DMG MORI

HIGH-PRECISION, HIGH-EFFICIENCY INTEGRATED MILL TURN CENTER

NTX 1000

NTX 1000 3rd Generation

NTX 1000 3rd Generation

All-round machine for various fields

The NTX 1000 3rd Generation is a "all-rounder" machine capable of high-accuracy, high-efficiency machining of complex-shaped workpieces in the aircraft, medical equipment, automotive, die & mold and precision equipment industries.
The outstanding combination of a turning center and a machining center allows for process integration for various machining from high-mix, low-volume production to mass production, bringing great profit to customers.

1

● Figures in inches were converted from metric measurements.

Click here to watch the video of NTX 1000.


2


3


4


5


6


7


8


9


10

Medical equipment

1 Hip joint
ϕ12 × 200 mm (ϕ0.5 × 7.9 in.)
<Titanium>

2 Acetabular Prosthesis
ϕ77 × 44 mm (ϕ3.0 × 1.7 in.)
<Titanium>

3 Knee joint
50 × 70 mm (2.0 × 2.8 in.)
<Titanium>

Tool

4 Tool Holder
ϕ90 × 106 mm (ϕ3.5 × 4.2 in.)
<Nickel Chromium Molybdenum Steel>

Industrial equipment

5 Screw rotor
ϕ70 × 250 mm (ϕ2.8 × 9.8 in.)
<Cast iron>

6 Connection flange
ϕ63 × 45 mm (ϕ2.5 × 1.8 in.)
<Stainless steel>

7 Gear shaft
ϕ130 × 300 mm (ϕ5.1 × 11.8 in.)
<S45C>

8 Sprocket
ϕ180 × 80 mm (ϕ7.1 × 3.1 in.)
<S45C>

Aerospace

9 Turbine blade
ϕ40 × 120 mm (ϕ1.6 × 4.7 in.)
<Inconel 600>

10 Connection flange
ϕ250 × 125 mm (ϕ9.8 × 4.9 in.)
<Titanium>

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

NTX 1000 3rd Generation

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

The NTX 1000 3rd Generation equipped with DMG MORI's latest technologies enables process integration with higher accuracy, superior machining performance and a large work envelope, while achieving a smaller footprint than the first-generation NTX 1000 model.
The user interface "ERGO*line* X" utilizes a touch panel screen and keyboard to easily set up complex turn-mill operations.
The NTX 1000 3rd Generation provides the highest level of performance, making it the ideal solution for customers aiming for higher efficiency and cost reduction in their production processes.

Simultaneous 5-axis machining

+ Simultaneous 5-axis machining of complex parts with the direct drive motor (DDM) installed in the B axis
+ The B-axis rotation range of 240° and rotation speed of 100 min^{-1}, the X-axis travel of 455 mm (17.9 in.) <-105 - +350 mm (-4.1 - 13.7 in.)>
+ Equipped with a Capto C5 turn-mill spindle as standard, max. spindle speed of 12,000 min^{-1}, 20,000 min^{-1} (Option)
+ Spindle for Capto C6 with 350 mm (13.8 in.) length also available (option)

Operability

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

High precision

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

High rigidity

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

Peripheral equipment

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

Energy-saving

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

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


CELOS
ERGOline

NTX 1000 3rd Generation

Best Solutions for Your Shop Floor

The NTX 1000 3rd Generation provides solutions for higher machining accuracy, higher production efficiency by automation, better chip disposal, maintainability and setup performance.
With various cutting-edge solutions, the NTX 1000 3rd Generation demonstrates its capabilities to the full extent and achieves a higher level of machining.
DMG MORI offers the best solutions that solve your shop issues.

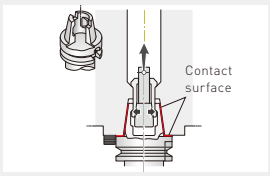
1

Turn-mill spindle
For high-speed rotation

20,000 min^{-1}
High-speed

2

Tool Holder
Tool spindle taper hole for HSK also available



Turn-mill spindle taper hole
HSK-A50 (T50)、HSK-A63 (T63)

3

Turret 2
Greater machining efficiency

10-station Turret
Milling

4

Spindle output
- For heavy-duty cutting*1
- 12-inch chuck, bar work capacity ϕ115 mm (ϕ4.5 in.)*2

*1 Through-spindle hole diameter ϕ73 mm (ϕ2.8 in.): 5,000 min^{-1}
*2 Through-spindle hole diameter ϕ115 mm (ϕ4.5 in.): 3,000 min^{-1}

5

Workpiece support
Workpiece support suitable for your workpiece and machining

Chuck

Center on Right spindle

Center on Turret 2

6

Long workpieces
Chatter control

Alternating speed

Steady rest on Turret 2

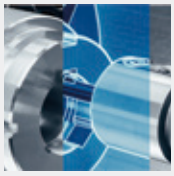
7 Cutting technology

Improving machining efficiency with Technology Cycles all at once

Efficient Production Package (High-speed canned cycle)

gearSKIVING

Multi-threading 2.0 (Consultation is required)



Keyway broaching

8 Mass production, automation

Various automation / mass-production solutions

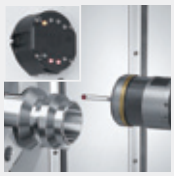
In-machine travelling type robot

Bar feeder

Workpiece unloader (Right spindle side)

9 Machining accuracy

Meeting high accuracy requirements



In-machine measuring system

Full closed loop control (Scale feedback)

Tool balancer

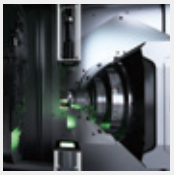
10 Better setup performance

Drastically shortened setup time

Automatic in-machine tool presetter

3D quickSET

External tool presetter



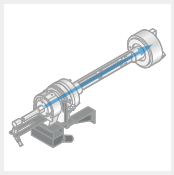
Tool measurement (Tool Visualizer)

11 Chip disposal

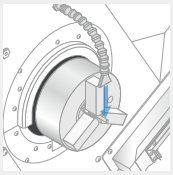
Higher cutting performance

Chip conveyor

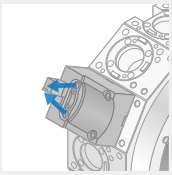
Coolant gun



Through-spindle coolant system



Coolant in upper part of chuck



Air blow (Tool tip)

12 Maintenance

Improved production efficiency by preventive maintenance

DMG MORI Messenger

MPC (Machine Protection Control)

my DMG MORI

Air dryer

*zero*FOG

NTX 1000 3rd Generation

Six Variations Selectable According to Purpose

The NTX 1000 3rd Generation offers the Right spindle specification and the tailstock specification, both of which can mount the Turret 2.
A total of six specifications including the one with milling function on the Turret 2 is available.

● Photo: Tool storage capacity 76 tools
＊Control unit for FANUC, Tool storage capacity 38 tools, Including the chip conveyor

■ : Standard　□ : Option

T1 : Turn-mill spindle　**T2** : Turret 2　**LS** : Left spindle

MC1 : Turn-mill spindle <Milling>　**MC2** : Turret 2 (Milling)　**RS** : Right spindle

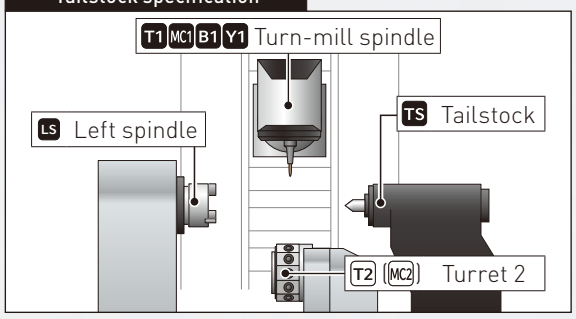
Y1 : Turn-mill spindle <Y-axis>　**Y2** : Turret 2 (Y-axis)　**TS** : Tailstock

B1 : Turn-mill spindle <B-axis>

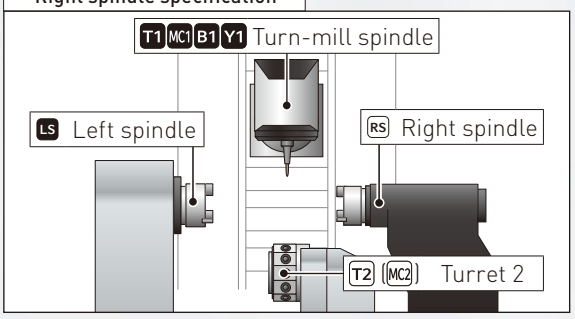
● The right spindle specification (RS) is not equipped with a tailstock (TS).

Specifications

Tailstock specification



Right spindle specification



Basic specification	T1 MC1 B1 Y1 LS TS					
Optional specifications	—	T2	T2 MC2	RS	T2 RS	T2 MC2 RS
Turn-mill spindle / Left spindle	●	●	●	●	●	●
Right spindle	—	—	—	○	○	○
Turret 2 <Without the milling function>	—	○	—	—	○	—
Turret 2 (Milling specifications)	—	—	○	—	—	○
Tailstock	●	●	●	—	—	—

●: Standard　○: Option　—: Not applicable

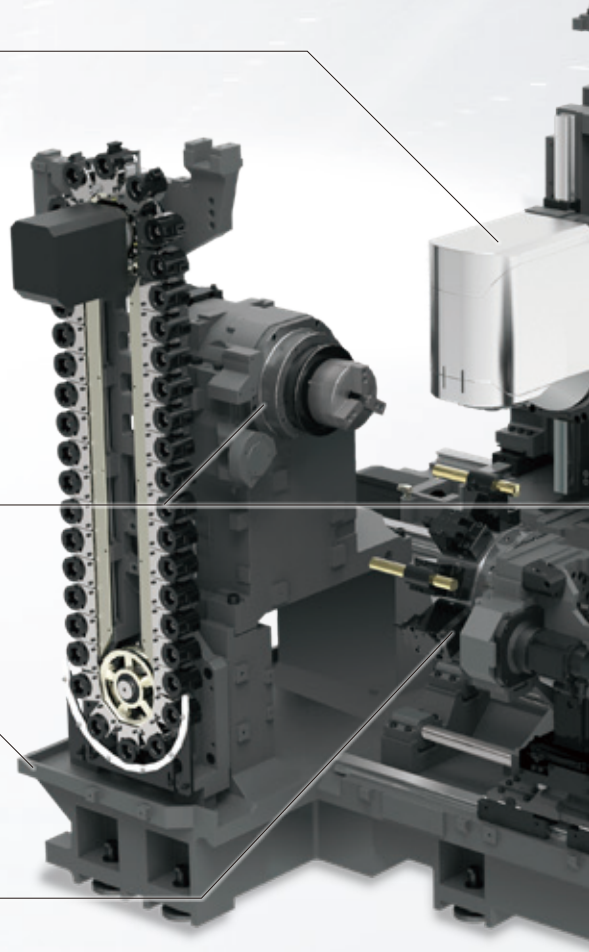
NTX 1000 3rd Generation

High-rigidity Construction with High Aging Resistance

DMG MORI pursues high rigidity machines from the basic designing stage by FEM analysis. The NTX 1000 3rd Generation equipped with a thick, high-rigidity bed is not affected by changes over years, maintaining high-accuracy machining for a long period of time.

compactMASTER

+ In-house manufactured turn-mill spindle achieves high rigidity and high durability



In-house manufactured high-rigidity spindles

+ Highly reliable spindle designed to control thermal displacement

High-rigidity Machine Body

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

Built-in motor turret <Milling specification>

BMT Built-in Motor Turret

+ BMT (Built-in Motor Turret) with high energy transmission efficiency controls heat generation and vibration.

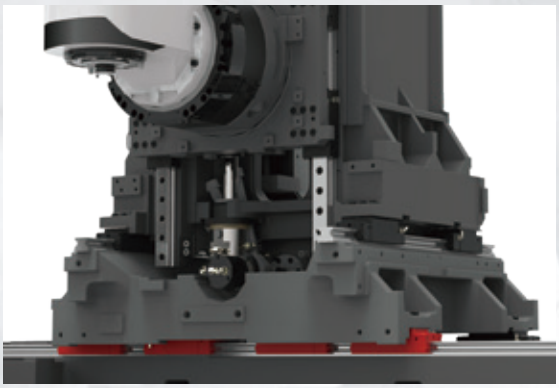
Increased ball screw rigidity

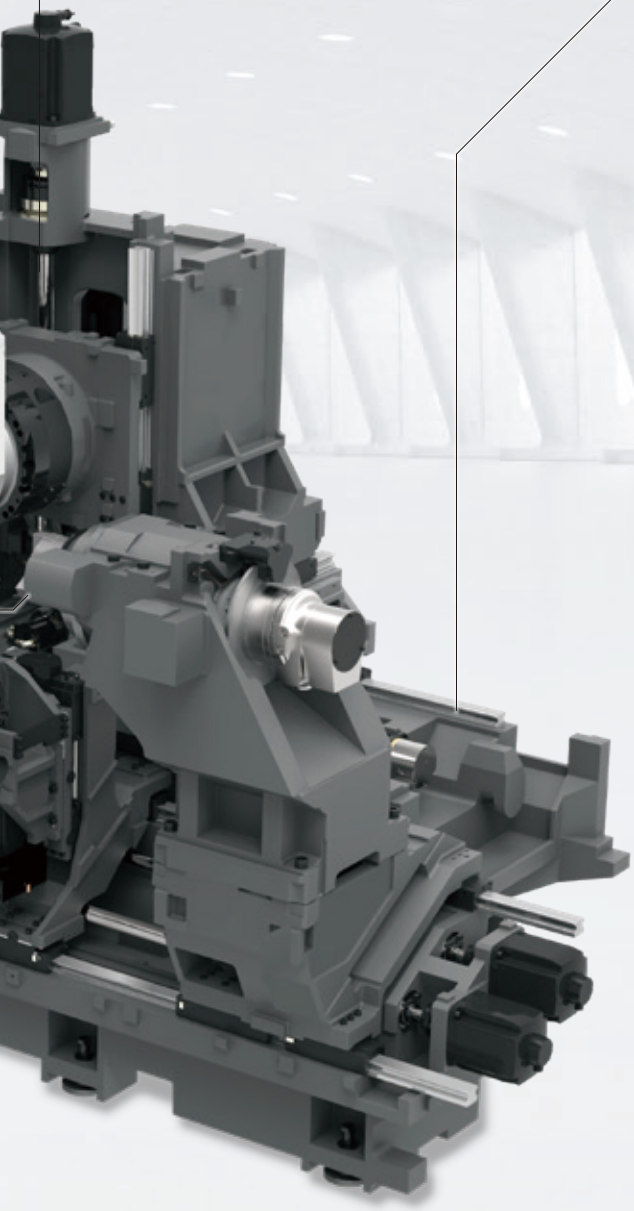
+ The double anchor method is employed for ball screws and support bearings, which ensures high rigidity for heavy-duty machining and high-accuracy machining.

linear motion guide

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

Column front side supported by 4 sliders for increased rigidity





FEM analysis

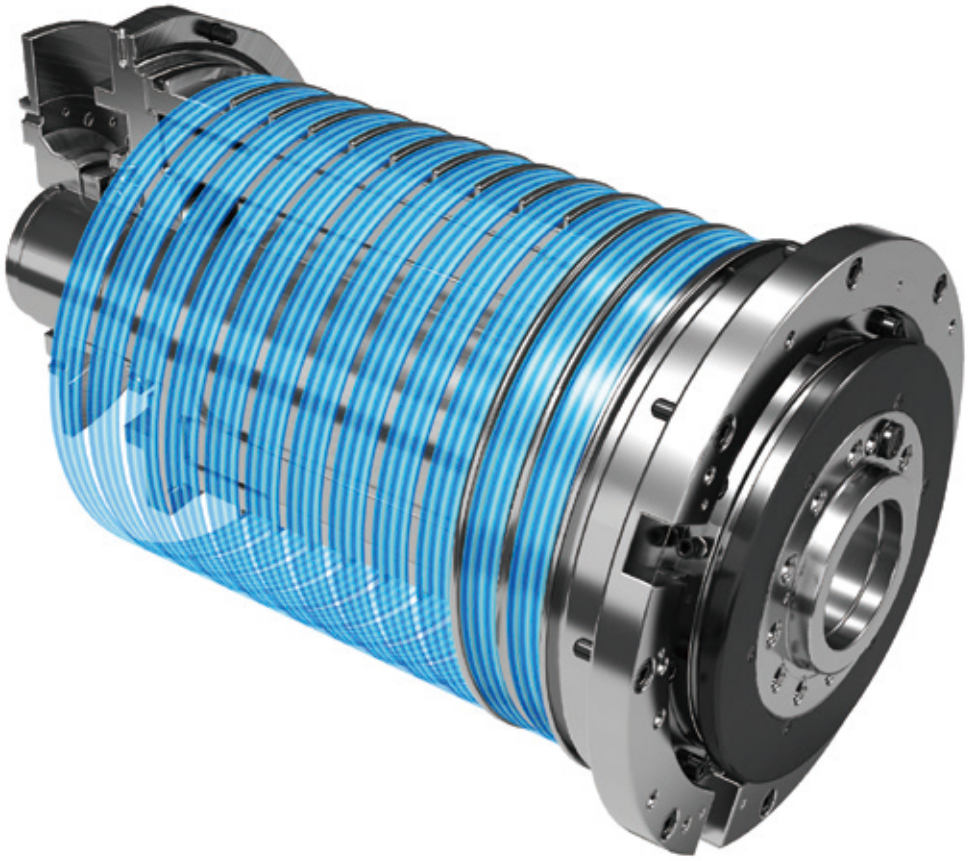
+ Simulation of structural deformation at the time of load application
+ Fine adjustment to every part, including the thickness of the bed, the shape and layout of the ribs, to achieve a high level of flexural rigidity

FEM: Finite Element Method

NTX 1000 3rd Generation

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.



Model: NLX 2500

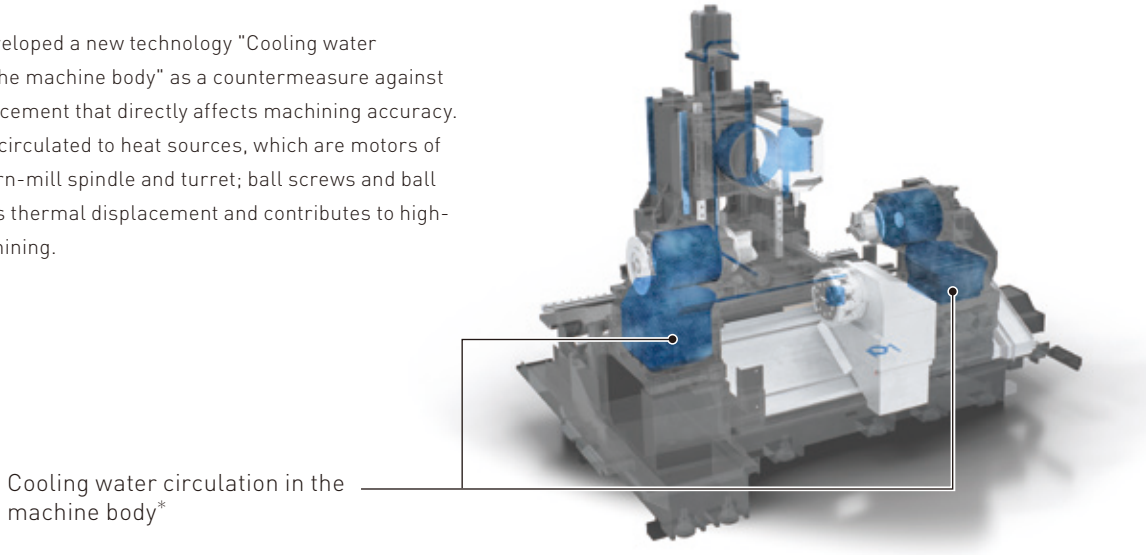
Built-in motor turret with oil jacket

The oil jacket is spirally arranged around the motor of the milling spindle to control thermal displacement caused by temperature rise, ensuring high machining accuracy.

BMT
Built-in Motor Turret

Cooling water circulation in the machine body

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



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

Coolant chiller <separate type> (Standard features)

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.

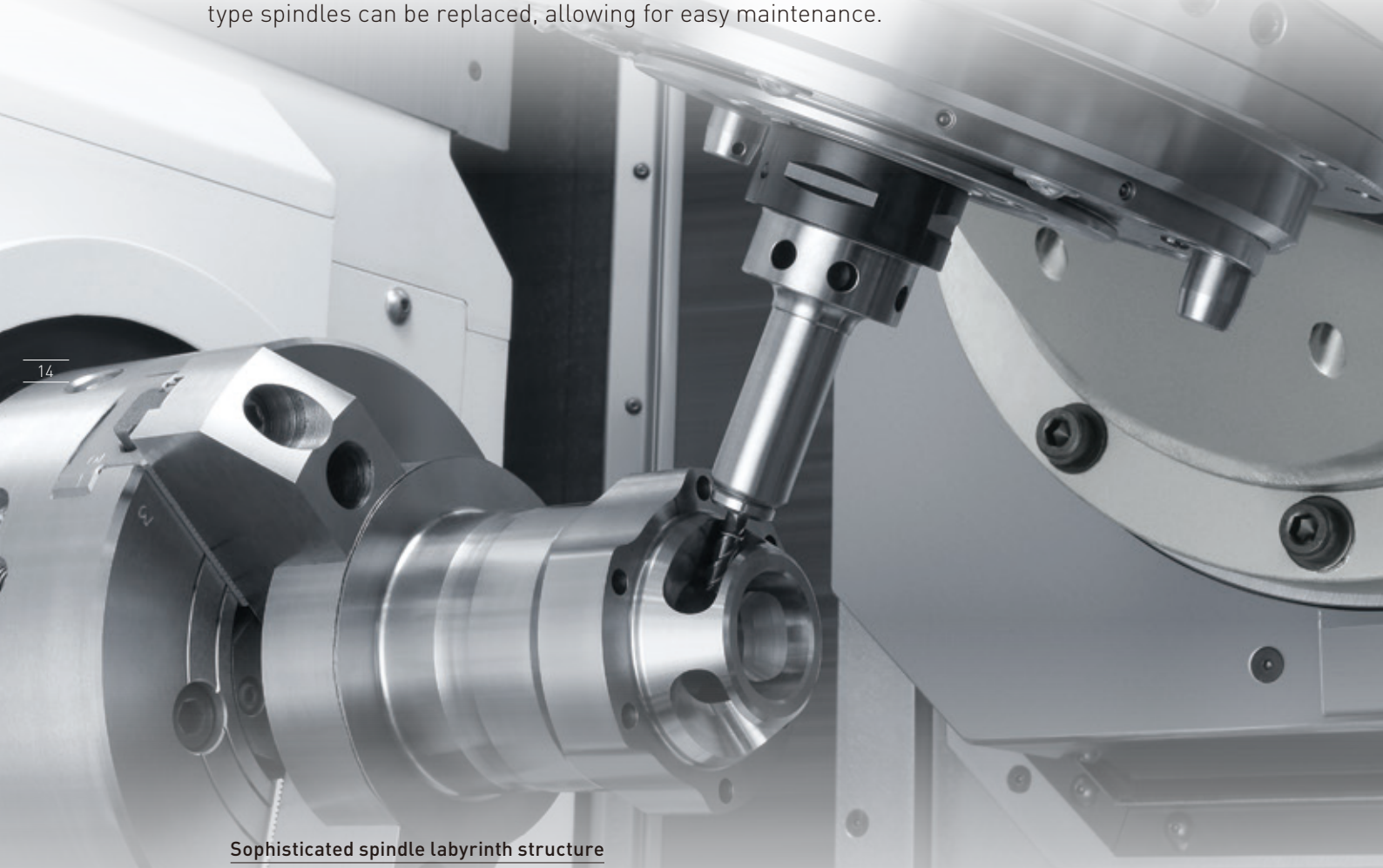
Full closed loop control <Scale feedback> (Standard features)

+ Superior precision with the Magnescale full closed loop control (Scale feedback)
+ Magnetic measuring system with a high resolution of 0.01 µm
+ Resistance to oil and condensation due to a magnetic detection principle
+ Impact resistance of 450 m/s^2 (17,716.5 in./s^2)
+ Vibration resistance of 250 m/s^2 (9,842.5 in./s^2)
+ Thermal expansion coefficient as cast iron

NTX 1000 3rd Generation

High-accuracy Spindles Matched to the Customer's Requirements

The NLX 1000 3rd Generation can be used with 6-inch and 8-inch chucks on both the left spindle and right spindle (option). The left spindle is available in two output variations and can also be equipped with a 12-inch chuck to flexibly meet customer needs. The whole unit of the cartridge-type spindles can be replaced, allowing for easy maintenance.



Sophisticated spindle labyrinth structure

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

Right Spindle and Tailstock

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

● The chuck is optional.

Travel

			NTX 1000
Turn-mill spindle	X1-axis	mm (in.)	455 (17.9) <-105 - +350 (-4.1 - +13.7)>
	Y-axis (Y1-axis)*1	mm (in.)	±105 (±4.1)
	Z1-axis	mm (in.)	800 + 165 (31.4 + 6.4)*2
	B-axis		FANUC: ±120° SIEMENS: -30 - +210°
Turret 2	X2-axis	mm (in.)	160 (6.2)
	Z2-axis	mm (in.)	730 (28.7)
Left spindle / Right spindle*3	C-axis		360° / 360°
Tailstock	A-axis (Z3-axis)*1	mm (in.)	820 (32.2)

*1 ( ) SIEMENS specifications
*2 for ATC
*3 Right spindle specification

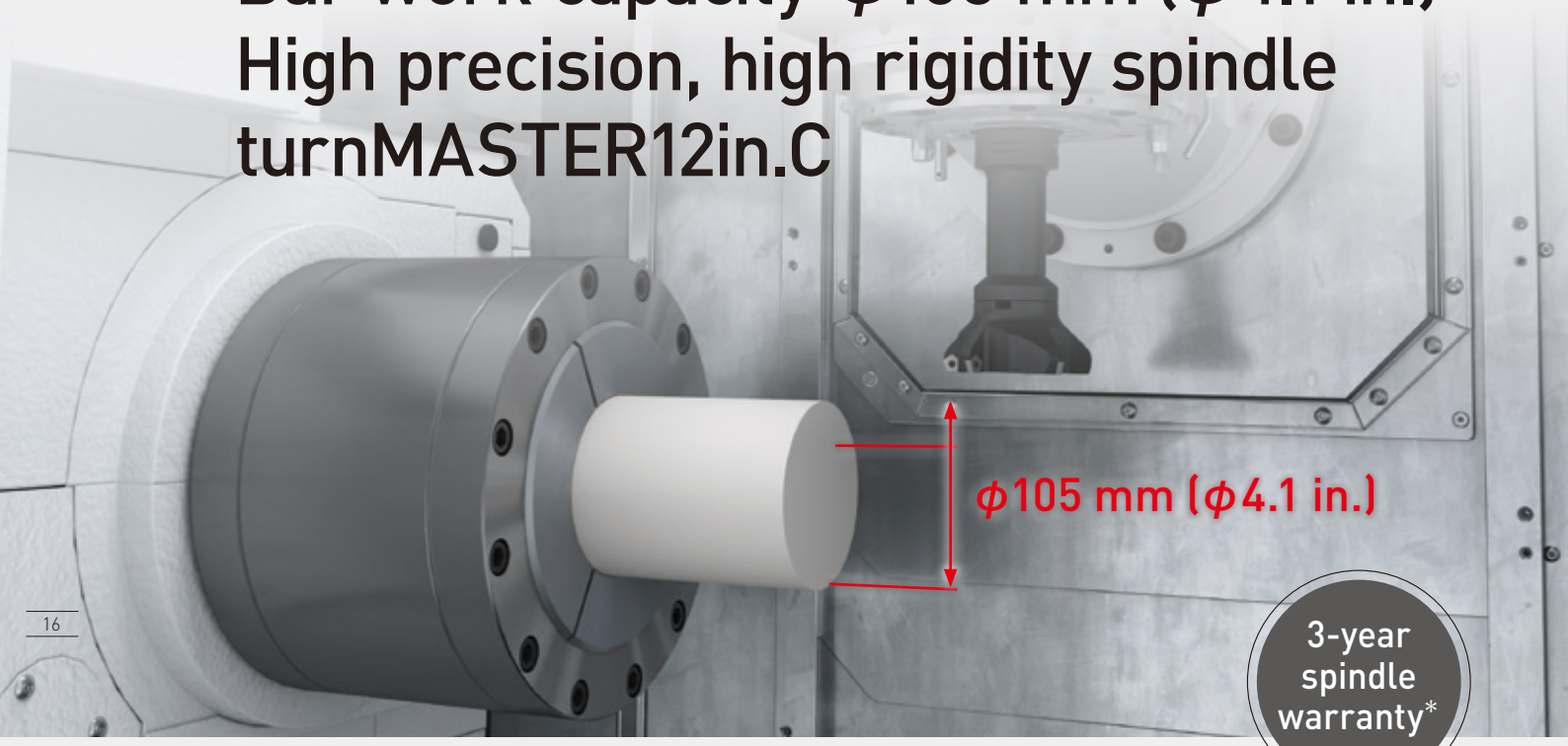
Workpiece size

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

*1 Both left spindle and right spindle (optional) are the same.
*2 Bar work capacity: Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

NTX 1000 3rd Generation

Newly compatible with 12-inch chuck
Bar work capacity ϕ105 mm (ϕ4.1 in.)
High precision, high rigidity spindle
turnMASTER12in.C



3-year spindle warranty*

* No operation hour limit

turnMASTER12in.C

High performance spindle with max. 3,000 min^{-1} speed and high rigidity for heavy-duty cutting.
Additional high-precision encoder made by Magnescale improves the C-axis indexing accuracy during milling operations.

1 Spindle bearing inner diameter

ϕ160 mm (ϕ6.2 in.)

2 Through-spindle hole diameter

ϕ115 mm (ϕ4.5 in.)

3 Cantilevered support weight*1

Through-spindle hole diameter: ϕ61 mm (ϕ2.4 in.) Equivalent to 6-inch chuck*2	Through-spindle hole diameter: ϕ73 mm (ϕ2.8 in.) Equivalent to 8-inch chuck*2	Through-spindle hole diameter: ϕ115 mm (ϕ4.5 in.) Equivalent to 12-inch chuck*2
250 kg (550 lb.)	340 kg (748 lb.)	650 kg (1,430 lb.)

4 C-axis brake torque

646 N•m (476.5 ft•lbf)
<Supports heavy-duty cutting during indexing>

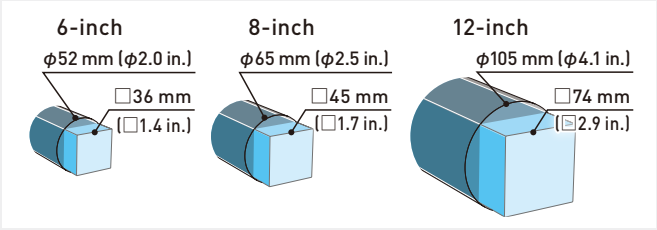
5 Spindle output

22 / 15 / 11 kW (30 / 20 / 15 HP)
(40%ED / 30 min / cont)

*1 The workpiece weight that can be supported varies depending on the chuck weight and other factors.
*2 Please contact us for more information about possible combinations of spindle specifications and chuck sizes.

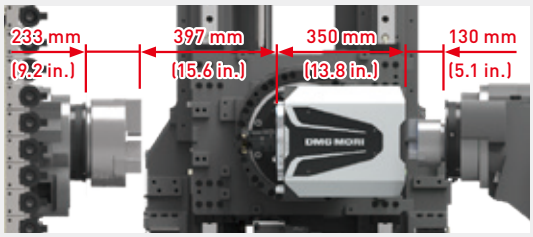
Bar and square material processing capacity

The machine can supply bar materials of max. ϕ105 mm (ϕ4.1 in.) and square materials of □74 mm (□2.9 in.) or smaller.
Machining of large-diameter workpieces can be integrated into a single process, which increases machine utilization and improves productivity.



Working area

12-inch chuck enables machining area of 397 mm (15.6 in.) on the Z-axis.



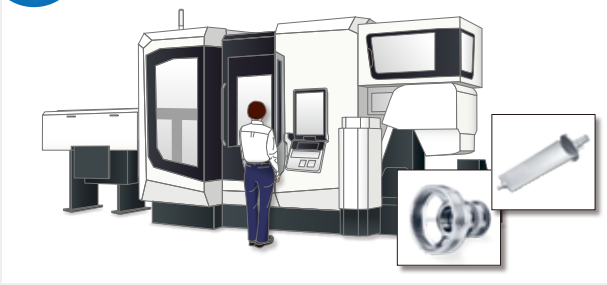
Turn-mill spindle for Capto C6 and HSK-A63

- Machining area varies depending on chuck size and other factors. Please consult our sales representative for details.

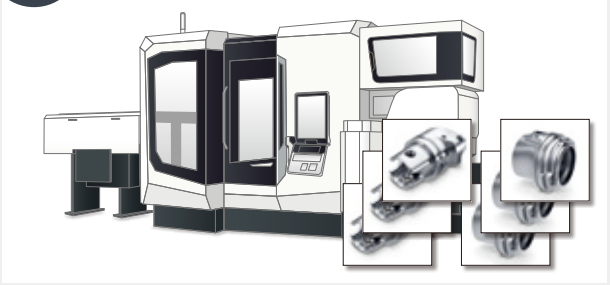
Automation

Large-diameter materials can be automatically fed into the machine by using a bar feeder.
Further adding a workpiece unloader enables full automation and maximizes productivity.

Daytime: Operators process complex workpieces



Nighttime: Automated workpiece production



Space saving + large diameter workpiece machining

The 38-tool magazine specification has a machine length of +254 mm (+10.0 in.).
The 76-tool magazine specification can be equipped with a 12-inch chuck without changing the machine size.
In addition to small-diameter workpieces, large-diameter gear shafts and sprockets can be machined, increasing productivity.

12-inch chuck

6-inch, 8-inch chuck

Workpiece: Acetabular Prosthesis
Size: ϕ77 × 44 mm (ϕ3.0 × 1.7 in.)
Material: Titanium

Workpiece: Screw rotor
Size: ϕ70 × 250 mm
(ϕ2.8 × 9.8 in.)
Material: Cast iron

Workpiece: Connection flange
Size: ϕ63 × 45 mm (ϕ2.5 × 1.8 in.)
Material: Stainless steel

Workpiece: Gear shaft
Size: ϕ130 × 300 mm (ϕ5.1 × 11.8 in.)
Material: S45C

Workpiece: Sprocket
Size: ϕ180 × 80 mm
(ϕ7.1 × 3.1 in.)
Material: S45C

Workpiece: Connection flange
Size: ϕ250 × 125 mm (ϕ9.8 × 4.9 in.)
Material: Titanium

NTX 1000 3rd Generation

Turn-mill spindle with Wide Range of Motion

The turn-mill spindle travels on the X- / Y- / Z- / B-axis, achieving easy access to surfaces of complex-shaped workpieces to be machined. Machining that used to require several steps (chucking) can now be completed in one chucking, which leads to process integration.
The model equipped with the DDM (Direct Drive Motor) allows for high-speed, high-accuracy machining.

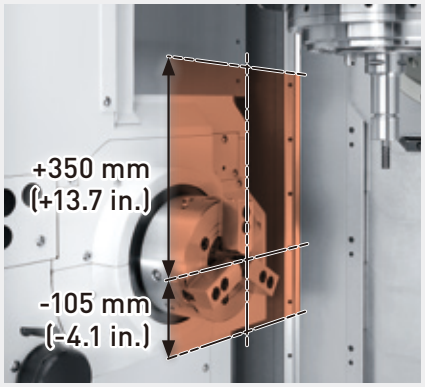
+ Turn-mill spindle utilizes Direct Drive Spindle (DDS)
+ Turn-mill spindle max. speed Standard: 12,000 min^{-1} Option: 20,000 min^{-1}
+ B-axis driven by a direct drive motor (DDM)
+ Highly rigid two-face contact specification Standard: Capto C5 Option: HSK-A50 (T50), Capto C6, HSK-A63 (T63)
+ Tool storage capacity Standard: 38 tools Option: 76, 114 tools
+ Max. tool diameter: ϕ130 mm (ϕ5.1 in.) <Without adjacent tools>, ϕ70 mm (ϕ2.7 in.) <With adjacent tools>
+ Tool changing time: 2.26 sec. <Tool-to-tool>

compactMASTER

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

X-axis travel in the negative direction

The X-axis stroke in the negative direction has been extended from 50 mm (1.9 in.) to 105 mm (4.1 in.). This allows the linear axis to reach the lower part of the chuck and perform machining without decreasing accuracy. So, you can create programs for the mill turn center in the same way as for a machining center.



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

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

DDM
Direct Drive Motor

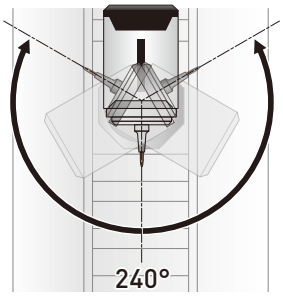
Effects of DDM

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

DDM: Direct Drive Motor

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

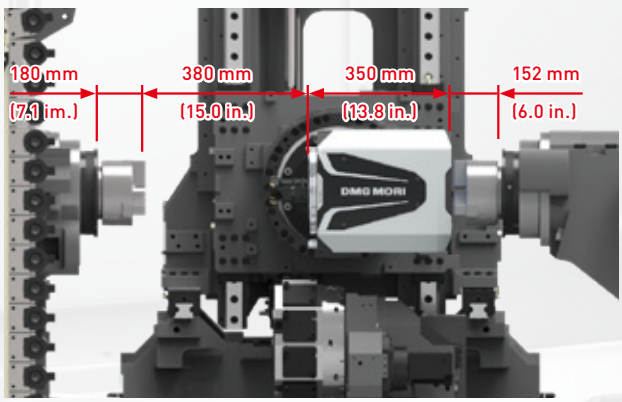
High-Flexibility B-axis



NTX 1000 3rd Generation

Newly compatible with Capto C6 Turn-mill spindle length reduced from 400 mm (15.7 in.) to 350 mm (13.8 in.)

Turn-Mill Spindle for Capto C6 and HSK-A63



Travel and workpiece size

+ Max. turning diameter (Turn-mill spindle / Turret 2): ϕ430 mm (ϕ16.9 in.) / 274 mm (10.7 in.)
+ Max. turning length: 780 mm (30.7 in.)
+ Z1-axis travel: 780 mm <-380 mm (-15.0 in.) +400 mm (+15.7 in.)> + 185 mm (7.3 in.) <for ATC>
+ Max. tool length <Tool diameter less / greater than ϕ70 mm (ϕ2.7 in.)>: 236 mm (9.2 in.) / 210 mm (8.2 in.)
+ Rapid traverse rate: 40,000 mm/min (1,574.8 ipm) <X-axis / Y-axis>, 50,000 mm/min (1,968.5 ipm) <Z-axis>

Output and torque

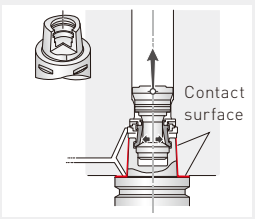
+ **FANUC**
  12,000 min^{-1}: 28 / 26 kW (37.3 / 34.7 HP), 132 / 95.3 N•m (97.4 / 70.3 ft•lbf) <40%ED / cont>
  20,000 min^{-1}: 27 / 22 kW (36.0 / 30 HP), 123 / 91.3 N•m (90.7 / 67.3 ft•lbf) <40%ED / cont>

Two-face contact specification

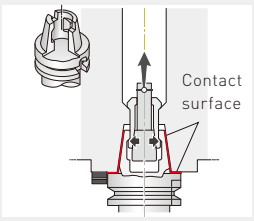
Flexural rigidity of tools has been improved by the contact with both the spindle taper and the end face. This extends tool life and improves cutting performance and machining accuracy.

● DMG MORI builds all the spindles in house.

Capto Specifications



HSK Specifications (Option)



Tool magazine

			NTX 1000	
			Capto C5	Capto C6
Tool storage capacity			38, 76, 114	
Max. tool diameter	Without adjacent tools	mm (in.)	ϕ130 (ϕ5.1)	
	With adjacent tools	mm (in.)	ϕ70 (ϕ2.7)	
Max. tool length	Tool diameter smaller than ϕ70 mm (ϕ2.8 mm)	mm (in.)	250 (9.8)	236 (9.2)
	Tool diameter larger than ϕ70 mm (ϕ2.8 mm)	mm (in.)	210 (8.2)	
Max. tool mass		kg (lb.)	5 (11)	
Max. tool mass moment (from spindle gage line)		N·m (ft·lbf)	3.9 (2.87)	
Tool changing time (Tool-to-tool)		sec.	2.26	

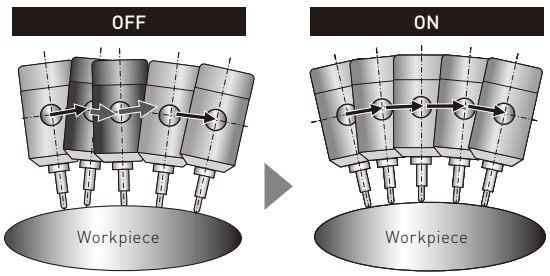
● Photo: Tool storage capacity 76 tools

Function for supporting simultaneous 5-axis machining

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

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

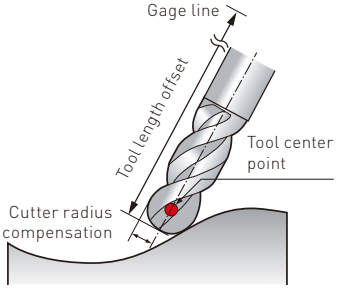
Motion of the SVC function



The SVC function includes the following functions:

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

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



Main features

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

NTX 1000 3rd Generation

Turret 2 for Flexible Machining

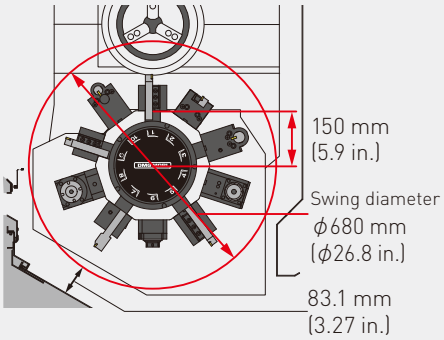
Turret 2 (Option) enables flexible machining, from turning to secondary machining and back side milling, of workpieces on Left spindle and Right spindle (Option) sides. The milling specification is equipped with the BMT (Built-in Motor Turret). The heat is controlled with jacket cooling, which ensures outstanding machining accuracy. The NTX 1000 3rd Generation is capable of coherent and simultaneous milling and turning, greatly contributing to process integration and improvement of productivity for customers.

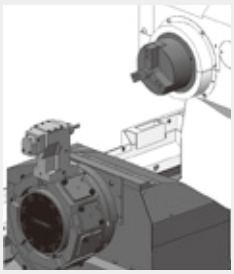
Turret 2 featuring BMT technology (Option)

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

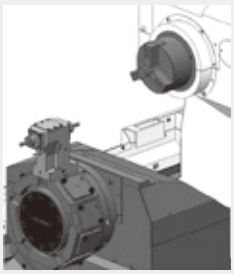
Large indexing diameter and tool holders for milling operation on the Right spindle side (Option)

The swing diameter of the 10-station turret is 680 mm (26.8 in.), enabling flexible tooling. The holders for end face milling can be used for end face milling of workpieces on the Right spindle side using Turret 2, which leads to shorter cycle times.



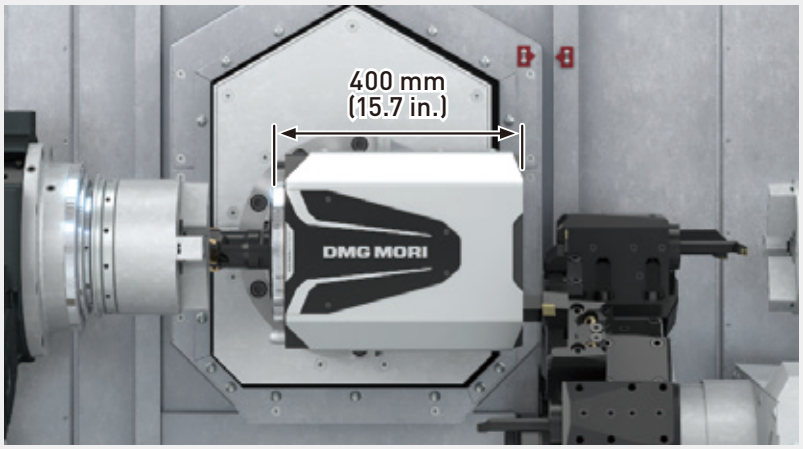


Offset holder for drilling end face oil holes



Offset holder for drilling both faces

Synchronous machining with turn-mill spindle and turret 2



Turret 2 can be used during machining even if the 400 mm (15.7 in.) long turn-mill spindle is between the left and right spindles.

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

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

BMT
Built-in Motor Turret

Effects of the BMT

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

BMT: Built-in Motor Turret

NTX 1000 3rd Generation

Cutting-edge Chip Disposal Solution

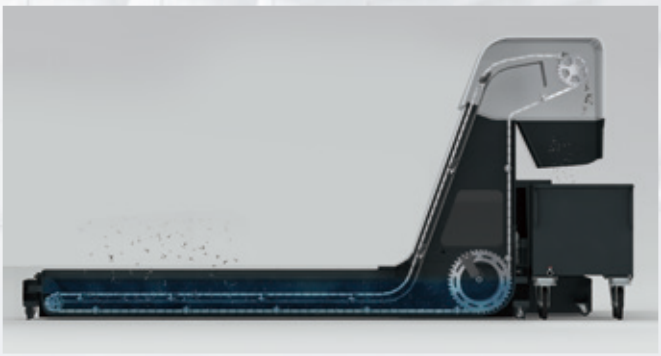
Chips can be one of the main causes leading to machining failure and machine stop.
DMG MORI conducted an in-depth study on them by carrying out various experiments and analyses, and achieved outstanding chip disposal performance.
We offer optimal chip disposal solutions according to a machining condition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

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 (Standard features)

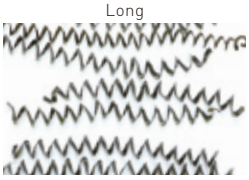
A hinge-type conveyor discharges long chips, and a cleat (scraping plate) on the hinge belt discharges short, fine chips. This enables processing of a mixture of long and short chips, regardless of the material type.



Hinge type + Drum filter type chip conveyor

Chip conveyor (Standard features)

+ Provides highly efficient chip disposal

	Workpiece material and chip size		
	Steel		20 mm (0.8 in.)
	Long	Short	Powdery
			
Hinge type + Drum filter 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, ϕ40 mm (ϕ1.6 in.) or less in diameter (a lump of chips) /Long: over 50 mm (2.0 in.)

Chip flushing coolant

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

Shower coolant

Washes chips off the machining chamber walls & allows them to flow smoothly into the chip conveyor.

Through-spindle coolant system <Turn-mill spindle>

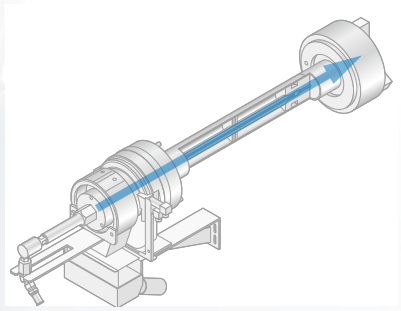
+ Coolant to be supplied to the tip through the holes of the spindle and tool
+ Effective for chip removal, cooling of machining points and extension of tool life

Center through

⚠ 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.

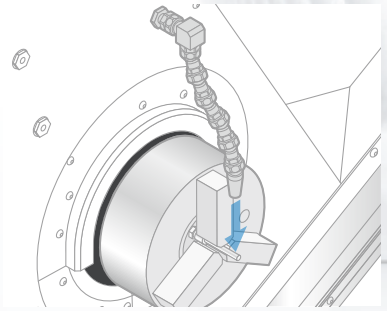
Through-spindle coolant system <Left, Right spindle> (Option)

Coolant supplied through the center of the chuck removes chips generated during I.D. machining.



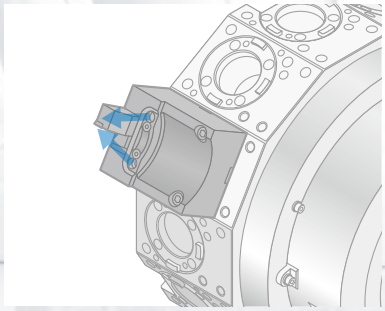
Coolant in upper part of chuck (Option)

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

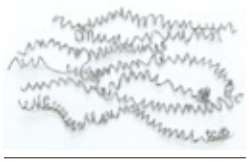
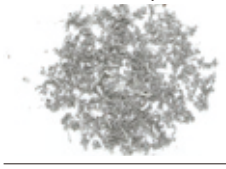


Air blow <Tool tip> (Option)

Air is blown toward the tool tip to blow away chips adhering to the tool.



○: Suitable △: Consideration required —: Not suitable

Workpiece material and chip size					
Cast iron			Aluminum, non-ferrous metal		
Short	Powdery (20 mm (0.8 in.))		Long	Short	Powdery (20 mm (0.8 in.))
					
○	△*		○	○	△*

- 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.

Unique Solutions against Chip, Coolant, Mist Troubles to Advance Process Integration & Automation

Chips, coolant, and mist generated during machining can cause severe machine troubles and are major hindrances to automation.
The NTX 1000 3rd Generation adopt state-of-the-art technology to eliminate such problems, enabling long unmanned machine utilization for maximized automation effects.

● 3 machining troubles: Cutting chips, coolant, and mist hinder stable and continuous production and deteriorate the factory environment.

*zero-sludge*COOLANT *pro*

Access here for the video

Innovative Vertical Coolant Tank

The newly developed vertical coolant tank is compact in size, energy-saving and offers high capacity.
This makes it the optimal coolant solution for continuous operation of highly productive automation systems.

1. For continuous unmanned operation over long periods

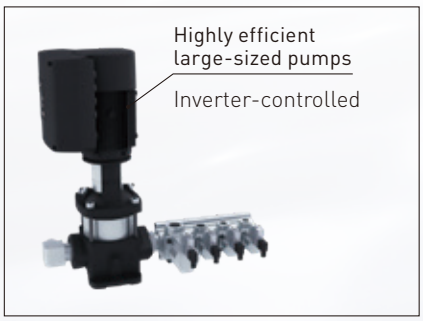
+ Use of innovative large-capacity vertical coolant tank
+ Coolant capacity: 1,180 L (311.5 gal.)
  <188% more than previous model>
+ Hybrid cleaning method against chip accumulation

2. Coolant tank with less cleaning

+ The deep vertical tank automatically separates oil and sludge by weight
+ The efficient collection of sludge and oil extends coolant life and significantly reduces the tank cleaning frequency

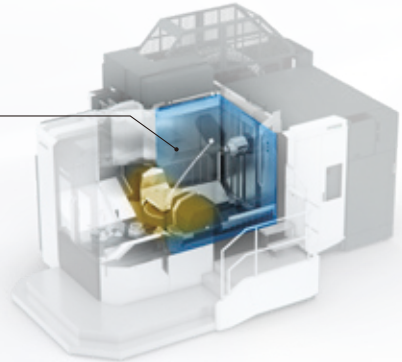
3. Energy-saving

+ Newly equipped with highly efficient large-sized pumps & control valves for high-volume coolant cleaning
+ Inverter adjusts pump to control flow rate and save energy



1. 260 L/min (68.6 gpm)
   High-volume coolant cleaning

+ In-machine cover washing against chip accumulation



Max. discharge pressure 10.0 MPa (1,450 psi) <variable pressure> High-pressure through-spindle coolant system *

+ Discharge pressure can be set for individual tools via command <1.0 to 10.0 MPa (145 to 1,450 psi)>
+ Pressure feedback and inverter control significantly reduce power consumption and coolant heat generation
+ Enables lean chip removal optimized to machining contents

* Option

*zero*FOG*1

CLEAN

+ Air quality comparable to household air purifiers
  Mist collection efficiency over 99.97% for 0.3 µm particles
+ Stable collection performance realized by filter clogging monitoring and automatic motor control*3

COMPACT

+ Attachable to the machine body*4.
  No additional floor space necessary.
  Unified design concept with the machine

High maintainability

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

ENERGY-SAVING

+ Contribution to SDGs:
  less energy consumption and carbon emission

Mist collection efficiency of 99.97% or more*2

*zero*FOG

*1 Option
*2 *zero*FOG collects fine particles of 0.3 µm.
*3 Airflow may decrease depending on operating conditions such as mist concentration, oil type, and machining details.
*4 The method of mounting on the machine varies depending on the model and specifications.

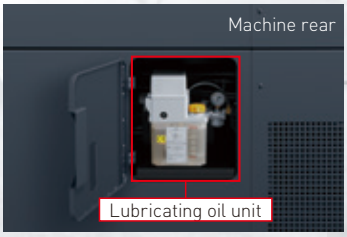
Access here for the video

NTX 1000 3rd Generation

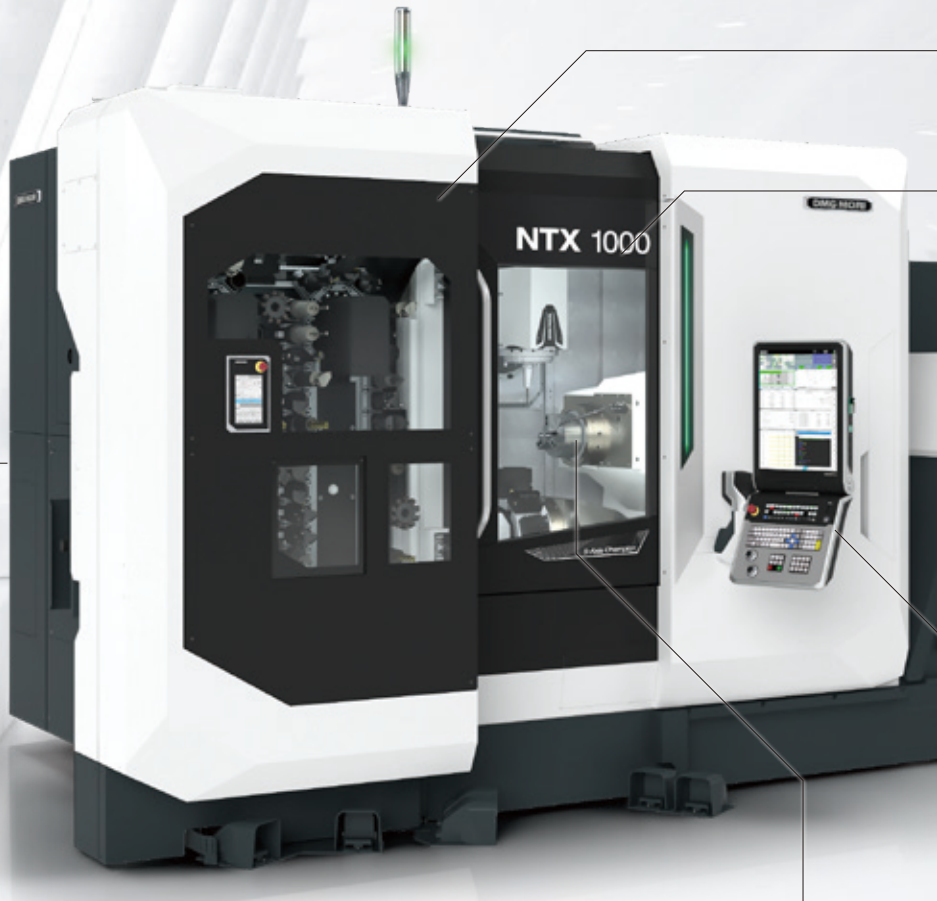
Pursuit of Usability

The NTX 1000 3rd Generation is designed with the highest priority on operator usability.
The usability-focused approach can be seen throughout the machine design, which includes a larger window for greater visibility, and the hydraulic units and other devices in an easily accessible location for better maintainability.

Easy-to-access Units & Devices



The equipment layout is designed for daily operation and maintenance.



● Photo: Right spindle specifications

High-rigidity Digital Tailstock <Tailstock specification>

There are two types of tailstocks available: standard MT4 live center (without center) and optional MT3 built-in center (with center).
The servo motor-driven, high-rigidity digital tailstock helps achieve significant reduction in setup time.

Tool magazine for improved workability

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

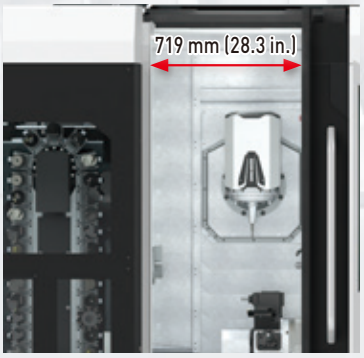
Wide-opening magazine door

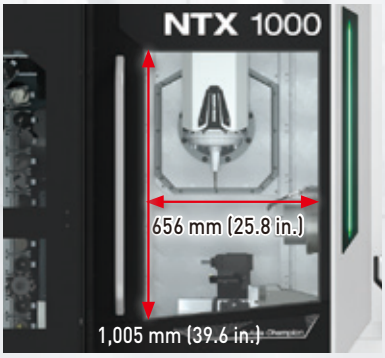

Tool removal with a single push of a button


7-inch touch panel usable with gloves

Find a video about the magazine operation panel here.

Door with Outstanding Visibility





ERGO*line* X with Superior Operability

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

NTX 1000 3rd Generation

Various Automation Solutions

The NTX 1000 3rd Generation provides various automation systems including in-machine travelling robot and workpiece unloaders.
With automation systems, it is possible to handle a whole process from blank workpieces to finished products. Reduction in non-cutting times maximizes customer profit.

● Machine appearance varies depending on the specification.

In-machine travelling type robot (Option)

Robot loads material into left spindle and unloads finished workpiece from right spindle (Option). Additionally robot can manage different shapes of workpieces, washing and deburing as well.

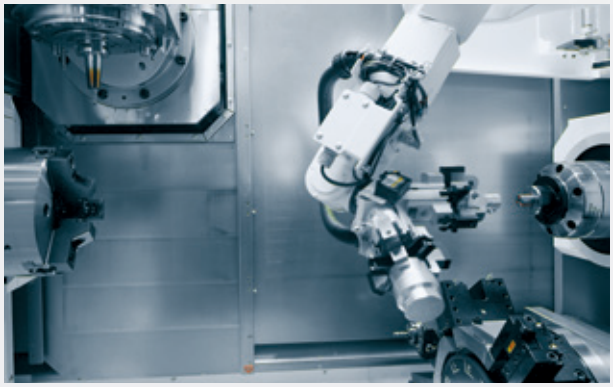
		Robot
Maximum Mass (Robot hand + workpiece)	kg (lb.)	12 (26.4)

● 2 types of hands: single hand and double hand

Robot package (Option)

The robot carries a workpiece on a tray to the inside of the machine to attach it to the spindle, and then receives a machined workpiece from the spindle to return it to a tray. The tray can be manually put in and taken out from the stocker, making continuous machining possible.

Stores a machined part, picks up a material



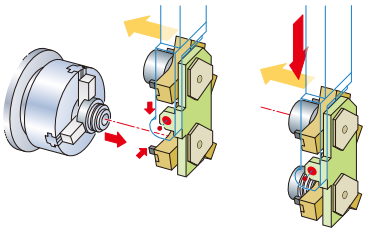
Detaches a machined part, attaches a material

MATRIS Light (Option)

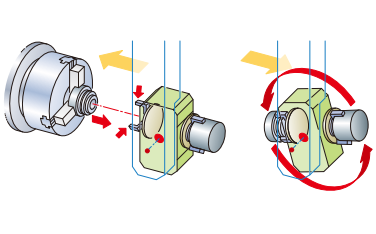
This is a freely movable robot system with a human-collaborative robot mounted on a hand cart.

+ **Robot cart movable by a single operator**
+ **Direct teach function allows easy teaching without robot expertise**
+ **Max. transfer mass: 10 kg (22 lb.) <MATRIS Light10>**
+ **Highly sensitive robot stop function stops as soon as it detects human contact, eliminating the need for fencing**
+ **No major equipment modifications required for installation, immediate start of robot operation.**

Gantry-type loader system (Option) <Consultation is required>



Parallel hands



Back end double hands

Gantry loader standard accessory / specification

+10-station rotary workstocker (LG-10)
+Hand airblow
+Automatic power-off system
+Workpiece counter (PC counter)
+Spindle orientation
+Low air pressure detecting switch

Bar feeder interface (Option)

Combined with a workpiece unloader to realize integrated bar processing.

Recommended accessories for bar feeder specification

+ Bar feeder
+ Multi counter
+ Tool Visualizer
+ Guide bushing
+ Work stopper

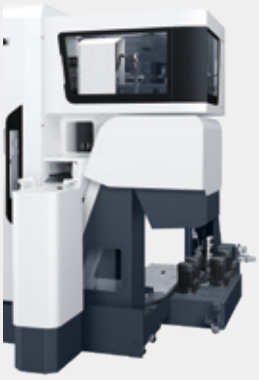
Workpiece unloader (Option)

The NTX 1000 3rd Generation offers three types of workpiece unloaders: the Right spindle type, the turret turning type and the swing type. Each customer can select the optimal type according to their needs.

Basic specification		T1 MC1 B1 Y1 LS TS				
Optional specifications	—	T2	T2 MC2	RS	T2 RS	T2 MC2 RS
Right spindle type	—	—	—	●	●	●
Turret type	—	●	●	—	●	●
Swing type	●	—	—	●	—	—

	Max. workpiece size		
	Diameter	Length	Max. mass
Right spindle type	ϕ65 mm (ϕ2.5 in.)	230 mm (9.0 in.)	3 kg (6.6 lb.)
Turret type	ϕ65 mm (ϕ2.5 in.)	150 mm (5.9 in.)	3 kg (6.6 lb.)
Swing type	ϕ65 mm (ϕ2.5 in.)	150 mm (5.9 in.)	3 kg (6.6 lb.)

Workpiece unloader from the right spindle



Hand type

Receive position

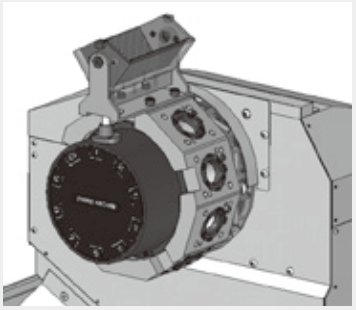
Unloader ready position

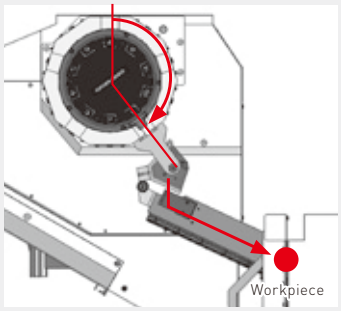
Unloader deployed

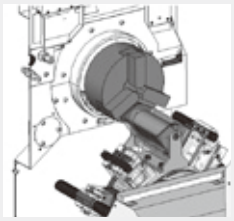
Workpiece receiver type

Transfer conveyor and workpiece container

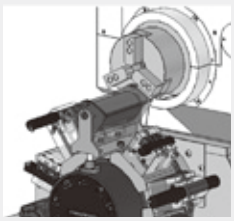
Workpiece unloader (Turret type)





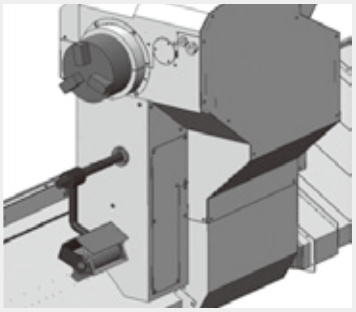


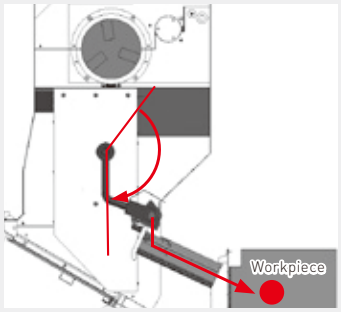
Receiving in Left spindle

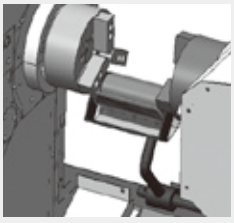


Receiving in Right spindle

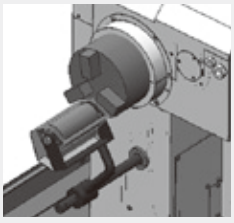
Workpiece unloader (Swing type)







Receiving in Left spindle



Receiving in Right spindle

■ : Standard　□ : Option

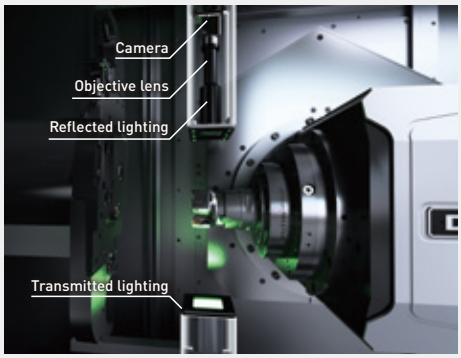
T1 : Turn-mill spindle　**T2** : Turret 2　**LS** : Left spindle
MC1 : Turn-mill spindle <Milling>　**MC2** : Turret 2 (Milling)　**RS** : Right spindle
Y1 : Turn-mill spindle <Y-axis>　**Y2** : Turret 2 (Y-axis)　**TS** : Tailstock
B1 : Turn-mill spindle <B-axis>

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

Tool Visualizer (Option) <Consultation is required>

The highly efficient on-machine measurement reduces manual setups, automates tool measurement, and enables easy data collection.

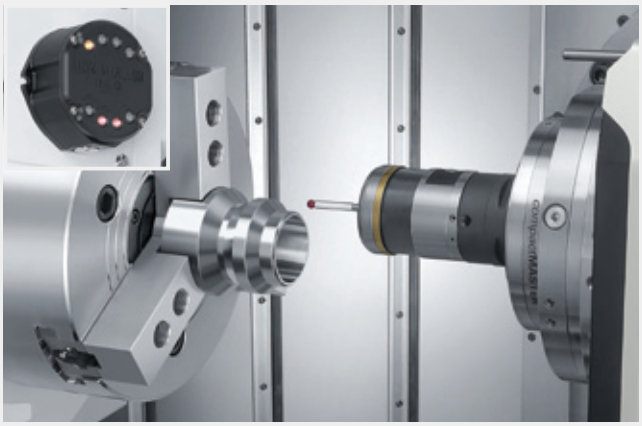
+ Automatic on-machine measurement of tool geometry and setting of tool compensation
+ Detection of drill breakage and chip winding
+ Automatic image capture of tool edge during ATC and manual wear measurement for tool life management
+ Creation of tool model data for interference check, data imported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



Find detailed information on Tool Visualizer here.

In-machine measuring device Touch sensor with radio wave signal transmission <Renishaw> (Standard features)

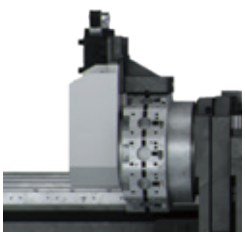
A touch sensor (radio wave signal transmission) is attached to the turn-mill spindle to position the workpiece and measure the fixture and workpiece. The workpiece coordinates read by the touch sensor are transmitted as radio wave signals to the control unit via a receiver installed in the machine. The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



Self-correcting steady rest (Turret 2) <Clamped movement during processing not possible> (option)

Prevents vibration and deflection when machining long workpieces. The arm supporting the workpiece is opened and closed automatically by hydraulic pressure. The open end of the arm is checked by a proximity switch. The steady rest is fixed to the turret with a bracket and bolts. The turret can be swiveled even with the bracket installed, and tools can be mounted on empty stations. The turret can still be used for machining that does not require a steady rest, but the adjacent 3 tool stations cannot be used.

Turret 2 type



- SMW SLU-X1
  ϕ6 - 70 mm (ϕ0.2 - 2.8 in.)
- SCHUNK THL plus 100
  ϕ7 - 66 mm (ϕ0.3 - 2.8 in.)

NTX 1000 3rd Generation

DMG MORI Qualified Products One-stop Service for Various Needs

The DMG MORI Qualified Products (DMQP) program <Option> is designed to certify peripherals that meet DMG MORI standards in quality, performance and maintainability. DMG MORI collaborates with our partners in the world and provides customers with peripherals required for their machining.
We take care of the arrangement from selection to installation to support best-quality machining.
DMG MORI helps customers improve productivity by offering the total solutions including quality peripherals as well as machine tools.

Find detailed information on DMQP here.

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

Four DMQP categories

Handling
- Robot system
- Bar feeder

Shaping
- Rotary window
- Oil skimmer
- Hydraulic steady rest
- Super-high pressure coolant system

Measuring
- External tool measurement
- Surface roughness measuring system

Monitoring
- Electrical cabinet chiller
- Coolant chiller

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

DMQP: DMG MORI Qualified Products

Bar feeder

Hydraulic steady rest

Chuck

Tool balancer

Shrink fit device

In-machine measuring system (Tool)

Air dryer

Air compressor

Coolant

Rotary window

Tool cabinet

Cutting tools

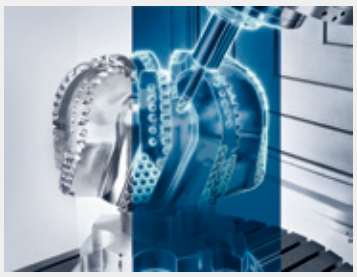
NTX 1000 3rd Generation

DMG MORI Technology Cycles

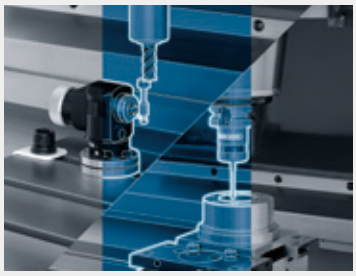
Technology Cycles (Option) are total solutions that achieve complex machining easily in a short time. They enable every operator to easily perform high-quality machining, setups and measurement with general-purpose machine tools and standard tools / fixtures, which used to be done with specialized machines,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

Find detailed information on Technology Cycles here.

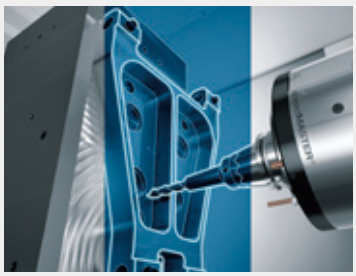
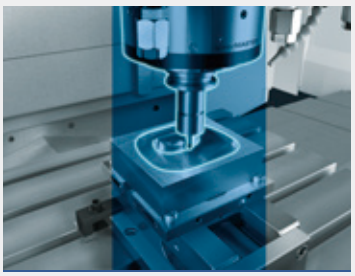
Shaping



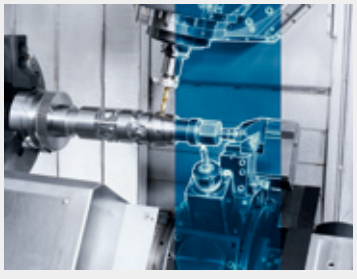
Measuring


Monitoring

Handling



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

Respond to Various Technology Cycles

Shaping

Gear hobbing*1

Optimal programming achieves hobbing with a general-purpose machine

Efficient　High precision

Find detailed information on Gear hobbing here.

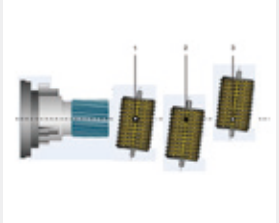
Issue (before introduction)

*2

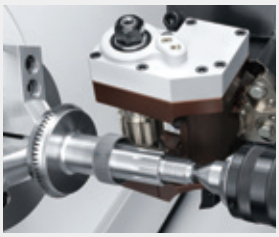
+ A gear machine is needed. After blank machining with a turning machine, gear machining needs to be performed with a gear machine after setup changes
+ Want to extend the tool life of expensive hob cutter

Results (after introduction)

+ Hobbing program can be easily created by conversational input



+ Hob cutter's machining position can be changed, maximizing the tool life



+ Consolidation of machining operations into the general-purpose machine reduces setup time and enhances accuracy such as concentricity due to no setup change

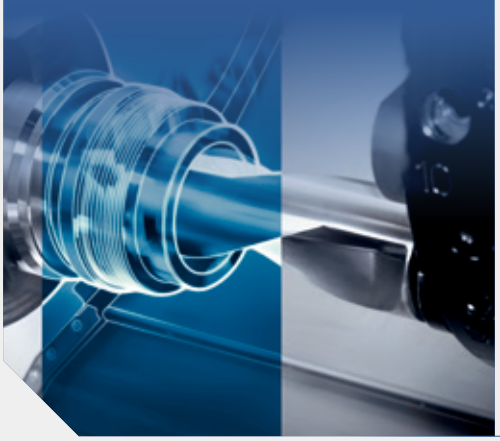
*1 Consultation is required
*2 <Reference> Wikipedia: Hobbing; https://ja.wikipedia.org/wiki/%E3%83%9B%E3%83%96%E7%9B%A4 (quoted on September 19, 2018)

Monitoring

Easy tool monitoring

Monitoring load of spindle and traveling axes

Efficient Safe



Issue (before introduction)

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

Results (after introduction)

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

Handling

Multi-tool

Maximizing number of tools & minimizing non-cutting time

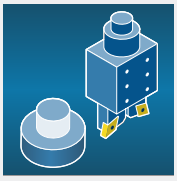
Efficient

Issue (before introduction)

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

Results (after introduction)

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



Handling

Alternating speed

Stable machining in which chatter hardly occurs

Efficient　High precision

Issue (before introduction)

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

Results (after introduction)

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

Find detailed information on Alternating speed here.

Shaping

Multi-threading 2.0*1

Cutting special thread

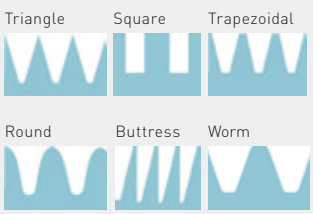
Efficient

Issue (before introduction)

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

Results (after introduction)

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



Find detailed information on Multi-threading 2.0 here.

*1 Consultation is required
*2 Equivalent to JIS B 1723 Type 4 (DIN 3975 ZI)

Shaping

gearSKIVING*

High-speed gear cutting including internal teeth

Efficient High precision

Issue (before introduction)

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

Results (after introduction)

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

Find detailed information on gearSKIVING here.

Shaping

Excentric machining*

Find detailed information on Excentric machining here.

Efficient High precision

Easy programming of excentric machining

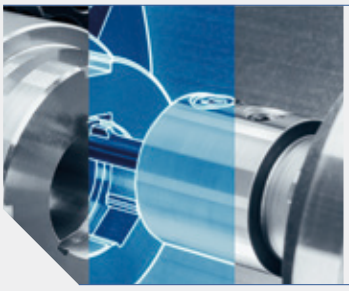
+ Reduce setup time by consolidating machining operations performed with a special machine into a general-purpose machine
+ Complicated program for excentric machining can be created using the conversational programming style
+ Compatible with both turning and milling to achieve efficient machining
+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

Shaping

Keyway broaching

Find a video about Keyway broaching here.

Efficient



Complete keyway broaching process integrated into one machine

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

* Consultation is required

Handling

Retraction cycle

Efficient Safe

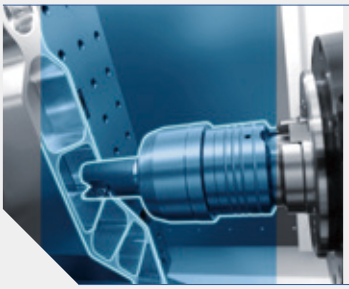
Automation allows for easy return to the zero return position without errors

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

Shaping

Efficient Production Package (High-speed canned cycle)

Efficient Safe High precision



Easy inputting of various machining patterns

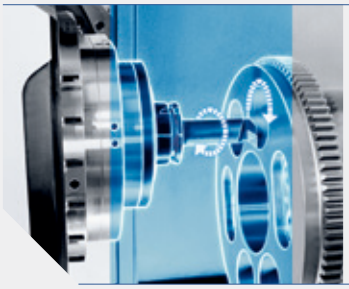
+ A program will be automatically created just by entering a complex shape in a conversational style
+ Safe cutting is ensured by confirming cutting details using the simulation function
+ Optimal tool path and cutting conditions enhance cutting quality

Shaping

Interpolation turning*

Find detailed information on Interpolation turning here.

Efficient High precision



Easy programming of interpolation turning

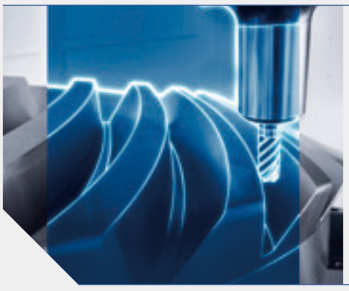
+ Interpolation turning can be programmed using the conversational programming style
+ O-ring groove and sealing surface can be cut
+ Tuning process can be performed at the eccentric position in one chucking, enabling process integration.

Shaping

DMG MORI gearMILL*

Find detailed information on DMG MORI gearMILL here.

Efficient High precision



Integrating gear cutting into Turning / Milling

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

* Consultation is required

Shaping

Simultaneous 5-axis machining

Efficient High precision

Most suited for simultaneous 5-axis control machining

+ Tool center point (TCP) control
+ Workpiece setting error offset
+ Tool radius offset for 5-axis control machining
+ High-speed, high-precision machining II
+ Tilted Working Plane Command
+ SSS Control package

Measuring

3D quickSET

Find detailed information on 3D quickSET here.

Efficient High precision

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

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

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

Handling

Application Tuning Cycle

Efficient

Easy setting of optimum feed according to the machining operation

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

Handling

Tailstock for turret

Find detailed information on Tailstock for turret here.

Efficient

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

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

Handling

Steady rest for turret

Find detailed information on Steady rest for turret here.

Efficient

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

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

Handling

Counter spindle tip

Efficient

Supports operation programming of the center mounted on the right spindle

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

Monitoring

MVC (Machine Vibration Control)

Find detailed information on MVC here.

Efficient

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

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

Monitoring

MPC (Machine Protection Control)

Efficient Safe

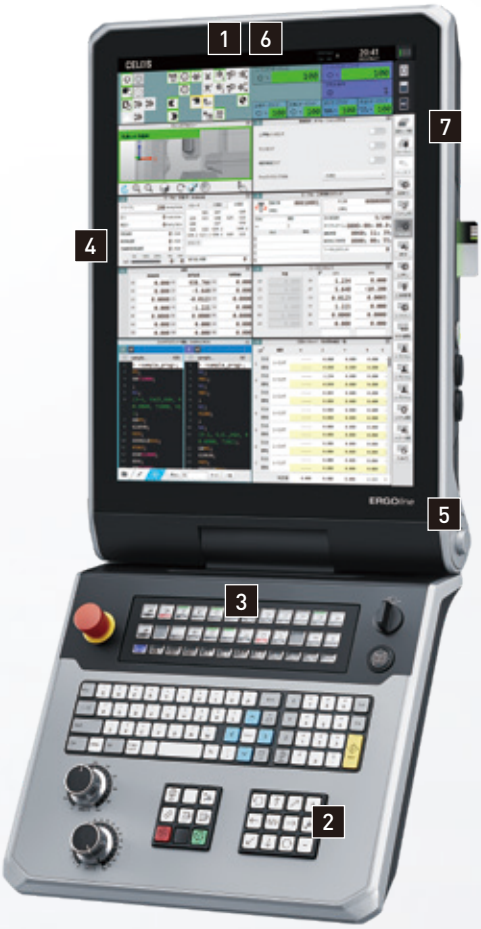
Vibration of turn-mill spindle detected by sensor

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

NTX 1000 3rd Generation

ERGOline X with CELOS X Smooth and Time-saving Operation

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



1 Large touch screen
Superior visibility and intuitive operation.

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

* Option

Electrostatic touch panel

Can also be operated with gloves on

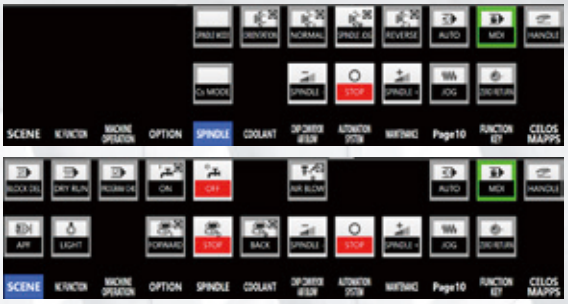
CELOS: Control Efficiency Lead Operation System

2 Hardware buttons that are easy to press Ideal for program input where accuracy is required.

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

3 HYBRID BAR

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



Example of displayed buttons

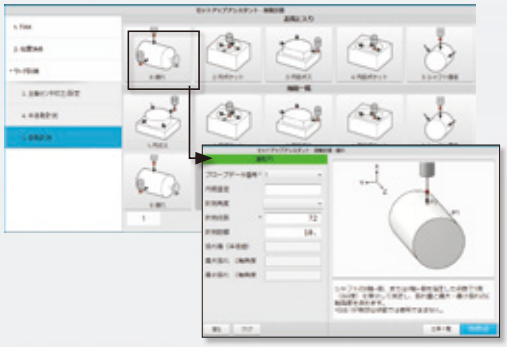
+ Switches displayed buttons automatically to suit your current operation
+ LCD panel with comfortable push sensation
+ Synchronized with open programs on the touch screen

4 Useful applications that reinforce your production processes

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

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

6 Simple input screen for smooth completion of setup



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

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

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

Compared with previous panel 30% reduced time*!

Drawing simulation

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

Intel Core is a trademark or registered trademark of Intel Corporation

NTX 1000 3rd Generation

Digital Solutions Promoting the Digital Transformation of Your Shopfloor

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

Digital Transformation of programming
Program Creation in CAD / CAM

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

CELOS DYNAMICpost *1

Access here for the video

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

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

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

TULIP

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

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

Access here for the detail of TULIP

MESSENGER

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

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

Access here for the video

NET*service*

Quickly recover from any problems!

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

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

Robust security

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

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

Whitelist security software

NTX 1000 3rd Generation

Network Construction and Connection Services for Factories DMG MORI GATEWAY

Access here for the video

DMG MORI GATEWAY provides a one-stop cloud connection for machines of all makes and ages, allowing you to monitor the shop floor status in real time.
The implementation requires no effort on the part of customers and can be completed by DMG MORI engineers.
The IoT-based, real-time shop floor visualization will help you make better business decisions and maximize production efficiency.

DMG MORI GATEWAY

Connectable to third-party machines and peripherals

Data stored in the DMG MORI cloud

Shop floor network built by DMG MORI engineers

Data accessible from PCs, tablets, and smartphones

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

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MTCONNECT is a trademark or registered trademark of AMT - The Association For Manufacturing Technology.
OPC UA is a trademark or registered trademark of OPC Foundation.

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

Access here for the video

my DMG MORI is a web-based platform that facilitates communication between customers and DMG MORI during repair and maintenance work.
Unlike phone calls, the digital communication allows both parties to exchange detailed information.
You can also view the updated status and history anytime, anywhere.

MORE SERVICE

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

MORE KNOWLEDGE

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

MORE AVAILABILITY

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

For Sustainable Production

The NTX 1000 3rd Generation is designed to save energy and reduce CO_2 emissions through process integration, automation and digitization, allowing for energy-efficient and sustainable production.
DMG MORI is committed to reduce CO_2 emissions across the entire supply chain and has been certified by SBT in 2021*.

* Abbreviazione di Science Based Targets. Obiettivi di riduzione di gas serra stabiliti dalle aziende per i prossimi 5-15 anni in base alle richieste dell' Accordo di Parigi (limitare l' aumento della temperatura globale a meno di 2 °C o a 1,5 °C rispetto ai livelli pre-industriali).

Scan the QR code for DMG MORI's approach towards sustainability.
https://www.dmgmori.co.jp/corporate/sustainability/en/

SUSTAINABLE MANUFACTURING

SUSTAINABLE PRODUCTS

DMG MORI GREEN MACHINE

SUSTAINABLE CORPORATE ACTIVITIES

SUPPLIERS + DMG MORI

Unique energy-saving function
GREENMODE

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

Monitoring of power consumption and CO_2 emissions on the CELOS operation panel screen

GREENMODE

GREEN monitoring

+ Visualize power consumption and CO_2 emission amount on the CELOS operation screen

GREEN device

+ High-brightness LED light

GREEN idle reduction

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

GREEN control

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

Contributing to sustainable production
Reducing CO_2 by 5-axis machining, process integration and automation

5-axis machines and automation systems reduce lead times with highly efficient production.
They also contribute to less CO_2 emissions and power consumption and improve customers' productivity.

MACHINE UTILIZATION

DMG MORI GREEN MODE

MORE EFFIIENT ENERGY AND EMISSIONS MACHINE OPERATION

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

DMG MORI GREEN TECH

TECHNOLOGY EXCELLENCE FOR GREEN TECHNOLOGIES

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

CUSTOMERS

NTX 1000 3rd Generation

Machine Specifications (FANUC F31iB5)

Basic specification			T1 MC1 B1 Y1 LS TS					
Optional specifications			—	T2	T2 MC2	RS	T2 RS	T2 MC2 RS
Capacity								
Swing over cross slide		mm (in.)	ϕ450 (ϕ17.7)					
Max. turning diameter <Turn-mill spindle / Turret 2>		mm (in.)	ϕ430 (ϕ16.9) / ϕ274 (ϕ10.7)					
Max. turning length		mm (in.)	800 (31.4)					
Bar work capacity		mm (in.)	ϕ52 (ϕ2.0), ϕ65 ϕ65 (ϕ2.5) <Through-spindle hole diameter: ϕ73 mm (ϕ2.8 in.)>, ϕ105 (ϕ4.1) <Through-spindle hole diameter: ϕ115 mm (ϕ4.5 in.)>					
Travel								
X1-axis <Turn-mill spindle>		mm (in.)	455 (17.9) <-105 - +350 (-4.1 - +13.7)>					
Y-axis <Turn-mill spindle>		mm (in.)	±105					
Z1-axis <Turn-mill spindle> + for ATC		mm (in.)	Capto C5: 800 (31.4) + 165 (6.4) <for ATC> Capto C6: 780 (3.0) + 185 (7.2) <for ATC>					
B-axis <Turn-mill spindle>			±120°					
Left spindle								
Spindle speed		min-1	6,000, 5,000 <Through-spindle hole diameter: ϕ73 mm (ϕ2.8 in.)>, 3,000 <Through-spindle hole diameter: ϕ115 mm (ϕ4.5 in.)>					
Right spindle (option)								
Spindle speed		min-1	—			6,000		
Turn-mill spindle <Turret 1>								
B-axis min. indexing increment			0.0001°					
Turn-mill spindle speed		min-1	12,000, 20,000 <High-speed>					
Turn-mill spindle taper hole			Capto C5, HSK-A50 (T50), Capto C6, HSK-A63 (T63)					
Tool magazine			38, 76, 114					
Max. tool diameter	With adjacent tools	mm (in.)	ϕ70 (ϕ2.7)					
	Without adjacent tools	mm (in.)	ϕ130 (ϕ5.1)					
Max. tool length		mm (in.)	Capto C5: 250 (9.8) <Tool diameter smaller than ϕ 70 mm (ϕ2.8 in.)> 210 (8.2) <Tool diameter larger than ϕ 70 mm (ϕ2.8 in.)> Capto C6: 236 (9.2) <Tool diameter smaller than ϕ 70 mm (ϕ2.8 in.)> 210 (8.2) <Tool diameter larger than ϕ 70 mm (ϕ2.8 in.)>					
Max. tool mass		kg (lb.)	5 (11)					
Turret 2 (option)								
Number of tool stations (Milling tool capacity)			—	10	10 <10>	—	10	10 <10>
Shank height for square tool		mm (in.)	—	20 (0.8)		—	20 (0.8)	
Max. milling spindle speed		min-1	—	10,000		—	10,000	
Tailstock								
Taper hole of tailstock spindle			Live center (MT4) Built-in center (MT3)			—		
Feedrate								
Rapid traverse rate	Turn-mill spindle	mm/min (ipm)	X1: 40,000 (1574.8) Y: 40,000 (1574.8) Z1: 50,000 (1968.5)					
	Turret 2	mm/min (ipm)	—	X2: 28,000 (1102.4) Z2: 36,000 (1417.3)		—	X2: 28,000 (1102.4) Z2: 36,000 (1417.3)	
	Right spindle	mm/min (ipm)	—			Z3: 36,000 (1417.3)		
		min-1	B: 100 C: 250					
Motors								
Left spindle drive motor <15%ED / 30 min / cont>		kW (HP)	22 / 18.5 / 15 (30 / 24.7 / 20), 26 / 22 (34.7 / 30) <25%ED / cont> <Through-spindle hole diameter: ϕ73 mm (ϕ2.8 in.)>, 22 / 11 (30 / 15)<40%ED / cont> <Through-spindle hole diameter: ϕ115 mm (ϕ4.5 in.)>					
Right spindle drive motor <15%ED / 30 min / cont>		kW (HP)	—			22 / 18.5 / 15 (30 / 24.7 / 20)		
Turn-mill spindle drive motor <25%ED / 10%ED / cont>		kW (HP)	11 / 7.5 / 7.5 (15 / 10 / 10)					
Turret 2 Milling spindle drive motor <15%ED / cont>		kW (HP)	—	4.6 / 2.4 (6.1 / 3.2)		—		4.6 / 2.4 (6.1 / 3.2)

∗1 Tool storage capacity: 38 tools
∗2 Tool storage capacity: 76 tools

- Bar work capacity: Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
- Max. spindle speed: Depending on restrictions imposed by the workpiece clamping device, fixture and tool used, it may not be possible to rotate at the maximum spindle speed.
- Power sources, Machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.
- The information in this catalog is valid as of July 2024.

■ : Standard　□ : Option

T1 : Turn-mill spindle　**T2** : Turret 2　**LS** : Left spindle

MC1 : Turn-mill spindle <Milling>　**MC2** : Turret 2 (Milling)　**RS** : Right spindle

Y1 : Turn-mill spindle <Y-axis>　**Y2** : Turret 2 (Y-axis)　**TS** : Tailstock

B1 : Turn-mill spindle <B-axis>

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

Standard & optional features (FANUC F31iB5)

●: Standard ○: Option
—: not applicable

		F31iB5
Fixture / Steady rest		
Automatic centering type steady rest	SLU-X1 <ϕ8 - 70 mm (ϕ0.3 - 2.8 in.)> <Fixed at Turret 2> <Traveling in clamped state during machining is not possible>*1	○
	SCHUNK ZENTRICO THL plus 100 <ϕ4 - 66 mm (ϕ0.2 - 2.6 in.)> <Steady rest body only>	○
	SCHUNK ZENTRICO THL plus 200 <ϕ8 - 101 mm (ϕ0.3 - 4.0 in.)> <Steady rest body only>	○
Coolant		
For chip flushing coolant	800 / 1,100 W <50 / 60 Hz>	●
For turn-mill spindle side-through coolant	800 / 1,100 W <50 / 60 Hz>	●
Through-spindle coolant system (Turn-mill spindle)	Standard pressure (800 / 1,100 W <50 / 60 Hz>)	●
	High-pressure <1 / 1.5 Mpa (145 / 217.5 psi)> <50 / 60 Hz> (If selected, standard pressure pump is not included.)	○*
	Super-high-pressure <10 Mpa (1,450 psi) variable> (If selected, standard pressure pump is not included.)	○*
*zero-sludge*COOLANT *pro*		●
Coolant chiller		●
Chip disposal		
Chip conveyor	Right discharge, Hinge type + Drum filter type	●
Measurement		
Manual type in-machine tool presetter	Left spindle (removable)	○
Automatic in-machine tool presetter	Turn-mill spindle (In-out type) <Specification without Turret 2>	●
	For turn-mill spindle (Metrol) + For Turret 2 (Renishaw) <Turret 2 specification>	○
	For turn-mill spindle (Metrol) + For Turret 2 (BLUM) <Turret 2 specification>	○
Tool breakage detector	Laser type (Renishaw) / touch type (Blum)	○
In-machine measuring system (Turn-mill spindle)	Touch sensor (Radio signal transmission type)*2	●
High-precision control		
Full closed loop control <Scale feedback> (Turn-mill spindle)	X1-, Y-, Z1-axis	●
Automation		
Workpiece Handling System (in-machine traveling robot)	Separate stocker, hand, and cover are not included.	○
Workpiece unloader	Turret type	○
	Swing type	○
	Right spindle type	○
Robot interface		○
Others		
• Built-in worklight (LED) • Leveling block • Hand tools		●
Chuck foot switch	2 foot switches	●
Dry anchor		○
Multi dry filter		●
Signal lamp	4 colors (LED type: red, yellow, green, blue)	●

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

* DMQP (DMG MORI Qualified Products)
*1 Not available for Turret 2 with the milling function.
*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 details, please consult our sales representative.

- DMQP: Please see Page 34 for details.
- The information in this catalog is valid as of July 2024.
- Specifications, accessories, safety device and function are available upon request.
- Some options are not available in particular regions. For details, please consult our sales representative.

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

NTX 1000 3rd Generation

Machine Specifications (SIEMENS 840D sl)

Basic specification			T1 MC1 B1 Y1 LS TS					
Optional specifications			—	T2	T2 MC2	RS	T2 RS	T2 MC2 RS
Capacity								
Swing over cross slide		mm (in.)	ϕ450 (ϕ17.7)					
Max. turning diameter <Turn-mill spindle / Turret 2>		mm (in.)	ϕ430 (ϕ16.9) / ϕ274 (ϕ10.7)					
Max. turning length		mm (in.)	800 (31.4)					
Bar work capacity		mm (in.)	ϕ52 (ϕ2.0), ϕ65 ϕ65 (ϕ2.5) <Through-spindle hole diameter: ϕ73 mm (ϕ2.8 in.)>, ϕ105 (ϕ4.1) <Through-spindle hole diameter: ϕ115 mm (ϕ4.5 in.)>					
Travel								
X1-axis <Turn-mill spindle>		mm (in.)	455 (17.9) <-105 - +350 (-4.1 - +13.7)>					
Y1-axis <Turn-mill spindle>		mm (in.)	±105 (±4.1)					
Z1-axis <Turn-mill spindle> + for ATC		mm (in.)	Capto C5: 800 (31.4) + 165 (6.4) <for ATC> Capto C6: 780 (3.0) + 185 (7.2) <for ATC>					
Z3-axis <Turn-mill spindle>			-30° - +210°					
Left spindle								
Spindle speed		min^{-1}	6,000, 5,000 <Through-spindle hole diameter: ϕ73 mm (ϕ2.8 in.)>, 3,000 <Through-spindle hole diameter: ϕ115 mm (ϕ4.5 in.)>					
Right spindle (option)								
Spindle speed		min^{-1}	—			6,000		
Turn-mill spindle <Turret 1>								
B-axis min. indexing increment			0.0001°					
Turn-mill spindle speed		min^{-1}	12,000, 20,000 <High-speed>					
Turn-mill spindle taper hole			Capto C5, HSK-A50 (T50), Capto C6, HSK-A63 (T63)					
Tool magazine			38, 76, 114					
Max. tool diameter	With adjacent tools	mm (in.)	ϕ70 (ϕ2.7)					
	Without adjacent tools	mm (in.)	ϕ130 (ϕ5.1)					
Max. tool length		mm (in.)	Capto C5: 250 (9.8) <Tool diameter smaller than ϕ 70 mm (ϕ2.8 in.)> 210 (8.2) <Tool diameter larger than ϕ 70 mm (ϕ2.8 in.)> Capto C6: 236 (9.2) <Tool diameter smaller than ϕ 70 mm (ϕ2.8 in.)> 210 (8.2) <Tool diameter larger than ϕ 70 mm (ϕ2.8 in.)>					
Max. tool mass		kg (lb.)	5 (11)					
Turret 2 (option)								
Number of tool stations (Milling tool capacity)			—	10	10 <10>	—	10	10 <10>
Shank height for square tool		mm (in.)	—	20 (0.8)		—	20 (0.8)	
Max. milling spindle speed		min^{-1}	—	10,000		—	10,000	
Tailstock								
Taper hole of tailstock spindle			Live center (MT4) Built-in center (MT3)			—		
Feedrate								
Rapid traverse rate	Turn-mill spindle	mm/min (ipm)	X1: 40,000 (1574.8) Y1: 40,000 (1574.8) Z1: 50,000 (1968.5)					
	Turret 2	mm/min (ipm)	—	X2: 28,000 (1102.4) Z2: 36,000 (1417.3)		—	X2: 28,000 (1102.4) Z2: 36,000 (1417.3)	
	Right spindle	mm/min (ipm)	—			Z3: 36,000 (1417.3)		
		min^{-1}	B: 100 C: 250					
Motors								
Left spindle drive motor <40%ED / 40%ED / cont>		kW (HP)	22 / 18.5 / 15 (30 / 24.7 / 20), 26 / 22 (34.7 / 30) <40%ED / cont> <Through-spindle hole diameter: ϕ73 mm (ϕ2.8 in.)>, 22 / 11 (30 / 15)<40%ED / cont> <Through-spindle hole diameter: ϕ115 mm (ϕ4.5 in.)>					
Right spindle drive motor <40%ED / 40%ED / cont>		kW (HP)	—			22 / 18.5 / 15 (30 / 24.7 / 20)		
Turn-mill spindle drive motor <25%ED / 15 min / cont>		kW (HP)	9 / 7.5 / 5.5 (12.0 / 10 / 7.5)					
Turret 2 Milling spindle drive motor <15%ED / cont>		kW (HP)	—		4.6 / 2.4 (6.1 / 3.2)	—		4.6 / 2.4 (6.1 / 3.2)

∗1 Tool storage capacity: 38 tools
∗2 Tool storage capacity: 76 tools

- Bar work capacity: Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
- Max. spindle speed: Depending on restrictions imposed by the workpiece clamping device, fixture and tool used, it may not be possible to rotate at the maximum spindle speed.
- Power sources, Machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.
- The information in this catalog is valid as of July 2024.

■ : Standard　□ : Option

T1 : Turn-mill spindle　**T2** : Turret 2　**LS** : Left spindle

MC1 : Turn-mill spindle <Milling>　**MC2** : Turret 2 (Milling)　**RS** : Right spindle

Y1 : Turn-mill spindle <Y-axis>　**Y2** : Turret 2 (Y-axis)　**TS** : Tailstock

B1 : Turn-mill spindle <B-axis>

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

Standard & optional features (SIEMENS 840D sl)

●: Standard ○: Option
—: not applicable

		840D sl
Fixture / Steady rest		
Automatic centering type steady rest	SLU-X1 <ϕ8 - 70 mm (ϕ0.3 - 2.8 in.)> <Fixed at Turret 2> <Traveling in clamped state during machining is not possible>*1	○
	SCHUNK ZENTRICO THL plus 100 <ϕ4 - 66 mm (ϕ0.2 - 2.6 in.)> <Steady rest body only>	○
	SCHUNK ZENTRICO THL plus 200 <ϕ8 - 101 mm (ϕ0.3 - 4.0 in.)> <Steady rest body only>	○
Coolant		
For chip flushing coolant	800 / 1,100 W <50 / 60 Hz>	●
For turn-mill spindle side-through coolant	800 / 1,100 W <50 / 60 Hz>	●
Through-spindle coolant system (Turn-mill spindle)	Standard pressure (800 / 1,100 W <50 / 60 Hz>)	●
	High-pressure <1 / 1.5 Mpa (145 / 217.5 psi)> <50 / 60 Hz> (If selected, standard pressure pump is not included.)	○*
	Super-high-pressure <10 Mpa (1,450 psi) variable> (If selected, standard pressure pump is not included.)	○*
*zero-sludge*COOLANT *pro*		●
Coolant chiller		●
Chip disposal		
Chip conveyor	Right discharge, Hinge type + Drum filter type	●
Measurement		
Manual type in-machine tool presetter	Left spindle (removable)	○
Automatic in-machine tool presetter	Turn-mill spindle (In-out type) <Specification without Turret 2>	●
	For turn-mill spindle (Metrol) + For Turret 2 (Renishaw) <Turret 2 specification>	○
	For turn-mill spindle (Metrol) + For Turret 2 (BLUM) <Turret 2 specification>	○
Tool breakage detector	Laser type (Renishaw) / touch type (Blum)	○
In-machine measuring system (Turn-mill spindle)	Touch sensor (Radio signal transmission type)*2	●
High-precision control		
Full closed loop control <Scale feedback> (Turn-mill spindle)	X1-, Y1-, Z1-axis	●
Automation		
Workpiece Handling System (in-machine traveling robot)	Separate stocker, hand, and cover are not included.	○
Workpiece unloader	Turret type	○
	Swing type	○
	Right spindle type	○
Robot interface		○
Others		
• Built-in worklight (LED) • Leveling block • Hand tools		●
Chuck foot switch	2 foot switches	●
Dry anchor		○
Multi dry filter		●
Signal lamp	4 layers (LED type Red, Yellow, Green, Blue)	●

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

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*1 Not available for Turret 2 with the milling function.
*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 details, please consult our sales representative.

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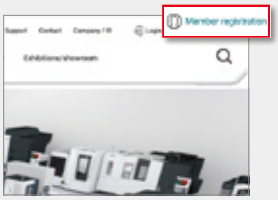

Click “Member registration”

Fill in necessary information

Receive a tentative registration email
Click the link to complete registration

Registration complete!

<Precautions for Machine Relocation>

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

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

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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 September 2025. 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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