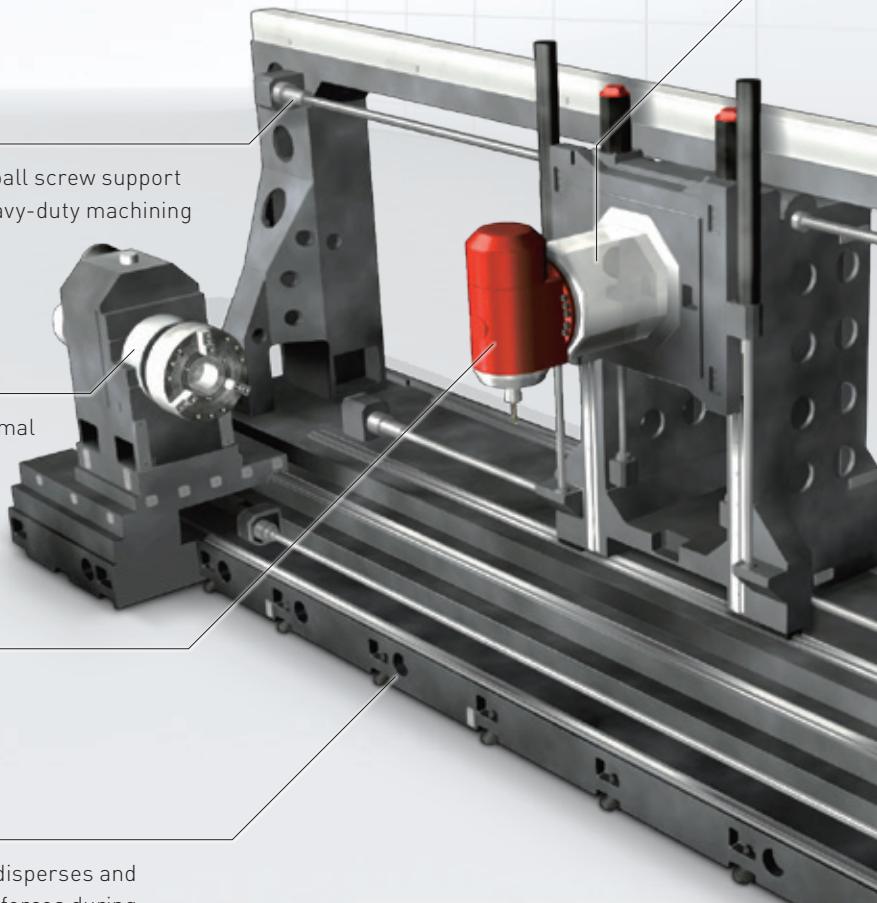
Powerful tool spindle

- + Powerful clamping with hydraulic pressure, 1-degree indexing B-axis

High-rigidity flat bed



- + A flat bed evenly disperses and absorbs reaction forces during machining, without any distortion.



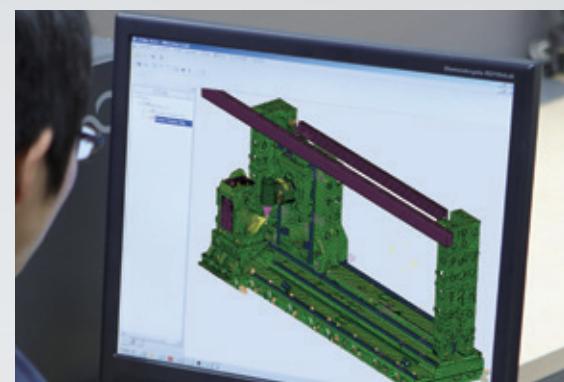
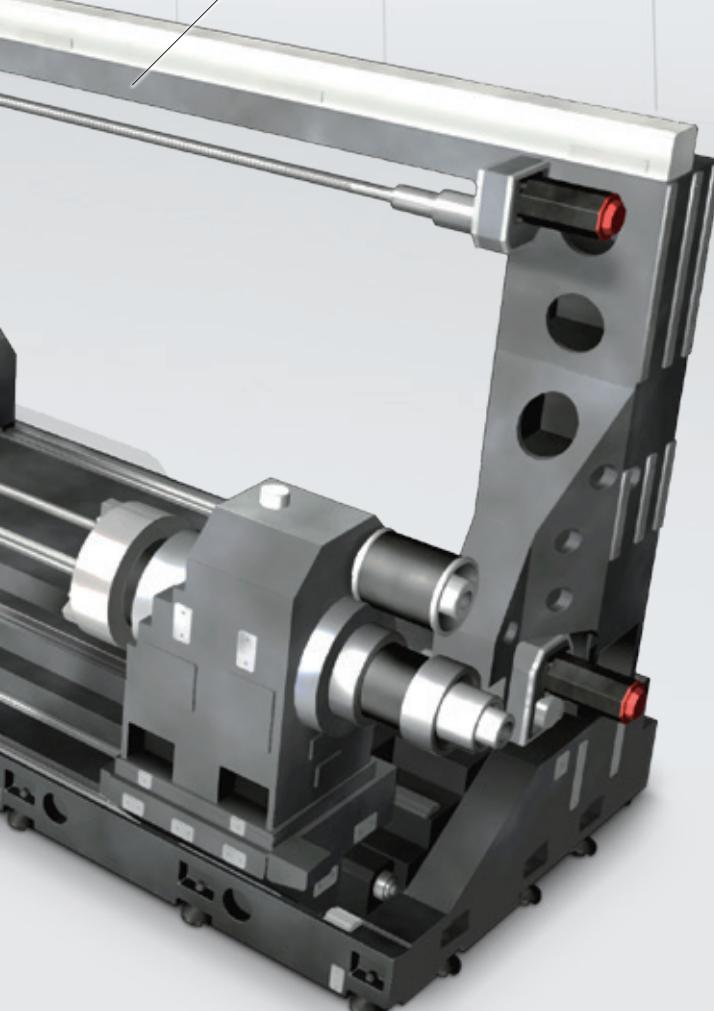
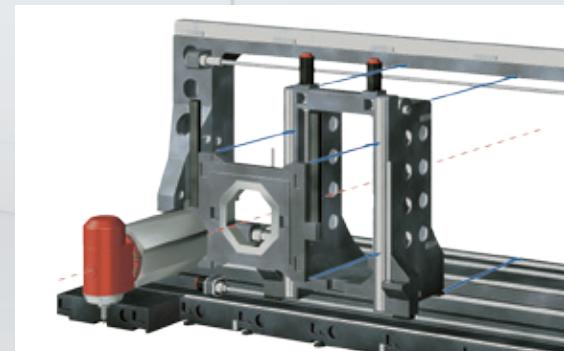
Octagonal Ram Construction

- + Control thermal displacement for outstanding straightness



Box-in-Box Construction

- + Support the tool spindle saddle at both ends so that the center of gravity of the moving parts is guided with excellent balance, which leads to high speed and high acceleration.



FEM analysis

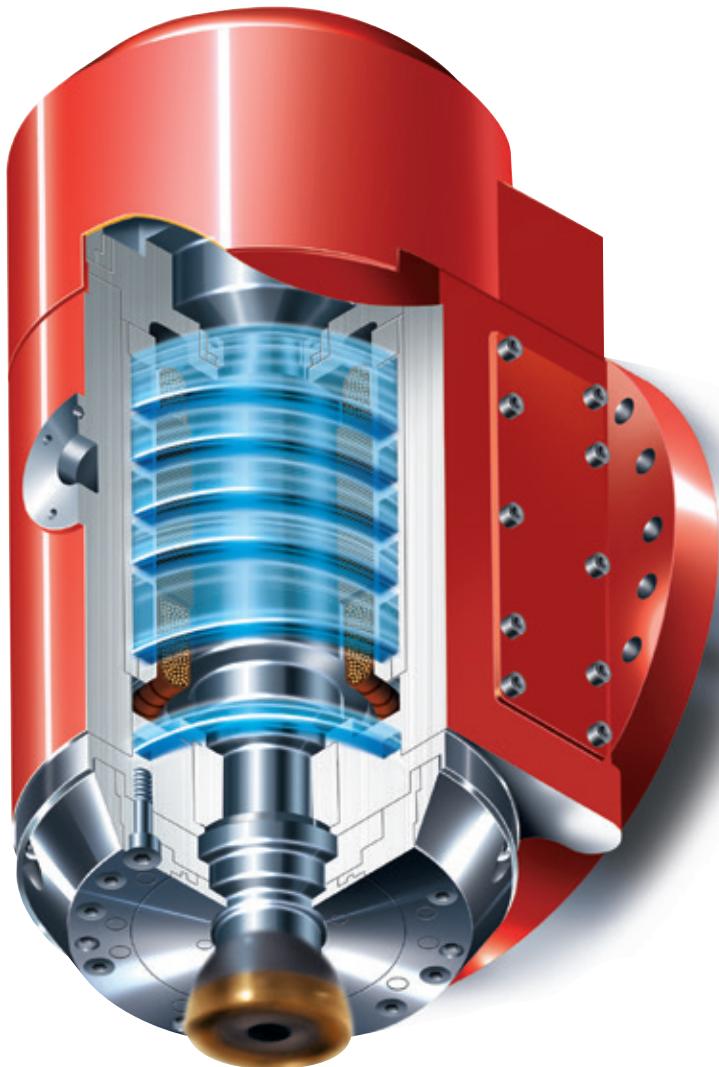
- + Simulation of structural deformation at the time of load application
- + Fine adjustment to every part, including the thickness of the bed, the shape and layout of the ribs, to achieve a high level of flexural rigidity

FEM: Finite Element Method

NT6600

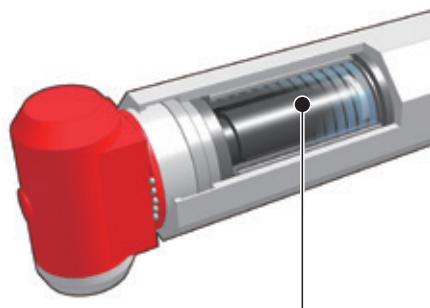
Reliable Components to Support High Accuracy

Thermal displacement has a great impact on machining accuracy. The major factors causing thermal displacement include heat generation during machining operation, ambient temperature changes and coolant temperature rises. DMG MORI thoroughly examines each of these factors from every angle, and takes original and comprehensive measures to control thermal displacement. For the spindle motor, which is the largest heat source, and the tool spindle, an oil jacket is spirally arranged all over the spindle to suppress temperature rise in the spindle.



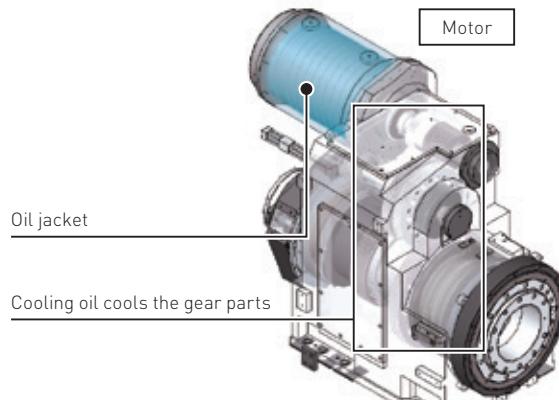
Cooling of tool spindle

Oil jackets spirally arranged around the tool spindle unit and the DDM (Direct Drive Motor) in the B-axis unit suppress temperature rises.



Spindle cooling

Oil jackets placed around the motors of Spindle 1 and Spindle 2 [option] control thermal displacement. Cooling oil circulated in the gears releases heat to help minimize thermal displacement.



Ball screw core cooling

The ball screw core cooling system controls temperature rise in ball screws. Cooling oil is circulated inside the hole at the center of ball screws to control heat generation.

The cooling oil is also circulated inside the motor base to prevent motor heat from transmitting to machine casting bodies.



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.

13

Full closed loop control <Scale feedback> (Option)



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

- + Superior precision with the Magnescale full closed loop control (Scale feedback)
- + High-resolution, magnetic measuring system
- + Resistance to oil and condensation due to a magnetic detection principle
- + Impact resistance of 450 m/s² (17,716.5 in./s²)
- + Vibration resistance of 250 m/s² (9,842.5 in./s²)
- + Thermal expansion coefficient as cast iron

NT6600

Best Machining Quality with High-accuracy, High-rigidity Spindle

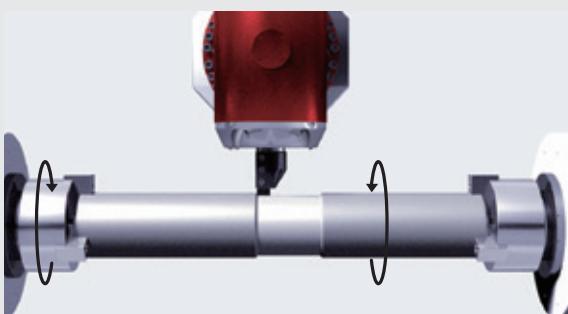
The machine provides two maximum spindle speeds: 1,500 min⁻¹ for the through-spindle hole diameter of 185 mm (7.2 in.) as standard, and 1,000 min⁻¹ for the through-spindle hole diameter of 275 mm (10.8 in.) as an option, to handle heavy-duty cutting of large workpieces.

As optional features for long workpiece machining, one steady rest can be mounted on the distance between centers 3000 and 4000 models, and up to two steady rests on the 6000 model.

- + Simultaneous operation of Spindle 1 and Spindle 2 <Spindle 2 specification>
- + 2 types of spindle noses: JIS A₂-15 for the through-spindle hole diameter 185 mm (7.2 in.), and JIS A₁-20 for the through-spindle hole diameter 275 mm (10.8 in.)

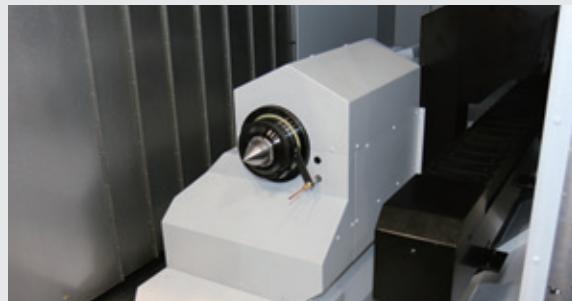
Simultaneous operation of Spindle 1 and Spindle 2 <Spindle 2 specification> (Option)

Milling and turning can be simultaneously done on Spindle 1 and Spindle 2, which ensures accurate machining of long and narrow workpieces. As workpieces can be transferred between the spindles, the transfer to the next process is easily done, achieving higher machining efficiency.



Programmable tailstock <Tailstock specification>

The tailstock, which enables flexible positioning to a desired point, achieves quick workpiece setup regardless of workpiece length. The built-in tailstock spindle is employed for stable machining of long, large workpieces.



Steady rest (Option)

Servo motor is employed for the Z-axis.

●: Standard ○: Option —: Not applicable

Number of steady rests	Without	NT6600		
		/3000	/4000	/6000
1		●	—	—
2		○	—	○

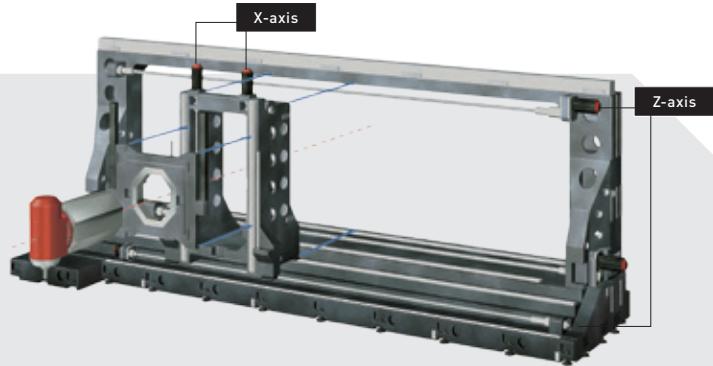


NT6600

Powerful Tool Spindle with Wide Travel

The tool spindle, which moves in the X-, Y-, Z- and B-axis direction, can easily approach the complex machining surface of a long, large-diameter workpiece. The B-axis employs DDM (Direct Drive Motor) to achieve complex machining at high speed with high accuracy. Additionally, the use of the optional long boring bar makes it possible to carry out various machining operations, from heavy-duty cutting of large-diameter workpieces to deep boring of long workpieces and precise machining, in one chucking, facilitating process integration.

- + Direct drive spindle (DDS) used for the tool spindle
- + Max. tool spindle speed: 8,000 min⁻¹
- + B-axis driven by a direct drive motor <DDM> (Option)
- + Various two-face contact tool specifications: Capto C8, BT50, CAT50, HSK-A100 (T100)
- + Tool storage capacity: 50, 100, 140 tools



Driven at the Center of Gravity

The machine body is driven at the center of gravity to control vibration, the biggest barrier to high-speed, high accuracy machining.



Effects of DCG

- + Improved surface quality
- + Outstanding acceleration
- + Improved roundness
- + Longer tool life

Residual vibration comparison



DCG: Driven at the Center of Gravity

A revolutionary structure which controls thermal displacement and offers outstanding straightness

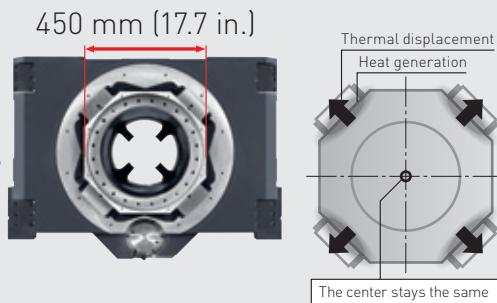
The 4 guideways are located diagonally from each other, so they distort symmetrically in response to the heat generated by high-speed travel. This means that the center stays in the same position, offering high-speed, high-precision feed.



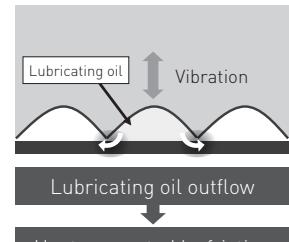
Effects of ORC

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

ORC: Octagonal Ram Construction



Square guides' excellent damping characteristics



Lubricating oil outflow
The lubricating oil in the oil pockets which were made by scraping is forced in and out through the gaps because of the contact pressure caused by vibration, generating heat.
||
Vibration is reduced by converting vibrational energy into heat energy. This helps control chattering caused by vibration.

Zero backlash achieved by the world's fastest class Direct Drive Motor (Option)

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.



B-axis indexing time (90°)

0.55 sec.

● Indexing time: Excluding clamping and unclamping time

Effects of DDM

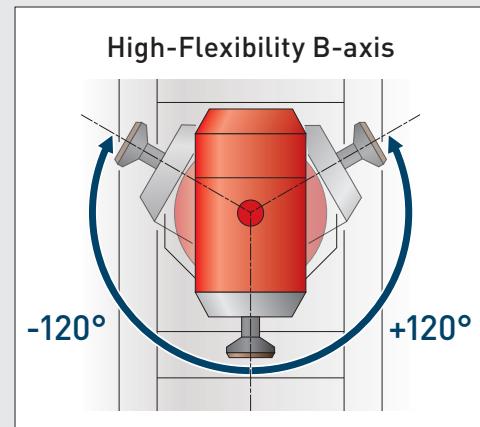
- + High-speed rotation
- + High-precision indexing
- + Less maintenance
- + Longer product life

B-axis rotation range

±120°

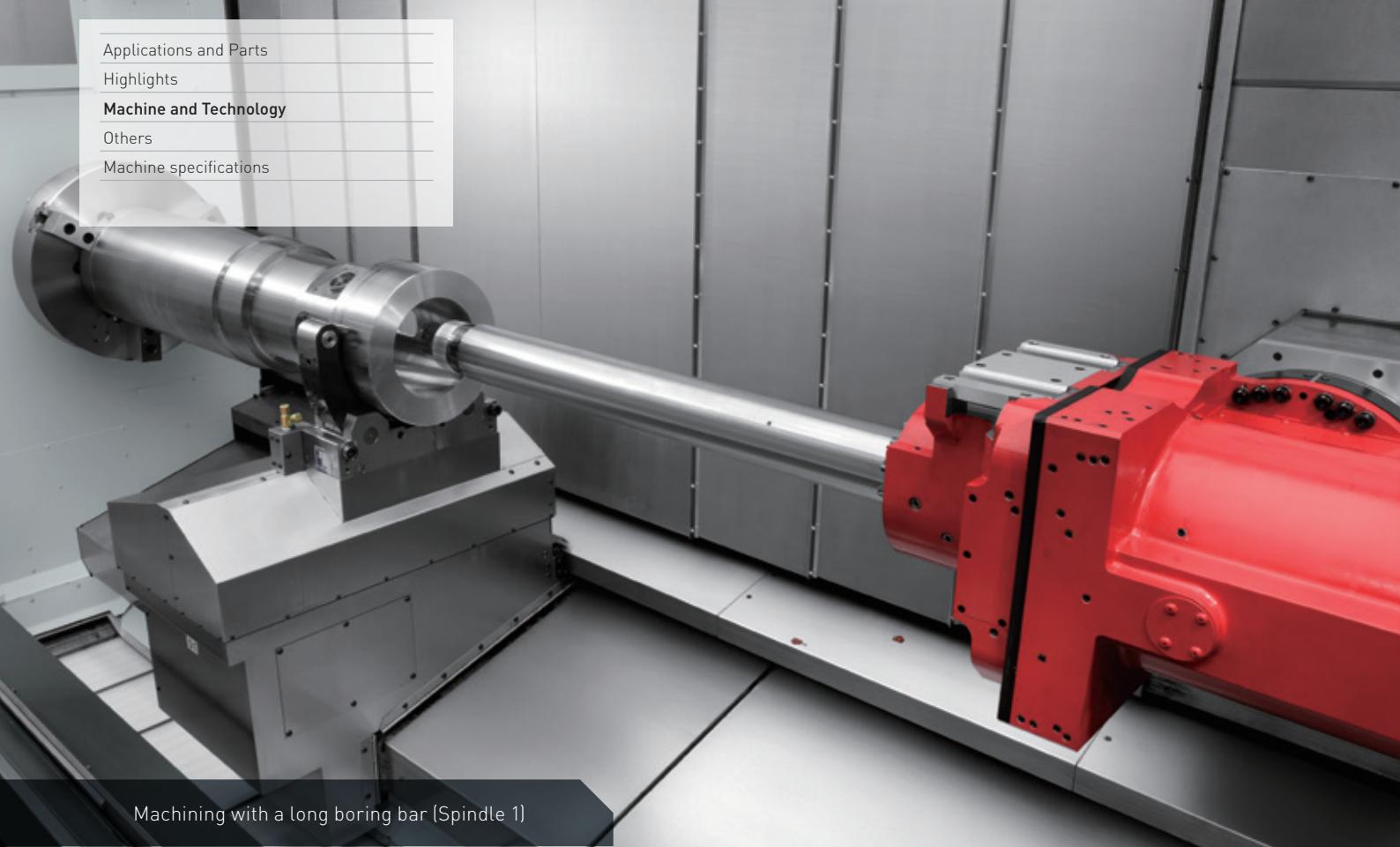
Min. indexing increment

0.0001°



DDM: Direct Drive Motor

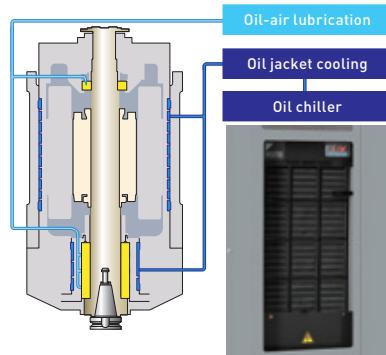
● Full indexing specification B-axis: with the F31iB, up to four axes can be controlled simultaneously. For simultaneous 5-axis control, please use the F31iB5.



Machining with a long boring bar (Spindle 1)

Tool spindle lubrication

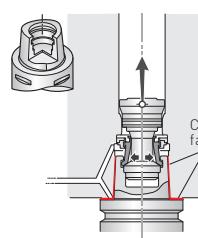
An oil-air lubrication method is used for spindle lubrication. As well as minimizing the amount of lubricant used for reducing the resistance to stirring, this prevents dust infiltration by using the air purge. Also, the oil jacket cooling system controls thermal displacement.



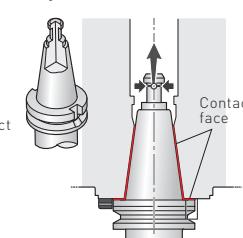
Two-face contact specification

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.

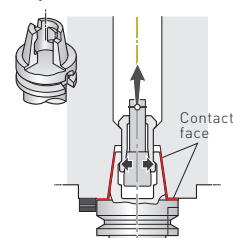
Capto Specifications



BT Specifications (Option)

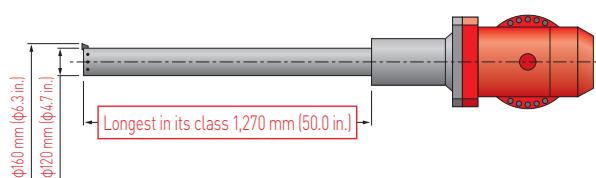


HSK Specifications (Option)

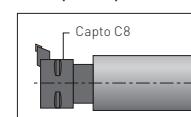


- When selecting the two-face contact tool specification, be sure to use a two-face contact tool.
- DMG MORI builds all the spindles in house.

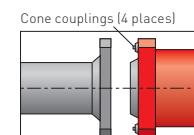
Long boring bar (Option)



Tool-tip ATC specifications

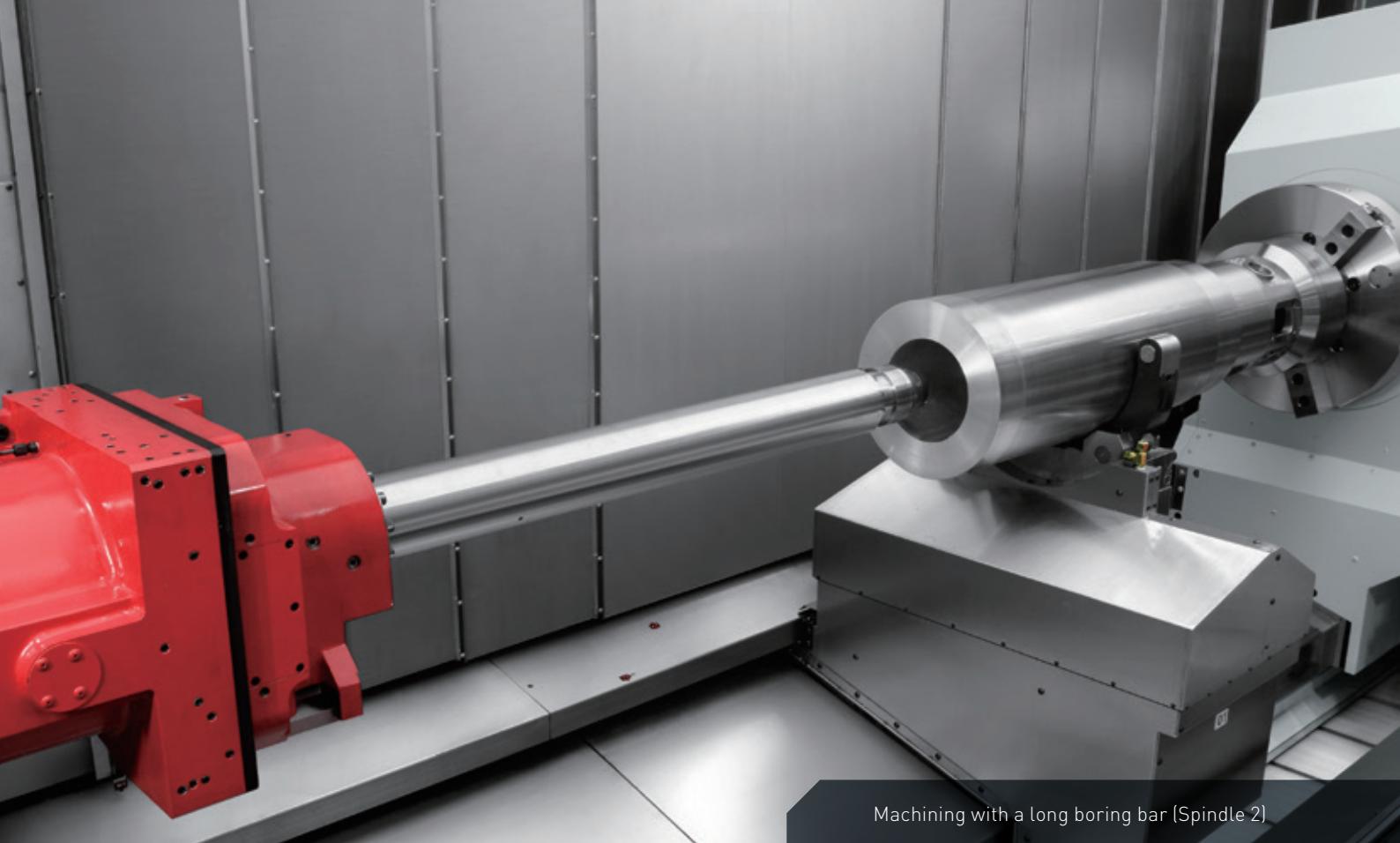


※ Only available with Capto C8.



Uses a cone coupling clamping system

- Long boring bar with a diameter of 120 mm (4.7 in.) cannot be arranged by customers. Please consult with our sales representative for details.
- Separate consultation is required when the specification for machining with a long boring bar on the Spindle 2 side is selected.

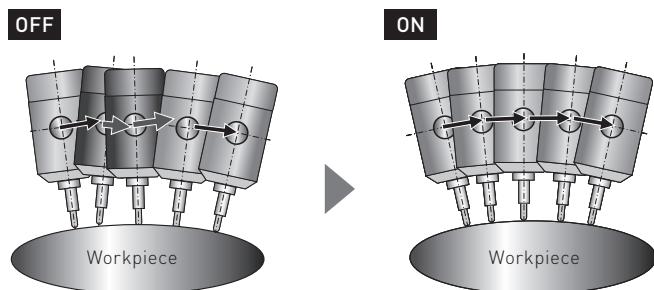


Machining with a long boring bar (Spindle 2)

SVC function <Equipped as standard on F31iB5 only>

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



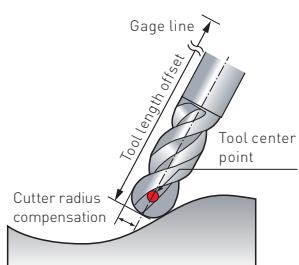
SVC: Smooth Velocity Control

19

The SVC function includes the following functions.

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

Tool center point (TCP) control <Equipped as standard on F31iB5 only>



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.

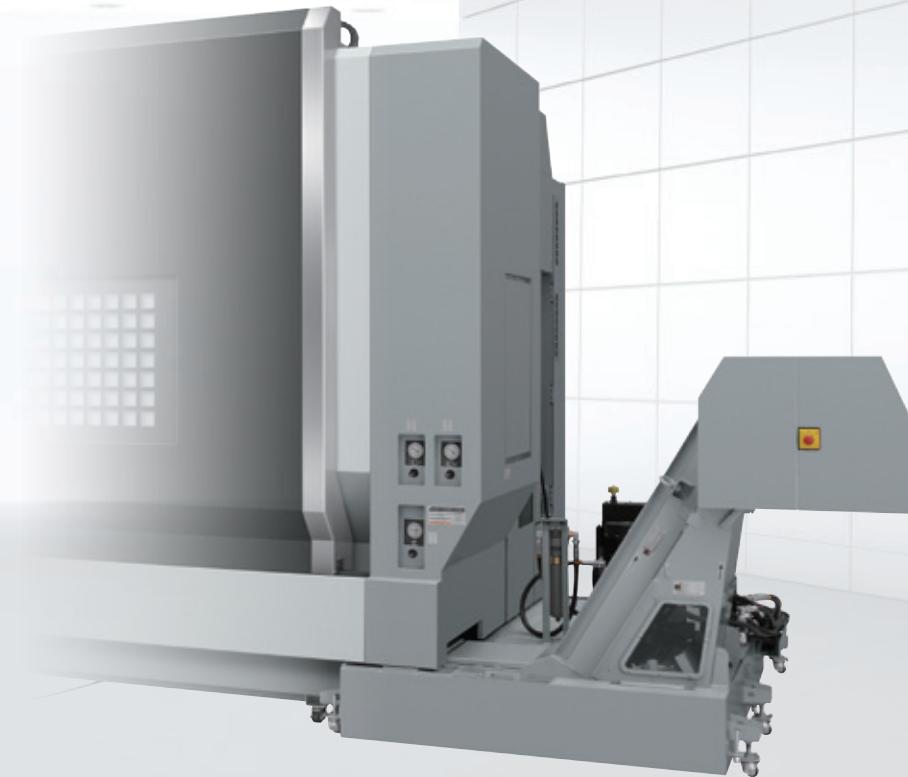
NT6600

Cutting-edge Chip Disposal Solution

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.



Chip conveyor (Option)

- + Provides highly efficient chip disposal

Workpiece material and chip size		
	Steel	20 mm [0.8 in.]
Long	○	
Short	○	
Powdery	△*	—

Hinge type + Drum filter type

Hinge type

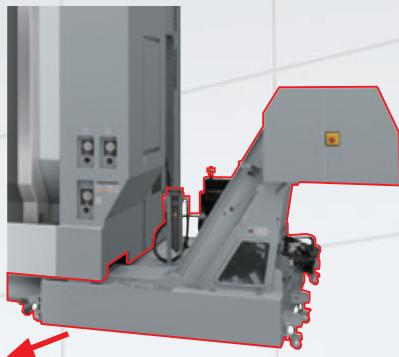
* Depending on chip size, chips may pass through the filter and the conveyor and accumulate in the coolant tank.
Due to possible effect on machining accuracy, a second filtration device may need to be considered.

● Please consult our sales representative if the chip length exceeds 200 mm (7.9 in.).

● [Chip size criteria] Powdery: minute particles / Short: 50 mm (2.0 in.) or less in length, $\phi 40$ mm ($\phi 1.6$ in.) or less in diameter [a lump of chips] / Long: over 50 mm (2.0 in.)

Coolant tank

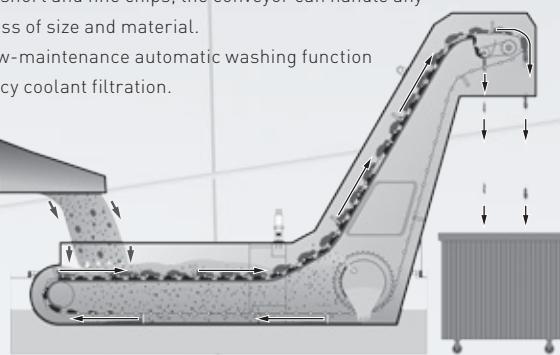
The coolant tank can be pulled out to the front, minimizing the space for maintenance.



Handling of different types of chips and coolant filtration (Option)

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.

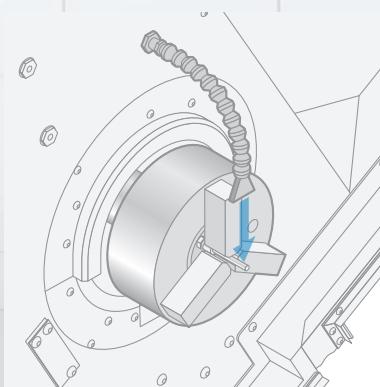
The filter with the low-maintenance automatic washing function ensures high accuracy coolant filtration.



Hinge type + Drum filter type chip conveyor

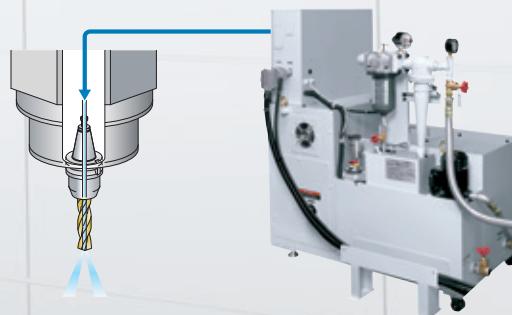
Coolant in upper part of chuck

Coolant supplied from above the chuck removes chips and minimizes heat generation in the workpiece.



Through-spindle coolant system (Super-high pressure coolant system)

The through-spindle coolant system supplies coolant to the tool tip through the through-hole of the tool spindle and tool. It is effective in eliminating chips, cooling the machining point and lengthening the lives of your tools.



Discharge pressure: 3.5 MPa (507.5 psi), 7.0 MPa (1,015 psi)

○: Suitable △: Consideration required —: Not suitable

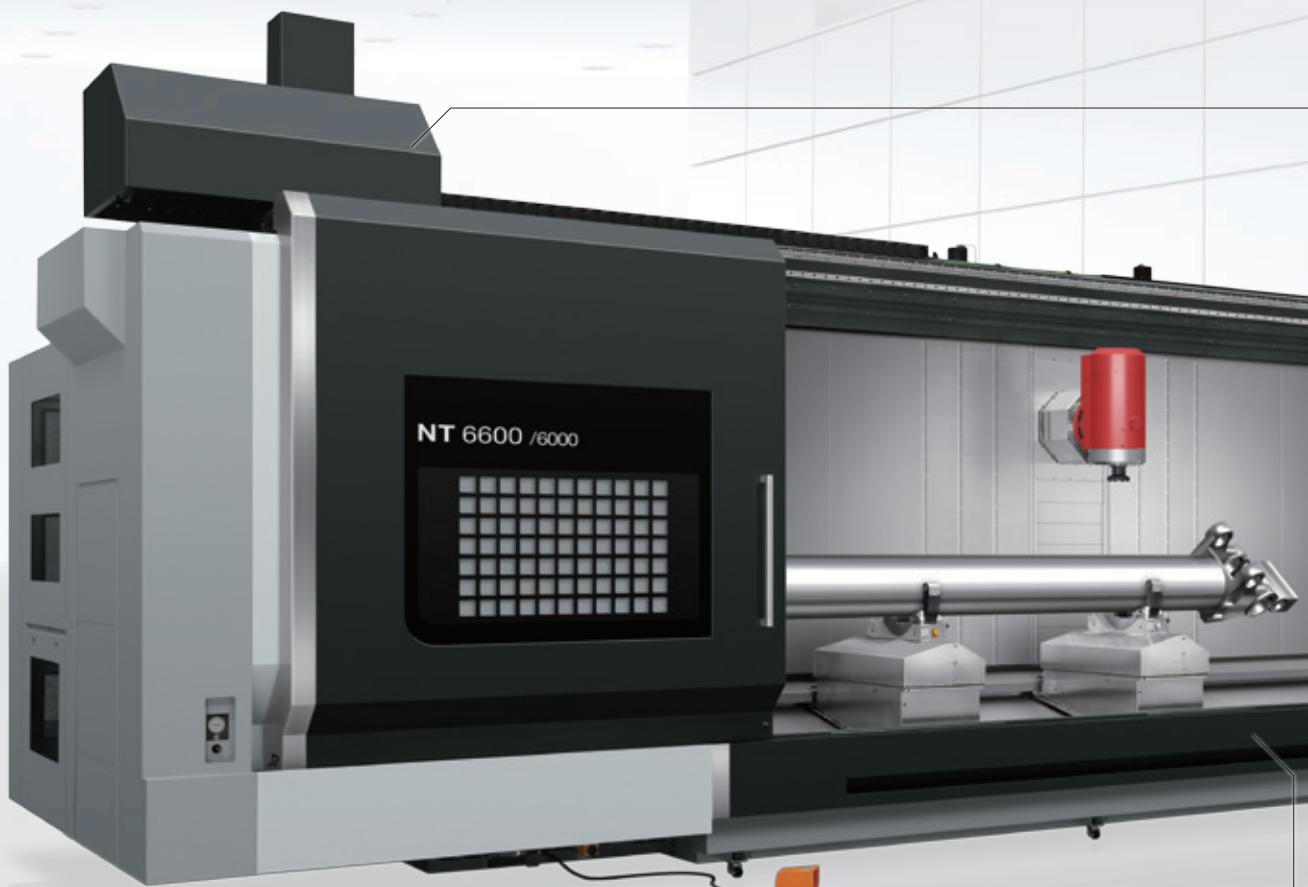
Workpiece material and chip size				
Cast iron		Aluminum, non-ferrous metal		
Short	Powdery	Long	Short	Powdery
○	△*	○	○	△*

- 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.

NT6600

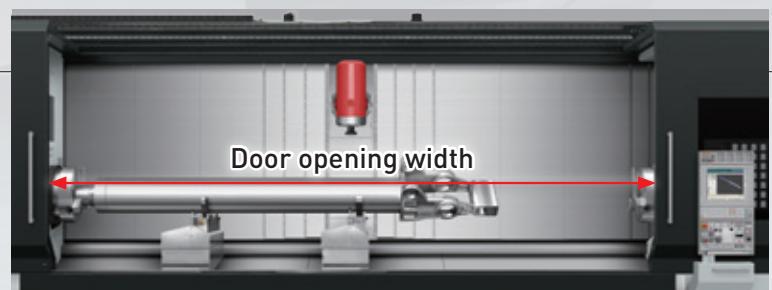
Design with Superior Usability

The NT6600 is designed with a focus on accessibility to the spindle and visibility of work area. The models contrive ways to increase maintainability, for example, by collectively arranging the hydraulic unit and other equipment at an easy-to-access place.



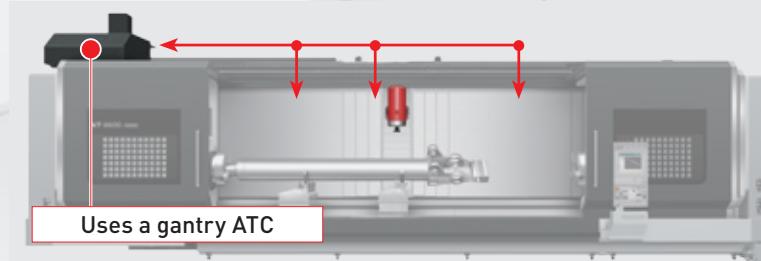
Door opening width

NT6600 DCG		
/3000	/4000	/6000
3,100 mm (122.0 in.)	4,100 mm (161.4 in.)	6,100 mm (240.2 in.)

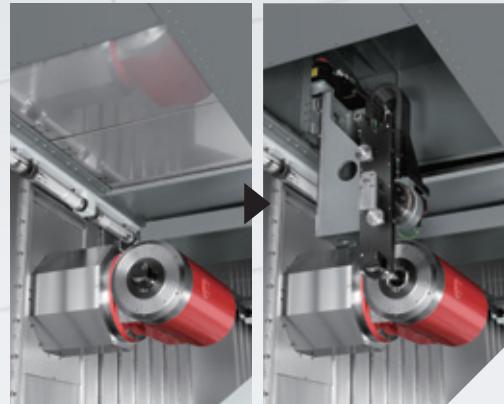


ATC, Magazine

ATC position

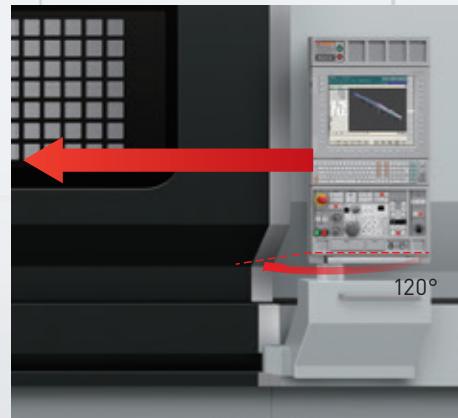


During tool change with the Gantry ATC



	/3000	/4000	/6000
ATC position	Places	1	2
Tool storage capacity	50, 100, 140		

Movable + Swivel-type operation panel



The operation panel moves from side to side, so that it is always close to the operator during setups.

Easy-to-access Units & Devices



Equipment that requires daily and / or regular inspection is placed at one place. The supply port of lubricating oil is arranged at the lower part of the machine for easy oil supply.

Machine side

NT6600



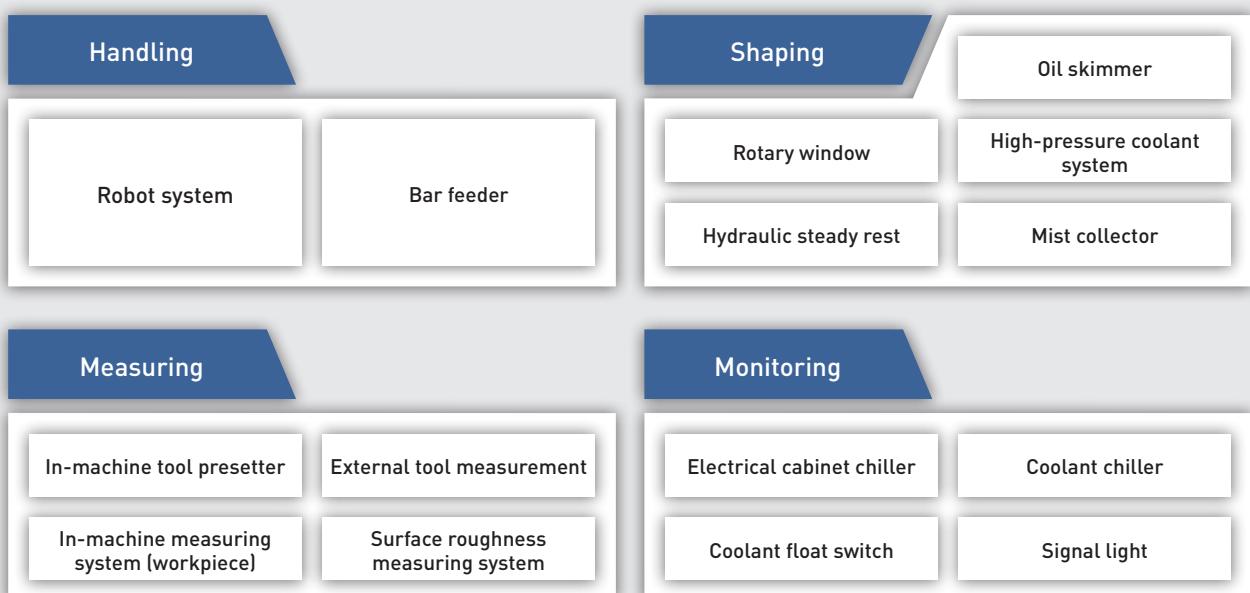
DMG MORI Qualified Products One-stop Service for Various Needs

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.

- + 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



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

Hydraulic steady rest



In-machine measuring system (Workpiece)



Mist collector



Super-high pressure coolant system



External chip conveyor



Coolant flow switch



Air dryer



Air compressor



Oil skimmer



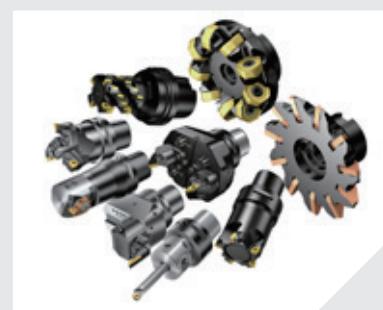
Rotary window



Tool cabinet



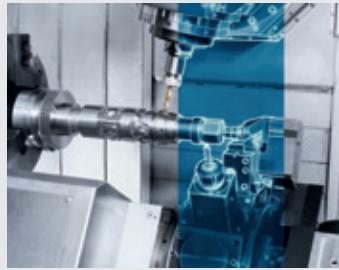
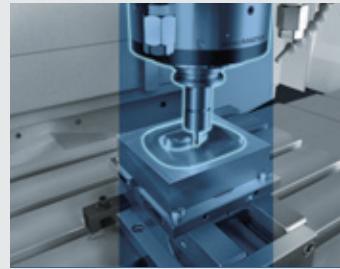
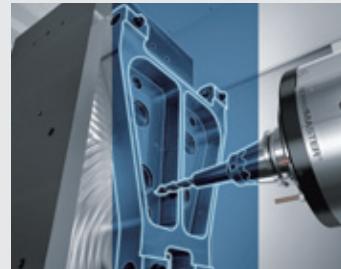
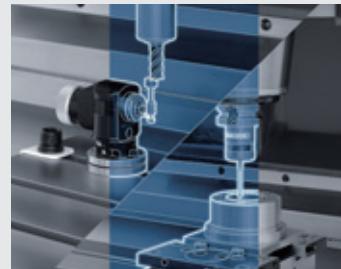
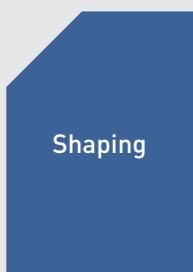
Cutting tools



NT6600

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.



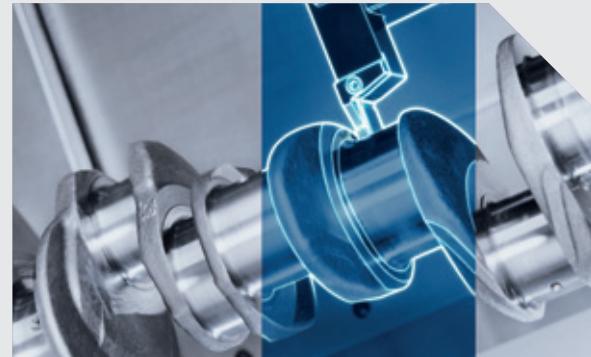
- The availability of the functions differ depending on the machine. For details, please consult our sales representative.
- The above is an image picture.

Multi-threading



Cutting special thread

Excentric machining



Easy programming of excentric machining

Gear hobbing



Integrating process of gear cutting machines

Alternating speed



Stable machining in which chatter hardly occurs

27

Counter spindle tip



Mounting tailstock on Spindle 2

Interpolation turning



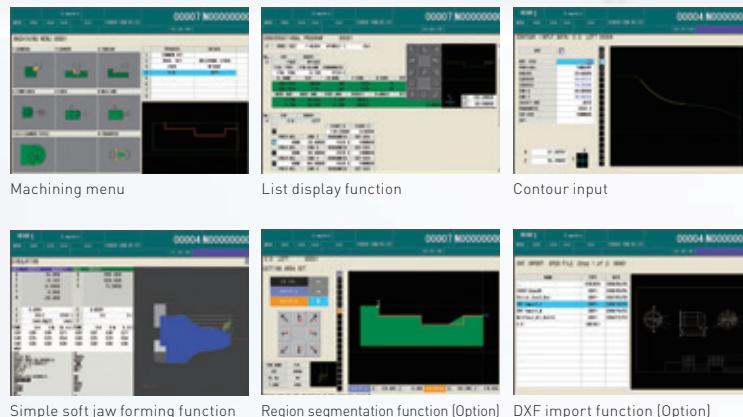
Easy programming of interpolation turning

NT6600

High-Performance Operation System MAPPS IV

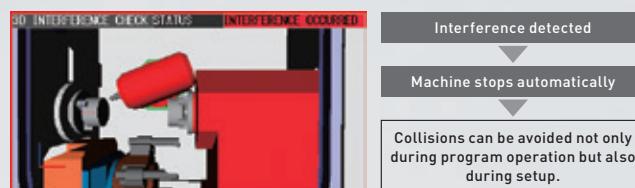
High-performance operation system that pursues ease of use, and combines the best hardware in the industry with the advanced application / network systems.

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.

3D interference checking function



Interference between items such as the spindle, workpiece, soft jaw, tool and turret can be checked in 3D. If interference is detected, the machine will stop operation regardless of whether it is in the automatic or manual mode, providing the highest level of protection against interference.

- The 3D interference checking function will check for interference accurately as long as the 3D model exactly matches the actual configuration of the spindles, workpieces, soft jaws, tools, holders and turrets.
- Customized design is required for special shape.
- A cutting simulation that shows how material is removed as machining proceeds cannot be carried out during a 3D interference check.

Fixed-point in-machine camera (Option)



Images taken by cameras installed inside / outside the machine can be viewed on the programming screen. This function is useful for maintenance.

Examples of camera locations

- + Inside machine (to check machining)
- + Tool magazine (to check cutting tools)
- + Chip bucket (to check chip accumulation)



MAPPS: Mori Advanced Programming Production System

- + Outstanding operability thanks to upgraded hardware
- + High-performance functions for easier setup and maintenance
- + Various types of monitoring, including internal monitoring, are possible on the screen (Option)
- + In the event of trouble, DMG MORI's remote maintenance service solves it smoothly

29

Outstanding operability

- | | |
|----------------------|---|
| + Vertical soft-keys | : Vertical soft-keys are arranged on the left and right sides of the screen. The vertical soft-keys can be used as option buttons or shortcut keys to which you can assign your desired screens and functions, allowing you to quickly display the screen you want. |
| + Keyboard | : A PC-type keyboard is used as standard, making key input easy. A keyboard with a conventional key layout is also available as an option. |

NT6600

Reduction in Environmental Burden

To conserve limited resources and protect global environment.

The NT6600 pursues a high “environmental performance” that is required of machine tools.

Power-saving function



Power consumption is reduced while operating the machine efficiently.

Automatic machine light function

If the operation panel is not touched for a certain amount of time, the interior light automatically turns off. This saves energy and lengthens the life of the machine lights.

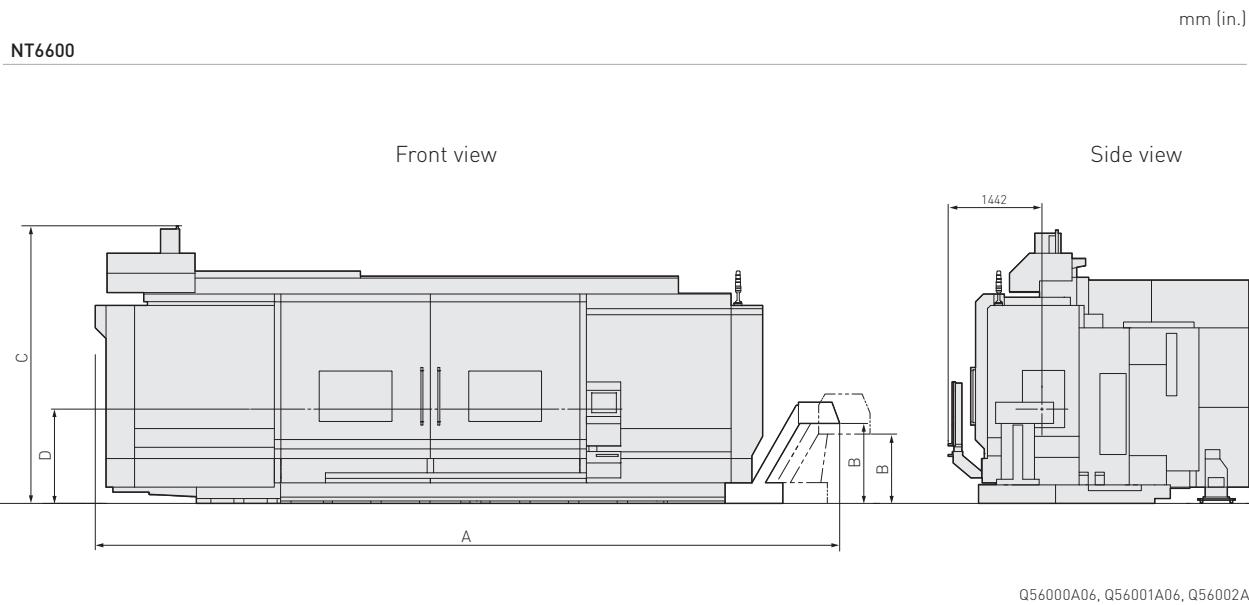
Automatic sleep function

If the keyboard is not touched after 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.



NT6600

Machine size



NT6600 DCG/3000			
	Hinge type	Hinge type + Scraper type + Drum filter type	
A Machine width (Including a chip conveyor)	mm (in.)	10,450 (411.4), 10,780 (424.4) <EN type>	10,917 (429.8), 11,147 (438.9) <EN type>
B Discharge height of chip conveyor	mm (in.)	1,230 (48.4), 1,252 (49.3) <EN type>	1,066 (42.0), 1,013 (39.9) <EN type>
C Machine height	mm (in.)	4,281 (168.5)	4,316 (169.9)
D Height to spindle center	mm (in.)	1,450 (57.1)	1,485 (58.5)

NT6600 DCG/4000			
	Hinge type	Hinge type + Scraper type + Drum filter type	
A Machine width (Including a chip conveyor)	mm (in.)	11,450 (450.8), 11,780 (463.8) <EN type>	11,917 (469.2), 12,147 (478.2) <EN type>
B Discharge height of chip conveyor	mm (in.)	1,230 (48.4), 1,252 (49.3) <EN type>	1,066 (42.0), 1,013 (39.9) <EN type>
C Machine height	mm (in.)	4,281 (168.5)	4,316 (169.9)
D Height to spindle center	mm (in.)	1,450 (57.1)	1,485 (58.5)

NT6600 DCG/6000			
	Hinge type	Hinge type + Scraper type + Drum filter type	
A Machine width (Including a chip conveyor)	mm (in.)	13,450 (529.5), 13,780 (542.5) <EN type>	13,917 (547.9), 14,147 (557.0) <EN type>
B Discharge height of chip conveyor	mm (in.)	1,230 (48.4), 1,252 (49.3) <EN type>	1,066 (42.0), 1,013 (39.9) <EN type>
C Machine height	mm (in.)	4,281 (168.5)	4,316 (169.9)
D Height to spindle center	mm (in.)	1,450 (57.1)	1,485 (58.5)

NT6600

Machine specifications

NT6600 DCG/3000						
	T1	MC	B1	Y1	S1	TS
Basic specification	—		S2	—		S2
Optional specifications	—		S2	—		S2
Through-spindle hole diameter	mm (in.)	φ185 (φ7.2) <Standard>		φ275 (φ10.8) <Option>		
Capacity						
Max. swing of workpiece	mm (in.)		1,070 (42.1)			
Max. turning diameter	mm (in.)		φ1,070 (φ42.1)			
Max. turning length	mm (in.)		3,076 (121.1)			
Bar work capacity	mm (in.)	164 (6.4)	164 (6.4) / 164 (6.4) <Spindle 2>			*1
Travel						
X-axis travel [Tool spindle]	mm (in.)		1,040 (40.9) <1,000 + 40 (39.3 + 1.5)>			
Y-axis travel [Tool spindle]	mm (in.)		±330 (±12.9) / +330 - 280 (+12.9 - 11.0) <LBB specifications>			
Z-axis travel [Tool spindle]	mm (in.)		3,150 (124.0)			
B-axis rotation range [Tool spindle]			±120°			
Spindle 1						
Max. spindle speed	min⁻¹		1,500		1,000	
Spindle nose			JIS A₂-15		JIS A₂-20	
Through-spindle hole diameter	mm (in.)		185 (7.2)		275 (10.8)	
Spindle 2						
Max. spindle speed	min⁻¹	—	1,500	—	1,000	
Spindle nose		—	JIS A₂-15	—	JIS A₂-20	
Through-spindle hole diameter	mm (in.)	—	185 (7.2)	—	275 (10.8)	
Tool spindle						
Min. B-axis indexing increment			1°, 0.0001°			
Max. tool spindle speed	min⁻¹		8,000			
Taper hole of tool spindle			Capt o C8, BT50 ^{**} , CAT50, HSK-A100 (T100)			
Tool storage capacity			50, 100, 140			
Max. tool diameter	With adjacent tools mm (in.)		φ120 (φ4.7)			
	Without adjacent tools mm (in.)		φ250 (φ9.8)			
Max. tool length	mm (in.)		600 (23.6)			
Max. tool mass	kg (lb.)		30 (66.0)			
Tailstock						
Taper hole of tailstock spindle		MT5, MT6 (Built-in)	—	MT5, MT6 (Built-in)	—	
Feedrate						
Rapid traverse rate	m/min (fpm)		Tool spindle X: 40 (131.2), Y: 30 (98.4), Z: 32 (105.0) Spindle 2 A: 15 (49.2) Tailstock A: 8 (26.2) Steady rest ZA: 8 (26.2)			
	min⁻¹		B: 23.8 (One-degree indexing specification), 80 (Full indexing specifications) C: 70			
Motors						
Motor for Spindle 1	kW (HP)	30 / 26 / 22 (40 / 34.7 / 30) <25%ED / 30 min / cont>		45 / 37 (60 / 50) <30 min / cont>		
Motor for Spindle 2	kW (HP)	—	30 / 26 / 22 (40 / 34.7 / 30) <25%ED / 30 min / cont>	—	45 / 37 (60 / 50) <30 min / cont>	
Tool spindle drive motor <30 min / cont>	kW (HP)			30 / 22 (40 / 30)		
Machine size						
Machine height (From floor)	mm (in.)	Hinge type: 4,281 (168.5), Hinge type + Scraper type + Drum filter type: 4,316 (169.9)				
Floor space (width × depth)	mm (in.)		9,265 (364.8) × 4,629 (182.2)			
Control unit						
FANUC			F31iB / F31iB5			

*1 For through-spindle hole diameter of 275 mm (10.8 in.), please consult our sales representative.

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

● Max. spindle speed, Max. tool 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.

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

● The information in this catalog is valid as of October 2018.

: Standard : Option
T1: Tool spindle **Y1**: Tool spindle Y-axis **S1**: Spindle 1
M1: Tool spindle Milling **B1**: Tool spindle B-axis **S2**: Spindle 2
TS: Tailstock
 ● When spindle 2 (S2) is selected, the tailstock (TS) is not provided.

NT6600 DCG/4000					
		T1 M1 B1 Y1 S1 TS			
Basic specification		—	S2	—	S2
Optional specifications					
Through-spindle hole diameter	mm (in.)	Φ185 (Φ7.2) <Standard>		Φ275 (Φ10.8) <Option>	
Capacity					
Max. swing of workpiece	mm (in.)	1,070 (42.1)			
Max. turning diameter	mm (in.)	Φ1,070 (Φ42.1)			
Max. turning length	mm (in.)	4,076			
Bar work capacity	mm (in.)	164	164 (6.4) / 164 (6.4) <Spindle 2>		*1
Travel					
X-axis travel (Tool spindle)	mm (in.)	1,040 (40.9) <1,000 + 40 [39.3 + 1.5]>			
Y-axis travel (Tool spindle)	mm (in.)	±330 (±12.9) / +330 - -280 [+12.9 - -11.0] <LBB specifications>			
Z-axis travel (Tool spindle)	mm (in.)	4,150 (163.3)			
B-axis rotation range (Tool spindle)		±120°			
Spindle 1					
Max. spindle speed	min⁻¹	1,500		1,000	
Spindle nose		JIS A₂-15		JIS A₁-20	
Through-spindle hole diameter	mm (in.)	185 (7.2)		275 (10.8)	
Spindle 2					
Max. spindle speed	min⁻¹	—	1,500	—	1,000
Spindle nose		—	JIS A₂-15	—	JIS A₁-20
Through-spindle hole diameter	mm (in.)	—	185 (7.2)	—	275 (10.8)
Tool spindle					
Min. B-axis indexing increment		1°, 0.0001°			
Max. tool spindle speed	min⁻¹	8,000			
Taper hole of tool spindle		Capto C8, BT50*², CAT50, HSK-A100 (T100)			
Tool storage capacity		50, 100, 140			
Max. tool diameter	With adjacent tools mm (in.)	Φ120 (Φ4.7)			
	Without adjacent tools mm (in.)	Φ250 (Φ9.8)			
Max. tool length	mm (in.)	600 [23.6]			
Max. tool mass	kg (lb.)	30 [66.0]			
Tailstock					
Taper hole of tailstock spindle		MT5, MT6 (Built-in)	—	MT5, MT6 (Built-in)	—
Feedrate					
Rapid traverse rate	m/min (fpm)	Tool spindle X: 40 [131.2], Y: 30 [98.4], Z: 32 [105.0] Spindle 2 A: 15 [49.2] Tailstock A: 8 [26.2] Steady rest ZA: 8 [26.2]			
	min⁻¹	B: 23.8 [One-degree indexing specification], 80 [Full indexing specifications] C: 70			
Motors					
Motor for Spindle 1	kW (HP)	30 / 26 / 22 [40 / 34.7 / 30] <25%ED / 30 min / cont>		45 / 37 [60 / 50] <30 min / cont>	
Motor for Spindle 2	kW (HP)	—	30 / 26 / 22 [40 / 34.7 / 30] <25%ED / 30 min / cont>	—	45 / 37 [60 / 50] <30 min / cont>
Tool spindle drive motor <30 min / cont>	kW (HP)	30 / 22 [40 / 30]			
Machine size					
Machine height (From floor)	mm (in.)	Hinge type: 4,281 [168.5], Hinge type + Scraper type + Drum filter type: 4,316 [169.9]			
Floor space (width × depth)	mm (in.)	10,265 [404.1] × 4,629 [182.2]			
Control unit		F31iB / F31iB5			

*1 For through-spindle hole diameter of 275 mm (10.8 in.), please consult our sales representative.

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

● Max. spindle speed, Max. tool 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.

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

● The information in this catalog is valid as of October 2018.

NT6600

Machine specifications

NT6600 DCG/6000					
		T1	MC	B1	Y1 S1 TS
		—	S2	—	S2
Basic specification					
Optional specifications		—	S2	—	S2
Through-spindle hole diameter	mm (in.)	$\phi 185$ ($\phi 7.2$) <Standard>		$\phi 275$ ($\phi 10.8$) <Option>	
Capacity					
Max. swing of workpiece	mm (in.)	1,070 (42.1)			
Max. turning diameter	mm (in.)	$\phi 1,070$ ($\phi 42.1$)			
Max. turning length	mm (in.)	6,076 (239.2)			
Bar work capacity	mm (in.)	164	164 (6.4) / 164 (6.4) <Spindle 2>		*1
Travel					
X-axis travel [Tool spindle]	mm (in.)	1,040 (40.9) <1,000 + 40 (39.3 + 1.5)>			
Y-axis travel [Tool spindle]	mm (in.)	± 330 (± 12.9) / +330 - -280 (+12.9 - -11.0) <LLB specifications>			
Z-axis travel [Tool spindle]	mm (in.)	6,150 (242.1)			
B-axis rotation range [Tool spindle]		$\pm 120^\circ$			
Spindle 1					
Max. spindle speed	min ⁻¹	1,500		1,000	
Spindle nose		JIS A ₂ -15		JIS A ₂ -20	
Through-spindle hole diameter	mm (in.)	185 (7.2)		275 (10.8)	
Spindle 2					
Max. spindle speed	min ⁻¹	—	1,500	—	1,000
Spindle nose		—	JIS A ₂ -15	—	JIS A ₂ -20
Through-spindle hole diameter	mm (in.)	—	185 (7.2)	—	275 (10.8)
Tool spindle					
Min. B-axis indexing increment		1° , 0.0001°			
Max. tool spindle speed	min ⁻¹	8,000			
Taper hole of tool spindle		Capto C8, BT50 ^{**} , CAT50, HSK-A100 (T100)			
Tool storage capacity		50, 100, 140			
Max. tool diameter	With adjacent tools mm (in.)	$\phi 120$ ($\phi 4.7$)			
	Without adjacent tools mm (in.)	$\phi 250$ ($\phi 9.8$)			
Max. tool length	mm (in.)	600 (23.6)			
Max. tool mass	kg (lb.)	30 (66.0)			
Tailstock					
Taper hole of tailstock spindle		MT5, MT6 (Built-in)	—	MT5, MT6 (Built-in)	—
Feedrate					
Rapid traverse rate	m/min (fpm)	Tool spindle X: 40 (131.2), Y: 30 (98.4), Z: 32 (105.0) Spindle 2 A: 15 (49.2) Tailstock A: 8 (26.2) Steady rest ZA,ZB: 8 (26.2)			
	min ⁻¹	B: 23.8 (One-degree indexing specification), 80 (Full indexing specifications) C: 70			
Motors					
Motor for Spindle 1	kW (HP)	30 / 26 / 22 (40 / 34.7 / 30) <25%ED / 30 min / cont>	45 / 37 (60 / 50) <30 min / cont>		
Motor for Spindle 2	kW (HP)	—	30 / 26 / 22 (40 / 34.7 / 30) <25%ED / 30 min / cont>	—	45 / 37 (60 / 50) <30 min / cont>
Tool spindle drive motor <30 min / cont>	kW (HP)	30 / 22 (40 / 30)			
Machine size					
Machine height (From floor)	mm (in.)	Hinge type: 4,281 (168.5), Hinge type + Scraper type + Drum filter type: 4,316 (169.9)			
Floor space (width × depth)	mm (in.)	12,450 (490.2) × 4,629 (182.2)			
Control unit					
FANUC		F31iB / F31iB5			

*1 For through-spindle hole diameter of 275 mm (10.8 in.), please consult our sales representative.

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

● Max. spindle speed, Max. tool 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.

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

● The information in this catalog is valid as of October 2018.

■: Standard □: Option
T1: Tool spindle **Y1**: Tool spindle Y-axis **S1**: Spindle 1
MC1: Tool spindle Milling **B1**: Tool spindle B-axis **S2**: Spindle 2
TS: Tailstock
● When spindle 2 (S2) is selected, the tailstock (TS) is not provided.

NT6600

Standard & optional features

●: Standard ○: Option ☆: Consultation is required
—: Not applicable ◇: Select one

		NT6600 DCG					
		/3000		/4000		/6000	
		T1	MC1	B1	Y1	S1	TS
Basic specification							
Optional specifications							
Spindle							
Spindle 1	Through-spindle hole diameter: φ185 mm (φ7.2 in.) 1,500 min⁻¹: 30 / 26 / 22 kW [25%ED / 30 min / cont]	●	●	●	●	●	●
	Through-spindle hole diameter: φ275 mm (φ10.8 in.) 1,000 min⁻¹: 45 / 37 kW [30 min / cont]	○	○	○	○	○	○
Spindle 2	Through-spindle hole diameter: φ185 mm (φ7.2 in.) 1,500 min⁻¹: 30 / 26 / 22 kW [25%ED / 30 min / cont]	◇	◇	◇	◇	◇	◇
	Through-spindle hole diameter: φ275 mm (φ10.8 in.) 1,000 min⁻¹: 45 / 37 kW [30 min / cont]	◇	◇	◇	◇	◇	◇
Tool spindle							
Max. tool spindle speed		8,000 min⁻¹: 30 / 22 kW [30 min / cont]					
Capto C8		Two-face contact					
BT50* ¹		Two-face contact					
CAT50		Two-face contact					
HSK-A100 (T100)		Two-face contact					
1° index		● ● ● ● ● ●					
B-axis min. indexing increment		Full indexing specifications (0.00001°) <With B-axis Full closed loop control [Scale feedback]>					
Tailstock							
Tailstock spindle built-in center		MT5	●	●	●	●	●
		MT6	○	○	○	○	○
Spindle 2 tailstock		○	○	○	○	○	○
Magazine							
Tool storage capacity		50	●	●	●	●	●
		100	○	○	○	○	○
		140	○	○	○	○	○
Coolant							
Coolant system (Tool spindle)		800 / 1,100 W (50 / 60 Hz)					
Chip disposal							
Chip conveyor		Interface	●	●	●	●	●
		Right discharge, Hinge type	○*	○*	○*	○*	○*
		Right discharge, Hinge type + Scraper type + Drum filter type	○*	○*	○*	○*	○*
Measurement							
Automatic in-machine tool presetter		Tool spindle	●	●	●	●	●
High-precision control							
Oil chiller		X-axis (Tool spindle)	●	●	●	●	●
		Y-axis (Tool spindle)	○	○	○	○	○
		Z-axis (Tool spindle)	○	○	○	○	○
Others							
Chuck foot switch		1 foot switch	●	●	●	●	●
		2 foot switches	○	○	○	○	○
Signal light		3 colors (Red, Yellow, Green) LED Type	○*	○*	○*	○*	○*
Manual pulse generator (separate type)			○	○	○	○	○

* DMQP (DMG MORI Qualified Products)

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

● DMQP: Please see Page 24 for details.

● 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.

● The information in this catalog is valid as of October 2018.

● 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.
DMG MORI and its distributor representative shall have no obligation to re-enable such Equipment.
DMG MORI and its distributor representative shall have no liability (including for lost profits or business interruption or under the limited service warranty included herein) as a result of the Equipment being disabled.

- + DCG, DDM, BMT, ORC, compactMASTER, CELOS, ERGOline, COMPACTline, DMG MORI SMARTkey and DMG MORI gearMILL are trademarks or registered trademarks of DMG MORI CO., LTD. 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 October 2018. 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.

DMG MORI CO., LTD.

Nagoya Head Office ☐ 2-35-16 Meieki, Nakamura-ku, Nagoya City, Aichi 450-0002, Japan Phone: +81-52-587-1811
Tokyo Global Headquarters ☐ 2-3-23, Shiom, Koto-ku, Tokyo 135-0052, Japan Phone: +81-3-6758-5900

Iga Campus ☐ 201 Midai, Iga City, Mie 519-1414, Japan Phone: +81-595-45-4151
Nara Campus ☐ 362 Idono-cho, Yamato-Koriyama City, Nara 639-1183, Japan Phone: +81-743-53-1121

DMG MORI