

DMG MORI

High-Precision, High-Speed Horizontal Machining Center

NHX 4000 4th Generation Nhx 5000 4th Generation

NHX 4000 4th Generation
Nhx 5000 4th Generation



Unlock the Future of Manufacturing Process Integration, Automation, DX for GX

DMG MORI's Mission

Today

Machine tool market



02



Process integration

P06



Achieve process integration for high-mix workpieces and efficient mass production through improved rapid traverse speed, enhanced cutting performance, and excellent chip evacuation.

Automation

P26



Higher machine utilization with automated operation at night and on weekends

MX-driven management strategy

Model selection

Analyzing machining conditions

Employee Training

Machine installation & commissioning

Production planning

Programming

TULIP



by DX

DMG MORI Machining Transformation

With Machine Transformation (MX), we are driving Green Transformation (GX) through process integration and automation powered by Digital Transformation (DX). Our goal is to create a lean and clean manufacturing environment in terms of operators, resources, energy, factory floor space, and time.

2050s

Holistic solutions to maximize added value using process-integration machines



X TRANSFORMATION

DX DIGITAL TRANSFORMATION

P34



Digital tools for efficient and comfortable work environments

GX GREEN TRANSFORMATION

P38



Energy-saving and sustainable production

Improved productivity and energy efficiency through process integration and automation lead to reduced CO₂ emissions

DIGITAL
TRANSFORMATION

Setup

Machining

Monitoring

Measuring

Services

my DMG MORI



NHX 4000 4th Generation / NHX 5000 4th Generation

Cutting-edge & High-speed Precision Machining

The NHX 4000 4th Generation and NHX 5000 4th Generation are standard horizontal machining centers enabling high-efficiency, continuous machining and mass production machining in various areas such as the automotive and other mechanical fields. Both models are equipped with our latest spindle, the *speedMASTER*, ensuring high-speed and stable high-precision machining with the thick, high-rigidity bed.



Access here for the video

AerospaceStructural part

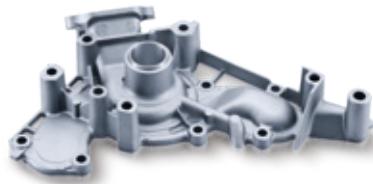
300 × 120 × 40 mm [11.8 × 4.7 × 1.6 in.] <Aluminum>

AutomobilesCylinder block

500 × 300 × 300 mm [19.7 × 11.8 × 11.8 in.] <Aluminum, Cast iron>

AutomobilesGear box housing

350 × 300 × 200 mm [13.8 × 11.8 × 7.9 in.] <Aluminum>

AutomobilesPump body

300 × 200 × 80 mm [11.8 × 7.9 × 3.1 in.] <Aluminum>

AutomobilesTransmission case

400 × 350 × 300 mm [15.7 × 13.8 × 11.8 in.] <Aluminum>

Semiconductor industryChamber housing

500 × 500 × 250 mm [19.7 × 19.7 × 9.8 in.] <Aluminum>

MotorcycleCase

200 × 200 × 150 mm [7.9 × 7.9 × 5.9 in.] <Aluminum>

Construction machineryControl valve

250 × 150 × 100 mm [9.8 × 5.9 × 3.9 in.] <Stainless steel>

Industrial machineryDifferential housing

180 × 100 × 80 mm [7.1 × 3.9 × 3.1 in.] <Cast iron>

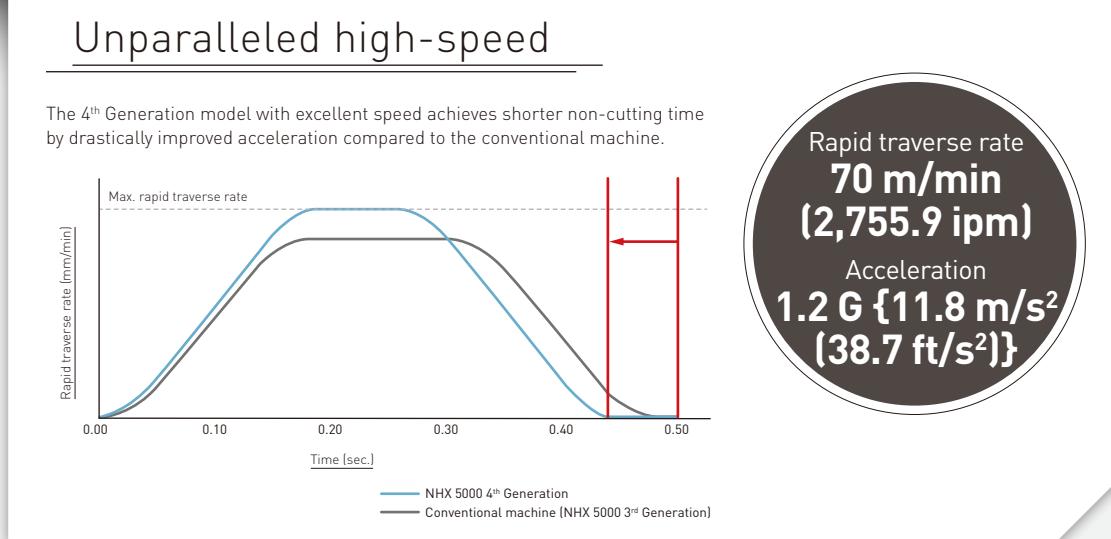
Industrial machinerySeat frame

400 × 210 × 50 mm [15.7 × 8.3 × 2.0 in.] <Stainless steel>

NHX 4000 4th Generation / NHX 5000 4th Generation

Horizontal Machining Centers With Outstanding Power and Precision

06



The NHX 4000 4th Generation and NHX 5000 4th Generation are designed to provide excellent rigidity, speed and accuracy. Their cutting-edge cover design achieves a perfect balance between functionality and form, enhancing ergonomic operability, while improving the shop floor aesthetic. The ERGOline X control panel with CELOS X offers intuitive controls to streamline tasks and enhance efficiency. Smart applications further boost productivity and drive digital transformation (DX).

CELOS: Control Efficiency Lead Operation System



P06



- + Improved rapid traverse and spindle acceleration / deceleration



P14



- + speedMASTER spindle with 400 V specification for higher spindle output



P20



- + Unmatched chip evacuation by stainless steel covers and a high-volume chip conveyor



- + Tailored automation solutions for non-stop, stable operations

* Solutions against chip, coolant and mist troubles for long machining utilization with stable performance and a clean factory environment.

07



P32



- + User-friendly operation panel



P38



- + Large pump and valve control for high flow rate and energy saving

08

NHX 4000 4th Generation / NHX 5000 4th Generation

Integrated Premium Model for Productivity and Reliability

+ Pallet size:

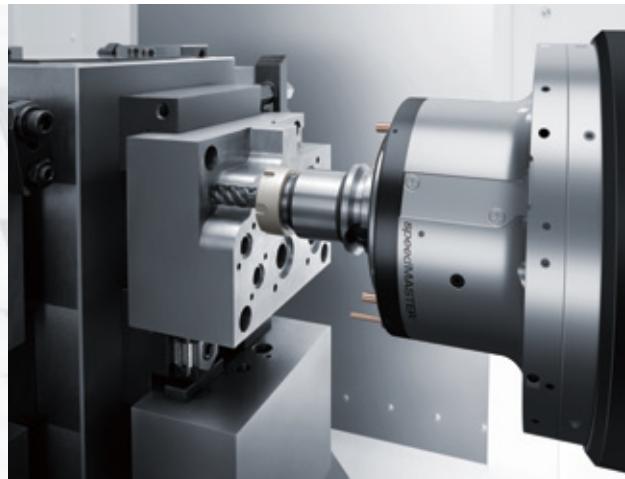
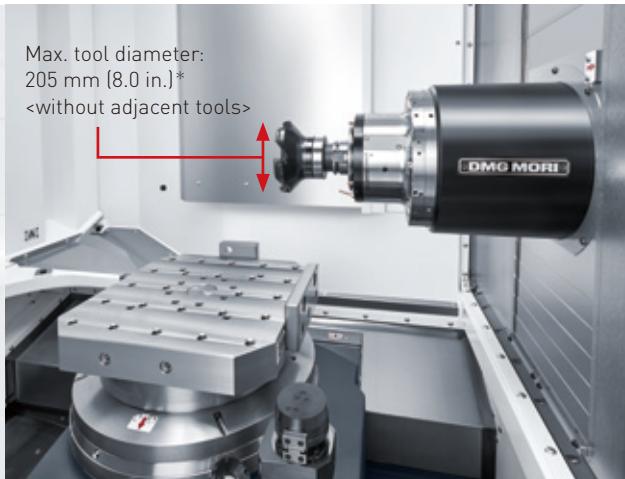
NHX 4000 // 400 × 400 mm (15.7 × 15.7 in.)
NHX 5000 // 500 × 500 mm (19.7 × 19.7 in.)

+ Max. weight per station:

NHX 4000 // 400 kg (880 lb.)
NHX 5000 // 500 kg (1,100 lb.), 700 kg (1,540 lb.)

NHX 4000Unbeatable cutting performance,
speed and accuracy

		NHX 4000	NHX 5000
Travel <X- / Y- / Z-axis>		mm (in.)	560 / 560 / 660 (22.0 / 22.0 / 26.0)
Max. workpiece height		mm (in.)	900 (35.4) ^{*1} , 880 (34.6) ^{*2}
Max. workpiece swing diameter		mm (in.)	630 (24.8)
Pallet loading capacity		kg (lb.)	400 (880)
Floor space <width × depth ^{*3} >	Standard zero-sludgeCOOLANT pro specification	mm (in.)	2,680 × 4,561 (105.5 × 179.6) 2,888 × 4,667 (113.7 × 183.7)
<small>*1 Tap pallet *2 T-slot pallet *3 Please consult our sales representative when the Hinge + Scraper 2-stage chip conveyor (with drum filter) is selected.</small>			



* Rack-type magazine for large-diameter tools (180 or 240 tools)

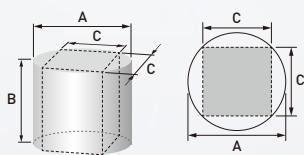
NHX 5000

Highest rigidity with a robust bed and
powerful table / pallet
clamping force



09

Max.
workpiece size mm (in.)



NHX 4000

NHX 5000

Max. workpiece swing diameter: A	800 (31.4)
Max. workpiece height: B	1,000 (39.3)
Length of one side of a workpiece*³: C	565 (22.2)

*1 Tap pallet *2 T-slot pallet *3 Length of one side of a square inscribed in a max. workpiece swing diameter range

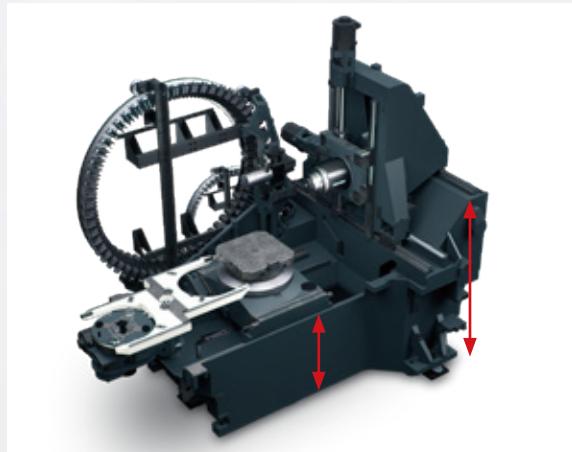
NHX 4000 4th Generation / NHX 5000 4th Generation

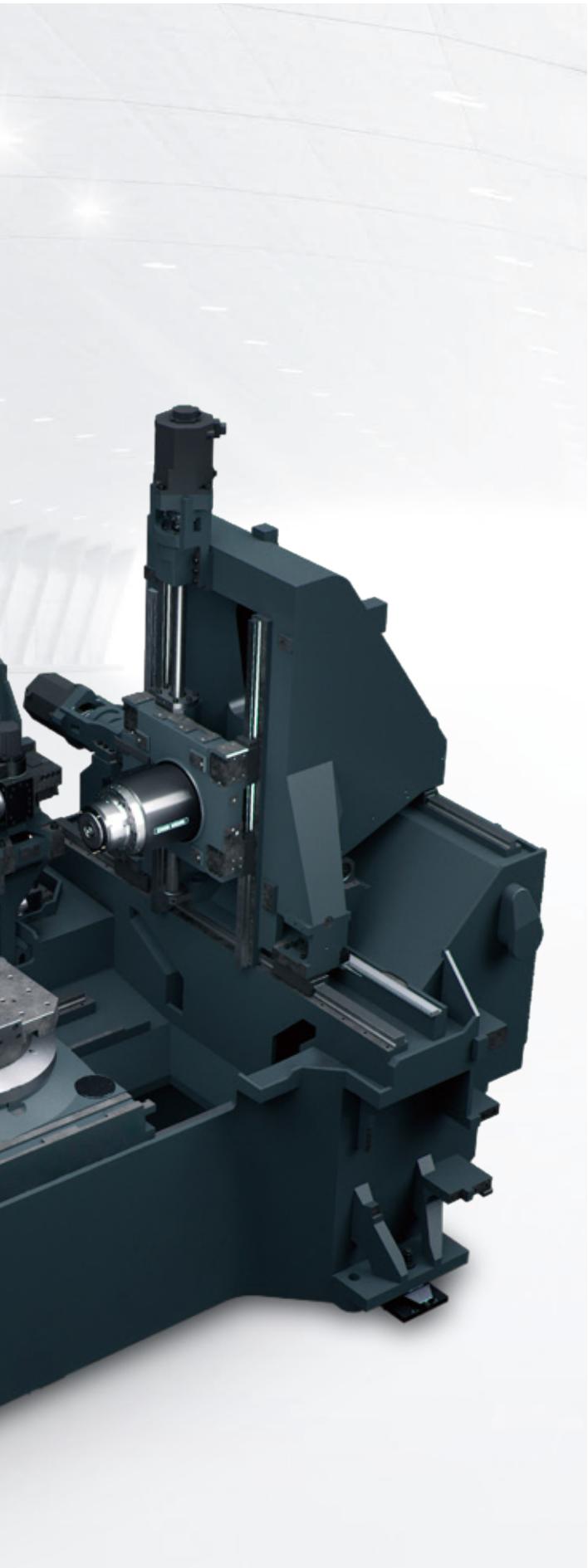
Outstanding Stability Dynamic High-rigidity Structure

A rigid bed is essential for stable and high-accuracy machining. The NHX 4000 4th Generation and NHX 5000 4th Generation employ a fully optimized bed structure to maximize machine rigidity and performance. The rear step on the X-axis guideways allows for higher cutting loads and better machine dynamics. The bed casting 3 point support is easy to setup and prolongs machine accuracy. The decreased distance between the spindle and pallet allows for shorter tools and better machine capability.

1 High-rigidity bed

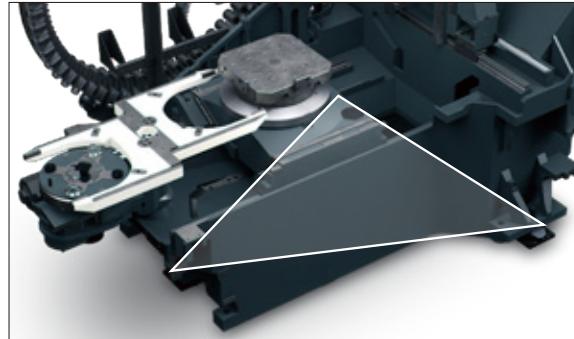
- + Thick bed for maximum rigidity
- + The stepped X-axis guideways allow for increased cross-sectional inertia for superior rigidity





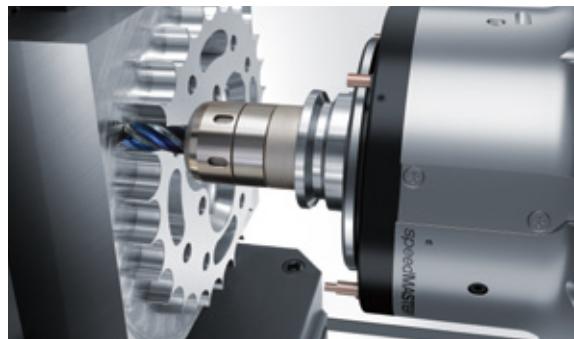
2 3-point support structure

- + 3-point support machine structure for easy horizontal adjustment drastically reduces installation time
- + Not affected by ground conditions or gradual changes



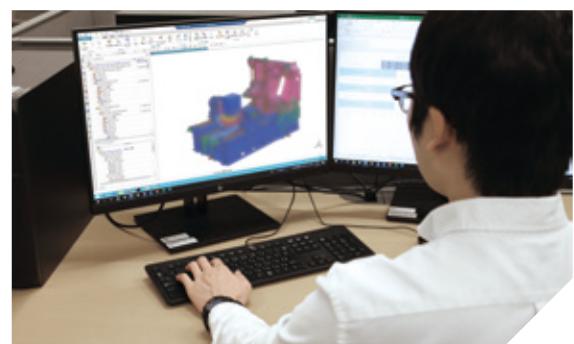
3 Machining with shorter tools

- + The minimum distance between the spindle end face and the center of the pallet is set to 70 mm (2.8 in.), which is 30 mm (1.2 in.) shorter than the conventional model



4 Analysis optimization

- + Optimal configuration achieved through extensive simulations
- + Advanced optimization techniques



NHX 4000 4th Generation / NHX 5000 4th Generation

Perfect Equipment for Ultimate Machining Accuracy

The NHX 4000 4th Generation and NHX 5000 4th Generation models are equipped with everything required for stable high-precision machining. In addition to perfect spindle cooling, a highly reliable SmartSCALE (Magnescale) with extreme accuracy is employed on all axes as standard to ensure the best positioning accuracy for a long period of time.

Full closed loop control (Scale feedback) as standard on all axes (SmartSCALE)

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SmartSCALE

Simple non-contact structure

- + Reduced number of mechanical parts to maintain clearance, resulting in high reliability and durability



Conventional model
(enclosed type)



SmartSCALE
(exposed type)

High resolution of 5 nm

- + Newly developed algorithm employed to improve the high-performance arithmetic processing circuit

No air purge necessary thanks to the sealing structure with a protection degree of IP67

- + The magnetic scale and the detection device surfaces completely covered with a metal cover for even higher durability against coolant and chips



Draw-back function for through-spindle coolant

Any remaining coolant in the spindle is drawn back into the tank when the coolant flow is stopped, which minimizes the residue to ensure stable machining accuracy.



- + Prevent coolant from adhering to the spindle taper during ATC
- + Prevent mounting errors and rust caused by chips
- + Prevent coolant from entering the magazine

● This function is included in the through-spindle coolant specifications.

Coolant chiller (separate type) <option>

Increased coolant temperature causes thermal displacement in the fixtures and workpiece, affecting the machining accuracy of the workpiece. Use this unit to prevent the cutting 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 high-pressure coolant system, please be sure to consult our sales representative.



- + Machining with required accuracy of less than 20 µm
- + High-precision machining that requires a large amount of high-pressure coolant
- + Machining that requires oil-based coolant

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

Applications and Parts

Highlights

Design and Technology

Other Features

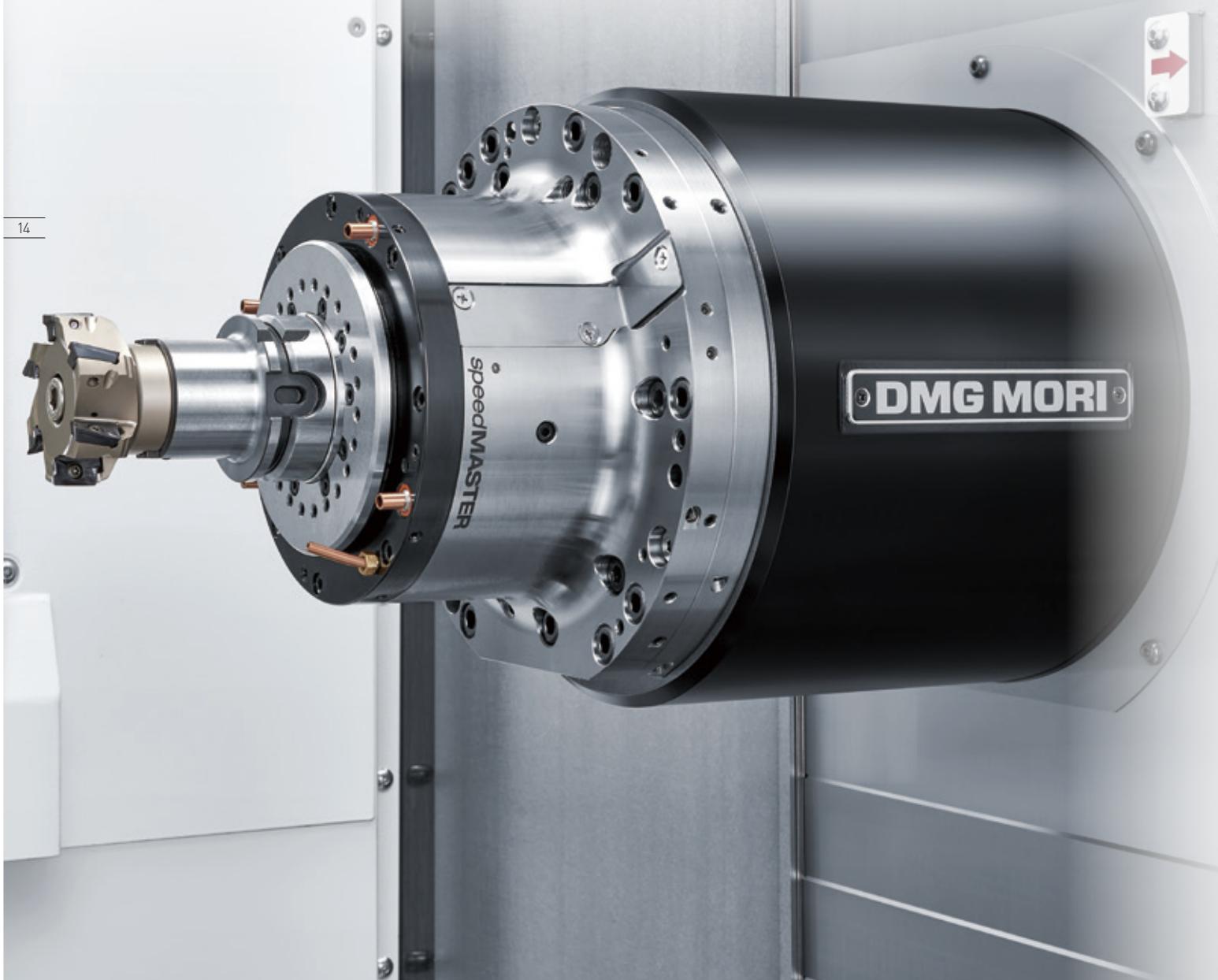
Machine Specifications

NHX 4000 4th Generation / NHX 5000 4th Generation

3-year Warranty for Greater Peace of Mind High-speed, High-torque Spindle *speedMASTER*

DMG MORI has incorporated its know-how into creating the most reliable and high performance spindle to date. The *speedMASTER* utilizes a unique structure that maintains machining capability through the speed range, thus increasing productivity. The standard maximum spindle speed of 20,000 min⁻¹ is available for the evolved 4th Generation models. With the increased maximum torque, the spindle is capable of delivering greater performance than ever.

The warranty period for the *speedMASTER* equipped with absolute reliability was extended to three years.



Cutting-edge spindle technologies

speedMASTER

- + Standardized 400 V specification for greater spindle output
- + No. 40 taper spindle achieves overwhelming high-speed machining
- + Stable high-accuracy machining made possible by drastically improved spindle run-out accuracy
- + Unique constant preload design achieves stable machining over the entire rotational range
- + Advanced spindle labyrinth structure prevents coolant from entering the spindle
- + Acceleration to maximum speed ($20,000 \text{ min}^{-1}$) in 2.02 sec.
14.8% faster than previous models (2.37 sec.)
(with $20,000 \text{ min}^{-1}$ speedMASTER spindle)

400 V specification
(no need for voltage transformer)*1



*1 Voltage transformers may be required in some regions. For details, please consult our sales representative.

No. 40 taper spindle

- + Type of tool shank*2: HSK-A63 , BT40 <two-face contact>, BT40, CAT40, DIN40, SK40 <two-face contact>
- + Max. spindle speed: $20,000 \text{ min}^{-1}$
 $15,000 \text{ min}^{-1}$ <high torque>
 $30,000 \text{ min}^{-1}$ <high speed>
- + Output: 50 / 30 kW (66.7 / 40 HP) <25%ED / cont>
55 / 30 kW (75 / 40 HP) <15%ED / cont> {high torque}
40 / 22 kW (53.3 / 30 HP) <15%ED / cont> {high speed}
- + Max. spindle torque: 221 N·m (163.0 ft·lbf) <10%ED>
322 N·m (237.4 ft·lbf) <10%ED> {high torque}
105 N·m (77.4 ft·lbf) <10%ED> {high speed}

*2 Two-face contact tools cannot be used together with other tool types.

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Stable & lasting clamp force

- + Extended disk spring life allows the spindle to maintain long period consistent clamp force on the tool

Perfect spindle cooling function

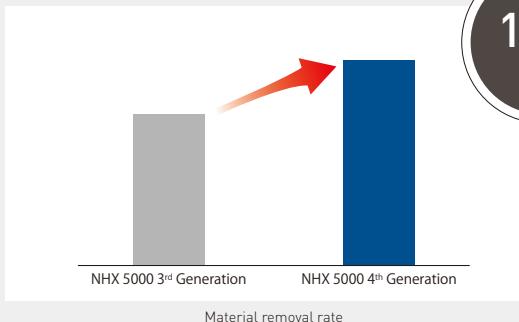
- + Spindle covered with a cooling jacket that forcibly circulates coolant to control temperature rise



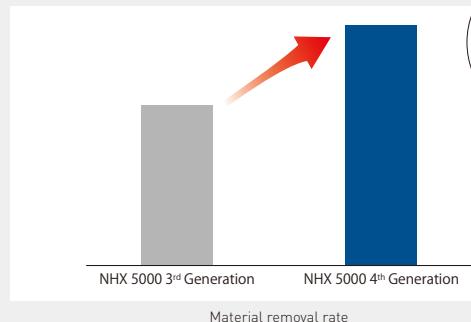
• The above is an image picture.

Suitable for heavy-duty and high-speed machining

■ Heavy-duty machining



■ High-speed machining



Cutting conditions

Material <JIS>	S45C
Tool diameter mm (in.)	80 (3.1)
Cutting speed m/min (fpm)	251 (823.5)
Spindle speed min ⁻¹	1,000
Feedrate mm/min (ipm)	2,100 (82.7)
Depth of cut mm (in.)	6.5 (0.26)
Spindle load %	95

S45C: Carbon steel JIS: Japanese Industrial Standard

Cutting conditions

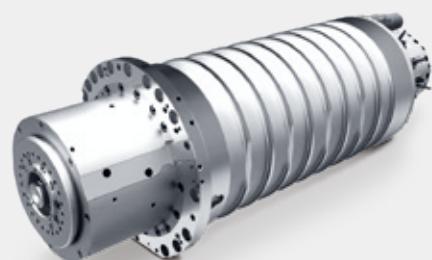
Material <JIS>	A5052
Tool diameter mm (in.)	80 (3.1)
Cutting speed m/min (fpm)	3,016 (9,895.5)
Spindle speed min ⁻¹	12,000
Feedrate mm/min (ipm)	16,000 (629.9)
Depth of cut mm (in.)	4.5 (0.18)
Spindle load %	93

A5052: Aluminum JIS: Japanese Industrial Standard

• The cutting test results indicated in this catalog are provided as examples. The results indicated in this catalog may not be obtained due to differences in cutting conditions and environmental conditions during measurement.

High-speed spindle speedMASTER 30k Max. spindle speed of 30,000 min⁻¹

High output from low to high speeds enables a wide range of machining applications. Shorter machining times are possible, especially for die & mold machining and small-diameter drilling of a large number of holes.



Access here for the video

<Example application at 30,000 min⁻¹>

- Workpiece: Component of semi-conductor machinery
- Application: Small-diameter drilling (about 4,000 small holes)
- Machine type: NHX 4000 4th Generation
- Time of 4 pcs. compared



Spindle: 3-year warranty

DMG MORI produces spindles of the highest quality and durability in house, covering the entire process from development and part machining to assembly and verification.



Long-term
warranty
to ensure
reliable use



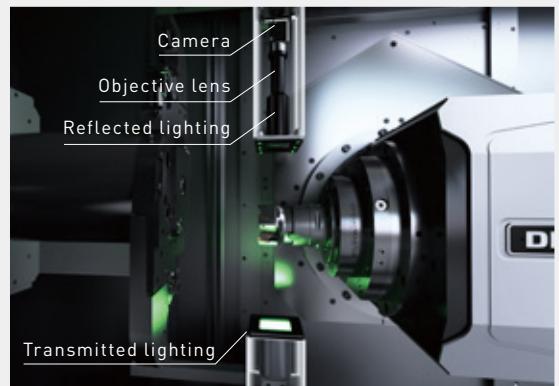
• The standard warranty period varies depending on the region. For details, please consult our sales representative.

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Tool Visualizer*

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
- + Reduced setup time for round chip tools & precise chip center measurement
- + Precise measurement for small-diameter tools
 - No tool length offset input required
 - Minimizing machining defects through built-in tool breakage detection



* Option



Access here for the detail of
Tool Visualizer

NHX 4000 4th Generation / NHX 5000 4th Generation

Fully Ready for Automation

Inside the machine, stainless steel covers prevent chip accumulation, while the standard rotary table uses a zero backlash, high-speed Direct Drive Motor (DDM) to reduce maintenance work. With hydraulic and pneumatic interfaces, the machine is ready to support both fixture types for improved productivity through automation.

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Direct drive motor

Until now, gears have been used to transmit the drive power to the rotary axes, but this drive system had a negative effect on drive speed and precision. By transmitting the drive power to the rotary axes directly without using gears, DDM offers outstanding transmission efficiency and high-speed feed. DDM also achieves zero backlash for highest accuracy.

- + High-speed rotation (B-axis max. rotational speed: 100 min⁻¹)
- + High-precision indexing
- + Less maintenance
- + Longer product life



DDM: Direct Drive Motor

Hydraulic & pneumatic interfaces enable easy automation (option)

Available with hydraulic and pneumatic interfaces to boost automation.



*1 Hydraulic 2 circuits 4 ports,
workpiece seating detection 2 circuits 2 ports

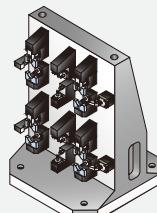
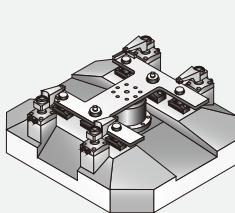
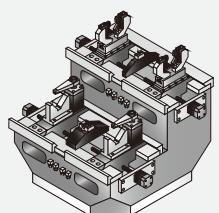


*2 For keeping clamp force of the hydraulic fixture
• Hydraulic fluid is supplied to the machining table
through two ports that diverge from one circuit.

- + Automatic workpiece clamping / unclamping by hydraulic pressure
- + Pallet through type
- + Hydraulic / pneumatic pressure can be supplied from above (option)

Hydraulic / pneumatic fixtures

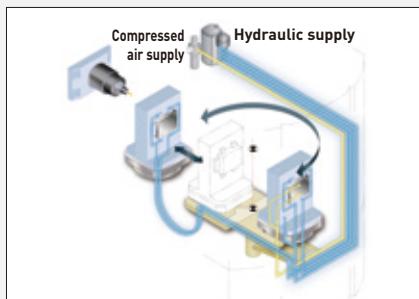
Offer optimal hydraulic / pneumatic fixtures based on our extensive experience and machining know-how.



- + Improve setup accuracy and reduce operators' burden compared to hand tightening fixtures
- + No variation in setup work according to operators
- + Prevent clamp errors with the seating detection function
- + Clamp / unclamp a workpiece with one push of a button

Pallet through specification

Easily transfer the pallets between the setup station and the work area and avoid external hoses and couplers.

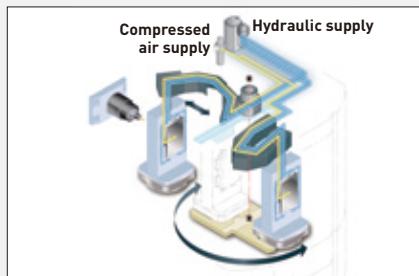


- + The hydraulic / pneumatic interfaces make it possible to supply hydraulic / pneumatic pressure to the table of the APC-equipped machines

Supply of hydraulic / pneumatic pressure from above (option)

Supplying from above the machine allows more ports to be added as needed by your fixture. Suitable for machining that requires high-pressure coolant and a number of ports.

Capable of clamping and unclamping workpieces inside the machine to achieve flexible machining.



Optimal acceleration / deceleration for each workpiece

Servo Sense for Workpiece (Z-axis, B-axis)

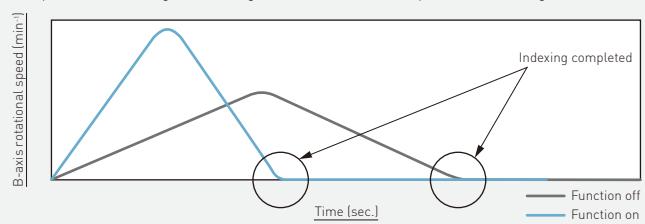
Drastically decrease overall cycle time by automatically finding the optimal acceleration / deceleration for each pallet (Z-axis and B-axis). The auto servo tuning function allows for efficient and smooth acceleration / deceleration, as well as ensuring stable positioning and higher machining accuracy. It automatically controls machine vibration and caused by gradual change in the machine and unbalanced fixtures.

- + Optimized acceleration / deceleration for reduction of machining time
- + Improved positioning accuracy
- + Reduced machine vibration

Example: Reduction in the B-axis indexing time

Increase acceleration according to workpiece mass and reduce positioning and machining time

Comparison of 180 degree indexing time [NHX 6300]: Workpiece mass 500 kg [1,100 lb.]



Reduced
by
40%!

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 NHX 4000 4th Generation and NHX 5000 4th 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.

Fully equipped for enhanced chip evacuation

Chip conveyor

- + Chip discharge capacity 3 times higher compared to previous models
- + Adjustable chip discharge height: 848–1,133 mm (33.4–44.6 in.)
(available only with scraper-type chip conveyors)



400 L/min (4.9 ft³/min) High-volume coolant cleaning

- + In-machine cover washing against chip accumulation



Motor-driven nozzles*

- + Machine ceiling with a dual-axis, motor-driven coolant nozzle for full wash cycles along pre-programmed paths and synchronized operation with the standard shower coolant system

* Option

zero-sludgeCOOLANT 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: 1,600 L (422.4 gal.)
- + Hybrid cleaning method against chip accumulation

Suction port collects floating oil at the top

Powerful swirling flow prevents sludge 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

* Option

AI chip removal*

AI chip removal uses AI to detect and remove cutting chips from the machining area, workpieces, and fixtures, ensuring smooth automation and high-mix production.

- + Cleaning process tailored to the shape of workpieces and fixtures to prevent chip contamination outside the machining area and ensure smooth automation
- + Efficient cleaning according to chip location and quantity to reduce coolant pump power consumption
- + Efficient operation to reduce coolant consumption

* Option



Access here for the video



AI detects the "Location" and "Amount" of chips based on the taken images



Two motor-driven nozzles move according to chip location and quantity

Also removes
chips from
workpieces

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



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zeroFOG*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

Mist collection
efficiency of
99.97% or
more*²



zeroFOG

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



Access here for the video

ENERGY-SAVING

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

*1 Option *2 zeroFOG 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.

NHX 4000 4th Generation / NHX 5000 4th Generation

Variety of Magazines

The smooth, high-speed indexing, ring type magazine (60-tool specification) is offered as standard. Three types of magazines (ring type, chain type, and rack type) are available with a max. tool storage capacity of up to 300, so the customers can choose the one that best suits their production needs.

- + Tool storage capacity
Ring-type / chain-type*1 / rack-type*1: 60 / 120 / 180, 240, 300 tools
Rack-type <for large-diameter tools>*1: 180, 240 tools
- + Max. tool length: 450 mm (17.7 in.) <Nhx 4000> / 550 mm (21.6 in.)*2 <Nhx 5000>
- + Max. tool mass: 12 kg (26.4 lb.)
- + Max. tool diameter <without adjacent tools / with adjacent tools>: 205 mm (8.0 in.)*3, 170 mm (6.6 in.)*4 / 70 mm (2.7 in.)

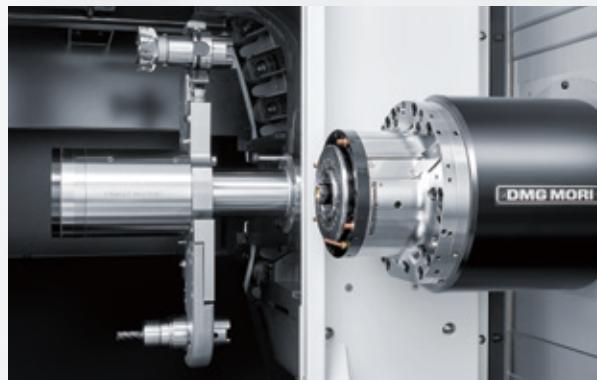
*1 Dry anchor (option) is essential.

*2 Some pots in the rack type magazine have a maximum tool length of 500 mm (19.6 in.). For details, please consult our sales representative.

*3 Rack-type magazine (for large-diameter tools)

*4 Chain-type, rack-type: ø 140 mm (ø 5.5 in.).

• Rack-type magazines (180-, 240-, 300-tool capacity) incorporate a pot transfer mechanism and the tool capacity includes one tool at the spindle side.



Reliable tool change

The ATC arm equipped with a holding lever for securing a tool tightly holds a long and heavy tool, offering reliable tool change.

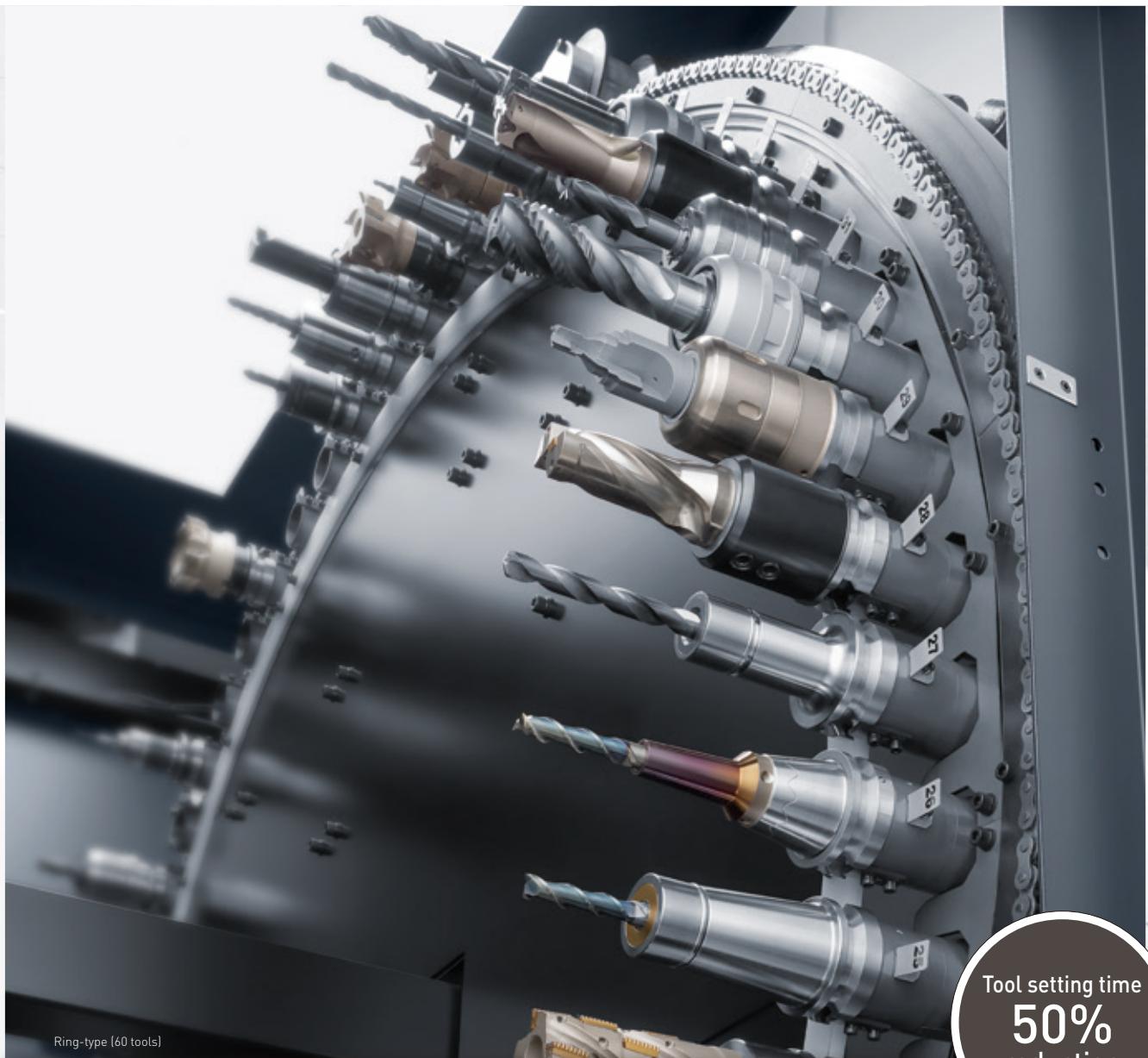
- + Cut-to-cut (chip-to-chip):
2.2 sec. (Nhx 4000) / 2.5 sec. (Nhx 5000) <FANUC> (MAS)
3.0 sec. (Nhx 4000) / 3.2 sec. (Nhx 5000) <SIEMENS> (DIN)
- Depending on the arrangement of tools in the magazine, the cut-to-cut (chip-to-chip) time may be longer.



A maximum tool length exceeding the pallet size

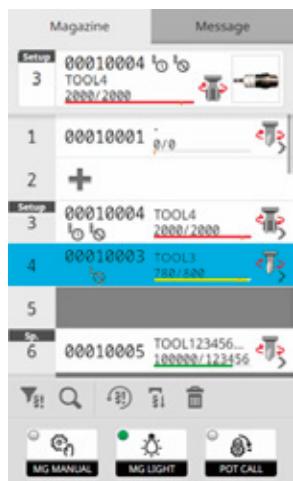
For the conventional model with its maximum tool length being shorter than the pallet, the table needs to reverse on the B-axis to perform deep hole boring. As for the NHX 4000 4th Generation and NHX 5000 4th Generation, the maximum tool length is set to 50 mm (2.0 in.) longer than the pallet. So deep hole boring up to the maximum tool length is now possible without reversing the table. It also contributes to reducing cutting time and achieving high-precision machining.

- + Max. tool length:
450 mm (17.7 in.) <Nhx 4000> / 550 mm (21.6 in.) <Nhx 5000>
- Depending on condition, machining may not always be possible.



Tool setting time
50%
reduction

Magazine operation panel



Home screen

All operations necessary for tool setup can be performed next to the magazine, including operations that were previously limited to the main machine operation panel, enabling more efficient operation.

- + Intuitive tool search & call
- + Tool life status indicated in different colors for easy monitoring
- + Filter function to display all tools that need maintenance on screen
- + Can also be operated with gloves on



Access here for the video

NHX 4000 4th Generation / NHX 5000 4th Generation

Pursuit of Usability

The NHX Series is designed with operability in mind. Our goal of an ergonomic machine starts with large windows, clear of obstruction, down to the operators hand angle on the adjustable CELOS control. The hydraulic & pneumatic units are located together in an easy-to-access location to ensure proper maintenance and accessibility. Combined with our superior performance is a machining solution unrivaled in the market place.





1 ERGOLine X with CELOS X

Improved access to the spindle and workpieces thanks to the adjustable touch screen operation panel.

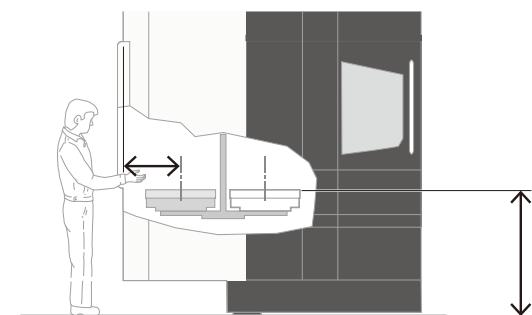


• Example shows FANUC controls.

- + Swivel angle: 117° (FANUC, SIEMENS)

2 Setup station

With excellent access to the table and a wide door opening, setup operations such as fixture adjustment can be done smoothly.



- + Distance to the center of the pallet:
380 mm (15.0 in.) <NHX 4000> / 510 mm (20.1 in.) <NHX 5000>
- + Distance from floor surface to pallet surface:
1,050 mm (41.3 in.) <NHX 4000> / 1,200 mm (47.2 in.) <NHX 5000>
- + Door opening:
635 mm (25.0 in.) <NHX 4000> / 807 mm (31.8 in.) <NHX 5000>

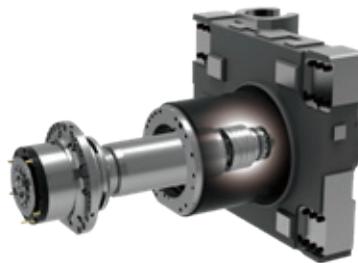
3 Centralized layout of devices

Peripherals requiring periodic maintenance are located in one place, which contributes to improving operators' work efficiency.

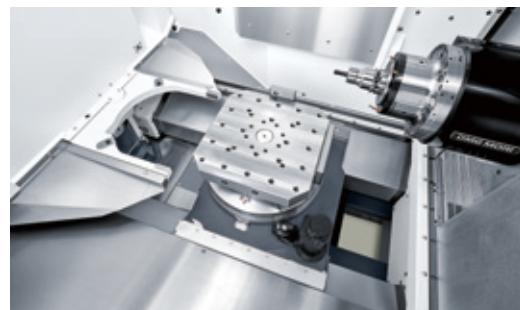


4 Replacement of spindle unit

By changing the spindle unit to a cartridge, which even includes the rear bearings, we have dramatically reduced replacement time.



5 Stainless steel cover designed for smooth chip evacuation



6 Display of Manuals

As well as viewing operation manuals on the CELOS X screen, you can perform full-text search with keyword and jump to links in the same way as you do on a PC. This is particularly convenient when searching for information during maintenance.



CELOS: Control Efficiency Lead Operation System

NHX 4000 4th Generation / NHX 5000 4th Generation

Flexible Automation Solutions

The automation lineup includes a variety of workpiece transfer systems with user-friendly design, such as the pallet transfer system for automation flexibility, and the programming-free MATRIS robot system.

Manual work such as workpiece transfer is eliminated, allowing unmanned operation at night and on holidays as well as significantly improved machine utilization.

Pallet Handling

RPS system (Rotary Pallet Storage)

This system features outstanding space savings and setup capabilities, and can hold more pallets per unit area than any other pallet pool system. Up to three levels of pallet shelves available according to customers' production needs.



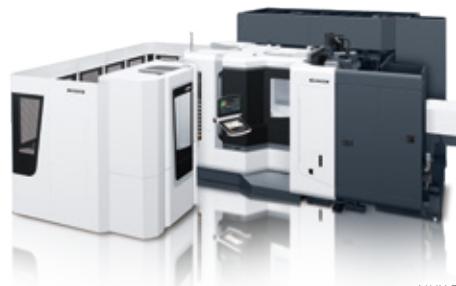
NHX 5000



Access here for the video

CPP system (Compact Pallet Pool)

With its simple construction provided in predefined packages, this system is easy to introduce. For the system configuration, the customer can select from 8 packages to provide the optimum specifications for their needs.



NHX 5500

LPP system (Linear Pallet Pool)

This system can be equipped with multi-level pallet racks, providing a high level of automation. The system construction can also be customized however you wish, achieving the optimum productivity and operation rate.



NHX 5000



Access here for the video

- The 60-tool specification [ring-type magazine] cannot be selected with the CPP, and LPP specifications.
- For details, please consult our sales representative.

Tool Handling

CTS (Central Tool Storage)

CTS has been developed as a large capacity tool magazine with a flexible modular structure. Enhancing production efficiency through coordinated pallet handling, machining schedules, and system-wide tool management.



Access here for the video

Centralized management of pallet handling systems & tool data

LPS 4th Generation

With the LPS 4th Generation, operators can easily manage the pallet transfer system by touch input.

- + Main screen showing system status at a glance
 - + Automatic creation of optimized production schedules
 - + Easy output of performance reports
- Efficiently manage tools by incorporating the optional MCC-TMS tool management software.



Access here for the video

Workpiece handling

MATRIS

Modularized peripheral devices enable easy customization according to customer needs and flexible modifications after installation.



Access here for the video

NHX 4000 4th Generation / NHX 5000 4th Generation

One Stop Service for Various Needs DMG MORI Qualified Products

The DMG MORI Qualified Products (DMQP) program certifies peripherals that meet DMG MORI standards in quality, performance and maintainability.

DMG MORI is your single-source supplier for customer-optimized peripheral equipment, including all connection and setup work. DMQPs come with the same 2-year warranty as our machine tools.

Tool / holder



Tool storage management



Tools

Tooling block / Vise



Fixtures

Coolant



Coolant



Tool setting

Shrink fit system



Tool balance measuring system



Utilize in combination with CELOS DYNAMICpost for maximum performance.

29

Pneumatic equipment

Air dryer



Air compressor



Multi dry filter



- DMG MORI proposes the optimal CAM for each customer's needs.
For details, please consult our sales representative.

CAM / Software

hyperMILL®

Mastercam

SIEMENS
NX

CAM-TOOL

NHX 4000 4th Generation / NHX 5000 4th Generation

Complex Processing Made Simple & Quick DMG MORI Technology Cycles

Technology Cycles are the perfect solution for combining highly advanced simultaneous 5-axis milling machines, mill-turn machines and machining centers with state-of-the-art tools, measuring equipment, robots, sensors, and other peripheral technologies to boost customer productivity. Without the need for specialized machines, programs, or tools, customers can quickly start high-quality production in a simple and timely manner.

Shaping



Measuring



Monitoring



Handling



For process integration

Interpolation turning *¹

For turning operations on machining centers

DMG MORI gearMILL *²

Enables machining centers to process spur, helical, worm, and spiral bevel gears



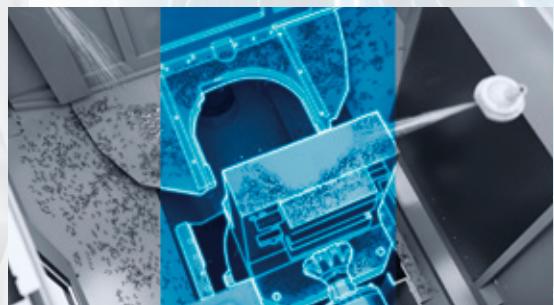
MPC (Machine Protection Control)^{*1}

Minimizes the impact during interference to prevent spindle damage and reduce downtime



AI Chip Removal^{*1}

AI-driven automatic & efficient chip cleaning based on high-precision accumulation analysis



CELOS Chatter Control^{*1*3}

Selects optimum conditions for preventing chatter



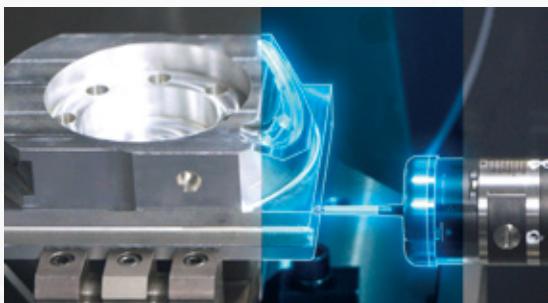
Application Tuning Cycle

The feedrate can be freely adjusted while programs are running; the optimal machining method can be set to suit the machining surface



Measuring Pro^{*3}

Simple interactive guidance shortens measurement cycle time



Efficient Production Package (High-speed canned cycle)^{*1}

Easy input of various machining patterns



*1 Option *2 Consultation is required *3 For machines with the FANUC NC unit only.

• The above is a partial list of supported Technology Cycles. For a list of all supported Technology Cycles, please refer to the specification details.

ERGOline X with CELOS X

Smooth and Time-saving Operation

The refined ergonomic design ensures easy usage down to the smallest detail.

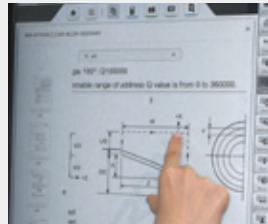
The dustproof and waterproof design (IP54 rating) is ideal for factory environments and realizes comfortable and safe operation.

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*¹

*1 Option



Electrostatic touch panel



Can also be operated with gloves on



FANUC

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

2 Hardware buttons that are easy to press

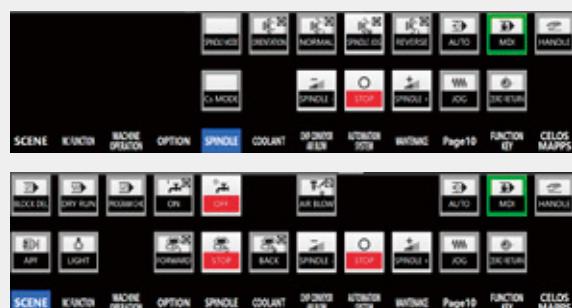
Ideal for program input where accuracy is required.



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

3 HYBRID BAR *²

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



Example of displayed buttons

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



SIEMENS

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

6 Simple input screen for smooth completion of setup



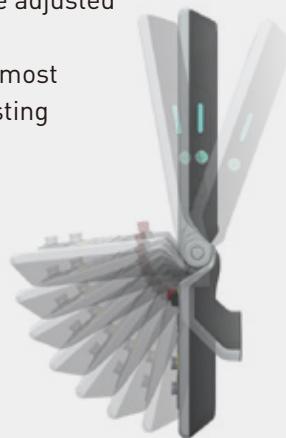
- + Easy-to-understand animations and diagrams guide you through the setup
- + For tool change, simply select a tool from the list
- + Enables anybody to safely perform tool change or measuring
- + Significantly reduces setup time

4 Useful applications that reinforce your production processes



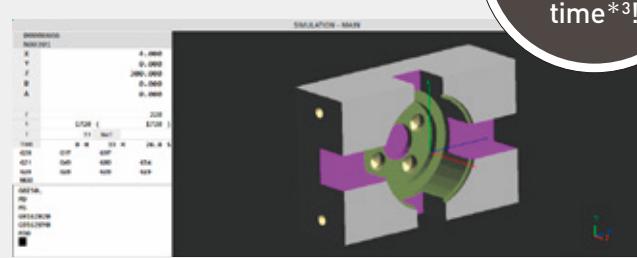
5 Upper and lower panel can be adjusted to your optimal viewing angle

Operate the machine in your most comfortable position by adjusting the panel angles.



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



Drawing simulation

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

Digital Solutions to Promote the Digital Transformation of Your Shop floor

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.

CELOS Club

It is a standard service available for 3 years after machine delivery.

CELOS Club connects DMG MORI and customers via a network, enabling machine monitoring, preventive maintenance, and remote troubleshooting.



DMG MORI Messenger Secured Connection (4G)

Real-time machine operation monitoring
Monthly reports to maximize uptime

- + Easy to view machine operation rate, cycle time, machining results, and alarm history
- + Real-time data accessible from PCs, tablets, and smartphones
- + E-mail notifications of job completion and alarms



Preventive Maintenance Call

Constant critical alarm monitoring to prevent troubles in advance

- + DMG MORI's service engineers remotely collect and analyze your machine operation data
- + Critical alarms and trends monitored for early signs of machine troubles
- + DMG MORI's service engineers call customers for early signs and preventive measures



NETSERVICE

Quick recover from any problems

- + DMG MORI's service engineers can access your machine and check troubles remotely
- + Quick and accurate understanding of your machine status to drastically reduce downtime



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



Digital Transformation of programming Program Creation in CAD / CAM

- + Ideal solution for complex shapes
- + 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

hyperMILL® Mastercam SIEMENS CAM-TOOL



CELOS DYNAMICpost^{*1}

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.

Access here for the video



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



Condition Agent

Predictive maintenance monitoring by AI for feed shafts, spindles, ATC, and APC

- + Detects potential issues in advance with DMG MORI's data library and AI
- + Diagnoses and visualizes machine aging to minimize downtime by scheduled maintenance
- + Reduces maintenance costs through early detection of bearing defects
- + Ready in 60 min., same-day diagnostics available



NHX 4000 4th Generation / NHX 5000 4th Generation

Network Construction and Connection Services for Factories DMG MORI GATEWAY



DMG MORI GATEWAY is a one-stop service for hardware installation, network setup, and cloud connection tailored to customers' machine setup and network environment.

Through the IoT integration of machines and equipment, customers can advance the digital transformation (DX) on the shop floor with operation monitoring, NC program transfers, and seamless data sharing for tool and production management systems.

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

Remote monitoring of network and machine status. Instant notification in case of an alarm



• DMG MORI GATEWAY service is available only in Japan. [As of September 2025] We plan to begin offering this service for overseas markets in due course.

NHX 4000 4th Generation / NHX 5000 4th Generation

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



Access here for the video

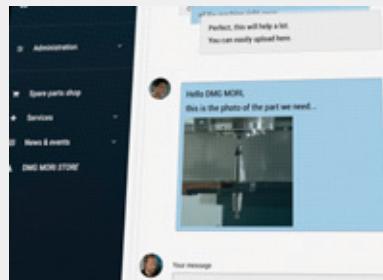


my DMG MORI is a web-based platform that facilitates communication between customers and DMG MORI during repair and maintenance work.

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

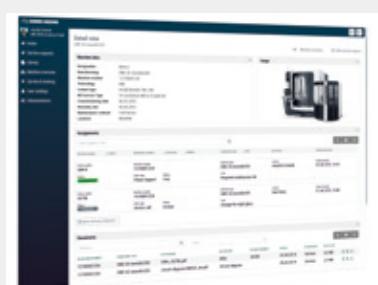
MORE SERVICE

- + 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



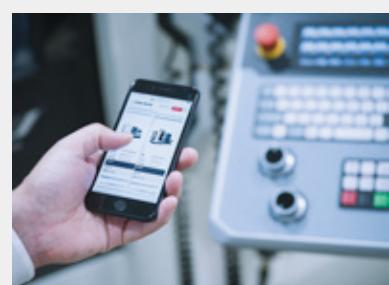
MORE KNOWLEDGE

- + 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

DMG MORI is making every effort to reduce power consumption and CO₂ emissions and achieve energy-efficient production. Our initiatives for process integration, automation and DX are designed for an energy-saving, sustainable shop floor. Having achieved the SBT certification* in 2021, we are now set to reduce carbon footprint of the entire supply chain.



ACCREDITED BY SBT*



Carbon footprint reduction targets by 2030

2030

2050

Scope 1 and Scope 2

-46.2%

(Based on base year 2019, total emission volume base)

Scope 3

-27.5%

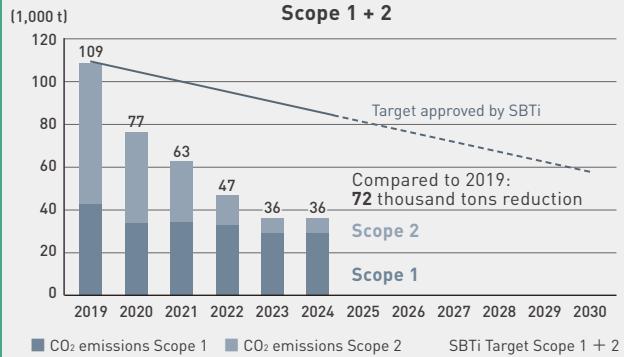
(Based on base year 2019, total emission volume base)

-90%

(Total of Scope 1, Scope 2 and Scope 3)

Carbon footprint trend (SBTi target value ratio)

Scope 1 + 2





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

Higher machine performance

- + 400 V specification for shorter cycle times
 - Increased spindle output & torque
 - Faster spindle acceleration
- + Improve cutting conditions to reduce machining time by bringing the best out of machine tools and tools

Unique energy-saving function GREENMODE

- + Reduce unnecessary power consumption during stand-by time by shutting off power of the spindle, chip conveyor and coolant pump at a time of machine stop
- + Visualize power consumption and CO₂ emission amount
- + Air supply fully disabled upon machine shutdown



Large pump and valve control for high flow rate and energy saving

- + Integrated into one large, high-efficiency pump
- + Inverter control for pumps according to discharge application
(Conventional machine: multiple pumps for various discharge applications)



Highly efficient large-sized pumps

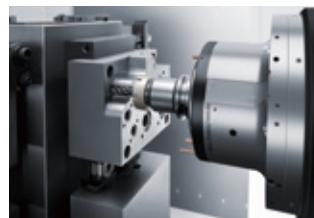
GREENmode		
GREEN monitoring <ul style="list-style-type: none">+ Visualize power consumption and CO₂ emission amount GREEN device <ul style="list-style-type: none">+ High-brightness LED light+ Hydraulic pump with an inverter	GREEN idle reduction <ul style="list-style-type: none">+ Shut off the power of the servo motor, spindle and coolant pump at a time of machine stop+ Turn off the operation panel screen when a machine is not in operation for a certain time	GREEN control <ul style="list-style-type: none">+ Quicken standard M codes+ Inverter-controlled coolant supply

Tracking of daily energy consumption & CO₂ emissions

Conventional machine (NHX 5000 3rd Generation)

NHX 5000 4th Generation

Reduced by 30%



Target workpieces: Control valve
Example: 32 pcs./day

- Energy and CO₂ savings backed by in-house research and actual performance.
The result may vary for different models and machining processes.
- CO₂ base emission factor: 0.451 [kg-CO₂/kWh]

Annual CO₂ reduction

-2,078 kg (4,571.6 lb.)

Equivalent to

Equivalent to
69* camphor trees

In operation for 240 days/year (7,680 pcs.)

* CO₂ absorption per camphor tree: 30 kg (66 lb.) per year

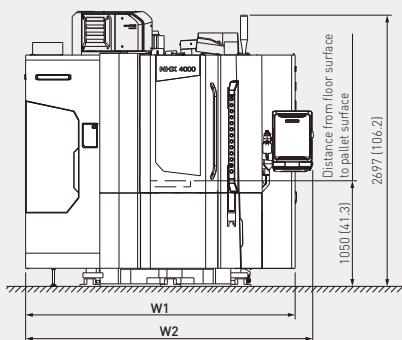


NHX 4000 4th Generation / NHX 5000 4th Generation

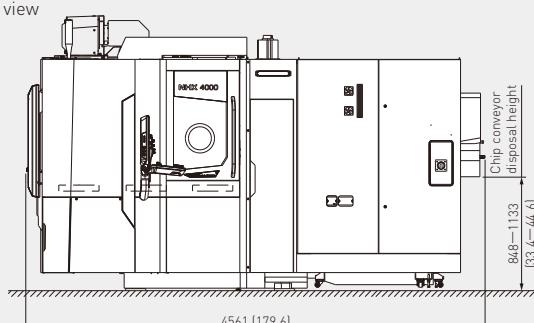
Machine Size

NHX 4000 4th Generation (standard)

Front view



Side view



mm (in.)

5661653-001

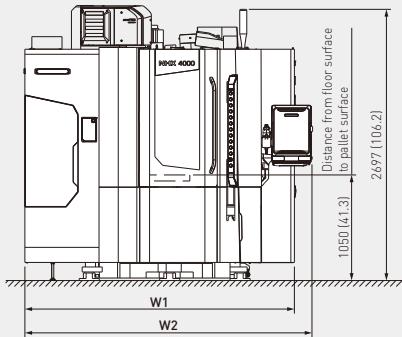
• The diagrams show the machine with FANUC (60 tools).

Tool storage capacity	Height	Width				Depth*	
		W1		W2			
		FANUC	SIEMENS	FANUC	SIEMENS		
Ring-type: 60	2,697 (106.2)	2,680 (105.5)	2,894 (113.9)	2,855 (112.4)	3,052 (120.2)		
Chain-type: 120	3,042 (119.8)	3,131 (123.3)	3,345 (131.7)	3,306 (130.2)	3,503 (137.9)		
Rack-type: 180, 240 <180 for large-diameter tools>	3,310 (130.3)	3,880 (152.8)	4,094 (161.2)	4,055 (159.6)	4,252 (167.4)		
Rack-type: 300 <240 for large-diameter tools>	4,160 (163.8)	4,374 (172.2)	4,335 (170.7)	4,532 (178.4)		4,561 (179.6)	

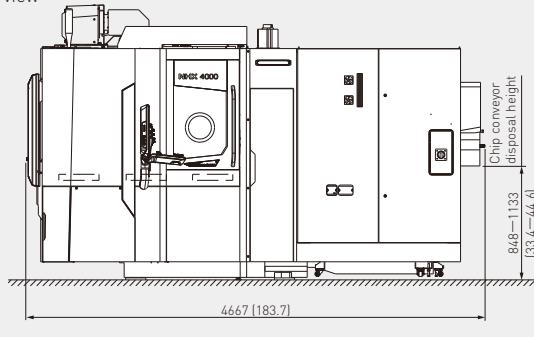
* Please consult our sales representative when the Hinge + Scraper 2-stage chip conveyor (with drum filter) is selected.

NHX 4000 4th Generation (zero-sludgeCOOLANT pro specification)

Front view



Side view



mm (in.)

5661653-001

• The diagrams show the machine with FANUC (60 tools).

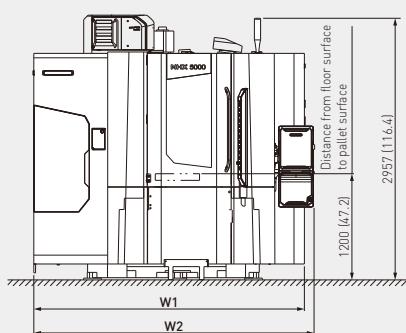
Tool storage capacity	Height	Width				Depth*	
		W1		W2			
		FANUC	SIEMENS	FANUC	SIEMENS		
Ring-type: 60	2,697 (106.2)	2,888 (113.7)	3,102 (122.1)	3,063 (120.6)	3,260 (128.3)		
Chain-type: 120	3,042 (119.8)	3,131 (123.3)	3,345 (131.7)	3,306 (130.2)	3,503 (137.9)		
Rack-type: 180, 240 <180 for large-diameter tools>	3,310 (130.3)	3,880 (152.8)	4,094 (161.2)	4,055 (159.6)	4,252 (167.4)		
Rack-type: 300 <240 for large-diameter tools>	4,160 (163.8)	4,374 (172.2)	4,335 (170.7)	4,432 (174.5)		4,667 (183.7)	

* Please consult our sales representative when the Hinge + Scraper 2-stage chip conveyor (with drum filter) is selected.

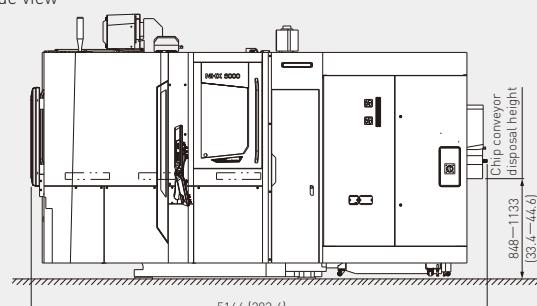
mm (in.)

NHX 5000 4th Generation (standard)

Front view



Side view



5662186-002

- The diagrams show the machine with FANUC (60 tools).

Tool storage capacity	Height	Width				Depth*
		W1		W2		
		FANUC	SIEMENS	FANUC	SIEMENS	
Ring-type: 60	2,957 [116.4]	3,058 [120.4]	3,272 [128.8]	3,168 [124.7]	3,365 [132.5]	
Chain-type: 120	3,042 [119.8]	3,411 [134.3]	3,625 [142.7]	3,521 [138.6]	3,718 [146.4]	
Rack-type: 180, 240 <180 for large-diameter tools>	3,310 [130.3]	4,160 [163.8]	4,374 [172.2]	4,270 [168.1]	4,467 [175.9]	
Rack-type: 300 <240 for large-diameter tools>		4,440 [174.8]	4,654 [183.2]	4,550 [179.1]	4,747 [186.9]	

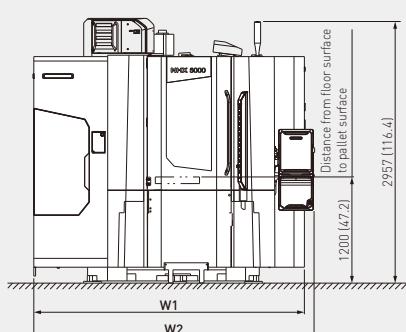
* Please consult our sales representative when the Hinge + Scraper 2-stage chip conveyor (with drum filter) is selected.

41

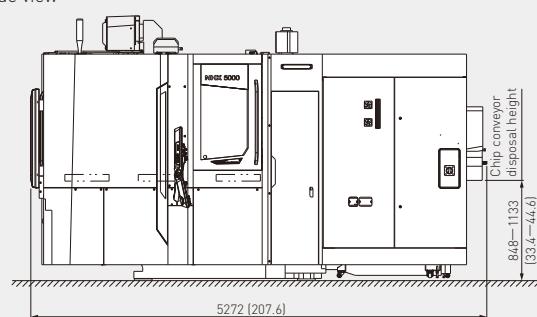
mm (in.)

NHX 5000 4th Generation (zero-sludgeCOOLANT pro specification)

Front view



Side view



5662186-002

- The diagrams show the machine with FANUC (60 tools).

Tool storage capacity	Height	Width				Depth*
		W1		W2		
		FANUC	SIEMENS	FANUC	SIEMENS	
Ring-type: 60	2,957 [116.4]	3,058 [120.4]	3,272 [128.8]	3,168 [124.7]	3,365 [132.5]	
Chain-type: 120	3,042 [119.8]	3,411 [134.3]	3,625 [142.7]	3,521 [138.6]	3,718 [146.4]	
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Rack-type: 300 <240 for large-diameter tools>		4,440 [174.8]	4,654 [183.2]	4,550 [179.1]	4,747 [186.9]	

* Please consult our sales representative when the Hinge + Scraper 2-stage chip conveyor (with drum filter) is selected.

[Applications and Parts](#)[Highlights](#)[Design and Technology](#)[Other Features](#)[Machine Specifications](#)

NHX 4000 4th Generation / NHX 5000 4th Generation

Machine Specifications

		NHX 4000		NHX 5000
Travel				
X-axis travel <longitudinal movement of saddle>	mm (in.)	560 (22.0)	730 (28.7)	
Y-axis travel <vertical movement of spindle head>	mm (in.)	560 (22.0)	730 (28.7)	
Z-axis travel <cross movement of pallet>	mm (in.)	660 (26.0)	880 (34.6)	
Distance from pallet center to spindle gage plane	mm (in.)	70–730 (2.8–28.7)	70–950 (2.8–37.4)	
Pallet				
Pallet working surface	mm (in.)	400 × 400 (15.7 × 15.7)	500 × 500 (19.7 × 19.7)	
Pallet loading capacity	kg (lb.)	400 (880)	500 (1,100), 700 (1,540)	
Max. workpiece swing diameter	mm (in.)	630 (24.8)	800 (31.4)	
Max. workpiece height* ¹	mm (in.)	Tap pallet: 900 (35.4) T-slot pallet: 880 (34.6)	1,000 (39.4)	
Pallet indexing time (90°)	s	0.73* ² <full 4th axis rotary table>	0.94* ² <full 4th axis rotary table>	
Spindle				
Max. spindle speed	min ⁻¹	20,000 15,000 <high torque> 30,000 <high speed>		
Feedrate				
Rapid traverse rate	mm/min (ipm)	X, Y, Z: 70,000 (2,755.9)		
Cutting feedrate	mm/min (ipm)	X, Y, Z: 0–70,000 (0–2,755.9) (when using high-precision control <look-ahead control>)		
ATC				
Type of tool shank* ³		HSK-A63, BT40 <two-face contact>, BT40, CAT40, DIN40, SK40 <two-face contact>		
Tool storage capacity		Ring-type: 60 Chain-type* ⁴ : 120 Rack-type* ⁴ : 180, 240, 300 Rack-type <for large-diameter tools>* ⁴ : 180, 240		
Max. tool diameter <with adjacent tools>	mm (in.)	70 (2.7)		
Max. tool diameter <without adjacent tools>	mm (in.)	170 (6.6): ring-type, 140 (5.5): chain-type, rack-type 205 (8.0): rack-type <for large-diameter tools>		
Max. tool length	mm (in.)	450 (17.7)	550 (21.6)* ⁵	
Max. tool mass	kg (lb.)	12 (26.4)		
Tool changing time	Cut-to-cut (chip-to-chip)	FANUC <MAS> SIEMENS <DIN>	2.2: 60 tools <ring-type> 3.0: 60 tools <ring-type>	2.5: 60 tools <ring-type> 3.2: 60 tools <ring-type>
APC				
Number of pallets				2

	NHX 4000	NHX 5000	
Motor			
Spindle drive motor	20,000 min ⁻¹ 15,000 min ⁻¹ <high torque> 30,000 min ⁻¹ <high speed>	kW (HP) kW (HP) kW (HP)	50 / 30 (66.7 / 40) <25%ED / cont> 55 / 30 (75 / 40) <15%ED / cont> 40 / 22 (53.3 / 30) <15%ED / cont>
Machine size			
Machine height <from floor>	mm (in.)	2,697 (106.2)	
Floor space* ⁶ <width × depth* ⁷ >	Standard zero-sludgeCOOLANT pro specification	mm (in.) mm (in.)	2,680 × 4,561 (105.5 × 179.6) 2,888 × 4,667 (113.7 × 183.7)
Mass of machine <including coolant tank>	kg (lb.)	9,200 (20,240)	12,200 (26,840)
Control unit			
FANUC		F31iB Plus	
SIEMENS		SINUMERIK ONE	

*1 Max height of 700 mm (27.5 in.) when RPS21 (option) <Consultation is required> is selected. [NHX 4000 / NHX 5000]

*2 Including unclamping time.

*3 Two-face contact tools cannot be used together with other tool types.

*4 Dry anchor (option) is essential.

*5 Some pots in the rack type magazine have a maximum tool length of 500 mm (19.7 in.). For details, please consult our sales representative.

*6 Floor space may differ between different control versions.

*7 Please consult our sales representative when the Hinge + Scraper 2-stage chip conveyor (with drum filter) is selected.

● 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.

● Please use a two-face contact tool when cutting at 15,000 min⁻¹ or higher.

● Tool changing time: the time differences are caused by the different conditions (travel distances, etc.) for each standard.

● For details, please check the Detailed Specifications.

● Catalog information last updated in September 2025.

RPS: Rotary Pallet Storage

NHX 4000 4th Generation / NHX 5000 4th Generation

Standard & Optional Features

●: Standard features
 ○: Options
 -: Not applicable

NHX 4000 NHX 5000

Spindle			
Type of tool shank ^{*1}	HSK-A63 BT40 <two-face contact> BT40 CAT40 DIN40 SK40 <two-face contact>	● ○ ○ ○ ○ ○	● ○ ○ ○ ○ ○
	20,000 min ⁻¹ : 50 / 30 kW (66.7 / 40 HP) <25%ED / cont>	●	●
Output	15,000 min ⁻¹ : 55 / 30 kW (75 / 40 HP) <15%ED / cont> {high torque}	○	○
	30,000 min ⁻¹ : 40 / 22 kW (40 / 53.3 / 30 HP) <15%ED / cont> {high speed}	○	○
Table			
Minimum table indexing angle	Full 4th axis rotary table	●	●
Pallet / APC			
Hydraulic / pneumatic interface (with pallets)	Hydraulic 2 circuits + workpiece seating detection 2 circuits	○ ^{*2}	○ ^{*2}
Magazine			
Tool storage capacity	60 tools (ring-type) 120 tools (chain-type) ^{*3} 180 tools (rack-type) ^{*3} 240 tools (rack-type) ^{*3} 300 tools (rack-type) ^{*3} 180 tools (rack-type) <for large-diameter tools> ^{*3} 240 tools (rack-type) <for large-diameter tools> ^{*3}	● ○ ○ ○ ○ ○ ○	● ○ ○ ○ ○ ○ ○
Magazine operation panel		●	●
Coolant			
Coolant system		●	●
Shower coolant (used at the same time as spindle coolant)		●	●
Coolant gun		●	●
Through-spindle coolant / air (switching specifications)	1.5 MPa (217.5 psi) <water-soluble> 10.0 MPa (1,450 psi) <water-soluble>	● ○	● ○
Through-spindle coolant system (unit on coolant tank) ^{*4} center through	10.0 MPa (1,450 psi) <automatic variable pressure> {water-soluble}	○	○
Through-spindle coolant system (unit on coolant tank) ^{*4} side through	1.5 MPa (217.5 psi) <water-soluble> 10.0 MPa (1,450 psi) <water-soluble> 10.0 MPa (1,450 psi) <automatic variable pressure> {water-soluble}	○ ○ ○	○ ○ ○
Coolant chiller (separate type)	For standard coolant only	○ ^{*5}	○ ^{*5}
zeroFOG		○	○
Mist collector interface	Duct only, ø 150 mm (ø 5.9 in.) Duct only, ø 200 mm (ø 7.9 in.)	○ —	— ○
Oil skimmer ^{*6}		●	●

●: Standard features
○: Options
—: Not applicable

NHX 4000 NHX 5000

		Rear discharge, scraper type (SUS drum filter type)	●	●
Chip disposal	Chip conveyor	Rear discharge, scraper type (SUS drum filter for resin)	○	○
		Rear discharge, Hinge + Scraper 2-stage chip discharge (drum filter type)	○	○
Zero sludge coolant tank*6			●	●
<i>zero-sludgeCOOLANT pro</i>			○	○
Motor-driven coolant nozzle for in-machine washing			○	○
All chip removal			○	○
Measurement				
In-machine measuring system (table)*7	Touch sensor	(M)	○	○
	Touch sensor	(R)	○	○
	Touch sensor + tool setter function (tool length + diameter)	(M)	○	○
	Touch sensor + tool setter function (tool length + diameter)	(R)	○	○
In-machine measuring system (spindle)*7*8	Touch sensor (optical signal transmission type) + workpiece setter function	(R)	●	●
Tool breakage detection system (magazine)			●	●
Tool Visualizer			○	○
Improved accuracy				
Full closed loop control (Scale feedback)			●	●
Spindle water-glycol chiller (chilling unit)			●	●
Other				
Signal lamp	4 colors (LED type: red, yellow, green, blue)		●	●
Multi dry filter			●	●
Automatic residual pressure exhaust valve			●	●
Coolant float switch (upper limit detection, lower limit detection, lower limit notice)			●	●
Manual pulse generator (separate type)			●	●

*1 Two-face contact tools cannot be used together with other tool types.

*2 Optional for the CPP and LPP specifications (consultation required). It is not available for RPS specification.

*3 Dry anchor (option) is essential.

*4 Zero sludge coolant tank is included.

*5 DMQP (DMG MORI Qualified Products)

*6 Not compatible with oil-based coolant.

*7 The specifications vary depending on the manufacturers. (M: made by MagneScale R: made by RENISHAW)

*8 Equipped with the high-speed spindle for which the spindle bearing uses a ceramic ball. So the energization type touch sensor cannot be used.

● DMQP: Please see Page 28 for details.

● For details, please check the Detailed Specifications.

● Catalog information last updated in September 2025.

● 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.**

NHX 4000 4th Generation / NHX 5000 4th Generation

Standard & Optional Features

Chip conveyor

Workpiece material and chip size <Long: 50 mm (2.0 in.) or more, Short: 50 mm (2.0 in.) or less>						
	Scraps (chips with different sizes & shapes)	Steel				
Conveyor type						
	—	Long	Long	Short	Powdery	Cotton-like with ø 50 mm (ø 2.0 in.)
Scraper type (SUS drum filter type)	—	—	○: less than 70 mm (2.7 in.) / ○*: 70 mm (2.7 in.) or more	◎	○ *1*2	—
Scraper type (SUS drum filter for resin)	—	—	—	—	—	—
Hinge + Scraper 2-stage chip discharge (drum filter type)	○: less than 30 mm (1.1 in.)	◎	◎	◎	○ *1*2	○

◎: Ideal ○: Suitable ○*: Suitable [conditional] —: Not suitable

Workpiece material and chip size <Long: 50 mm (2.0 in.) or more, Short: 50 mm (2.0 in.) or less>

Cast iron		Aluminum / non-ferrous metal				Resin
Short	Powdery	Long	Short	Powdery	Cotton-like with ø 50 mm (ø 2.0 in.)	—
○	○* ^{1*2}	—	◎* ^{3*4}	○* ^{1*2}	—	—
—	—	—	—	—	—	○* ⁵
○	○* ^{1*2}	◎	○	○* ^{1*2}	○	—

*1 The drum filter is prone to clogging and may require frequent cleaning or replacement.

*2 As more chips flow into the coolant tank, more frequent cleaning may be required.

*3 Increased amounts of aluminum, titanium, or other floating chips may hinder the water flow through the drum filter and cause overflow.
It may be necessary to limit the volume of discharged coolant.

*4 As more chip clusters of ø 50 mm (2.0 in.) or larger size become entangled in the scrapers, overload stops and damage to the scrapers may occur.
To prevent this, select the Hinge + Scraper 2-stage chip discharge.

*5 Depending on the material, chips may become entangled in the scrapers, causing overload stops and damage to the scrapers.
Also, the drum filter is prone to clogging and may require frequent cleaning.

*6 For chips longer than 100 mm (4.0 in.), use the Hinge + Scraper 2-stage chip discharge.
Cutting chips longer than 70 mm (2.8 in.) or with irregular shapes may become entangled in the scrapers, potentially causing overload stops and damage to the scrapers.
Regular cleaning may be necessary to maintain stable operation.

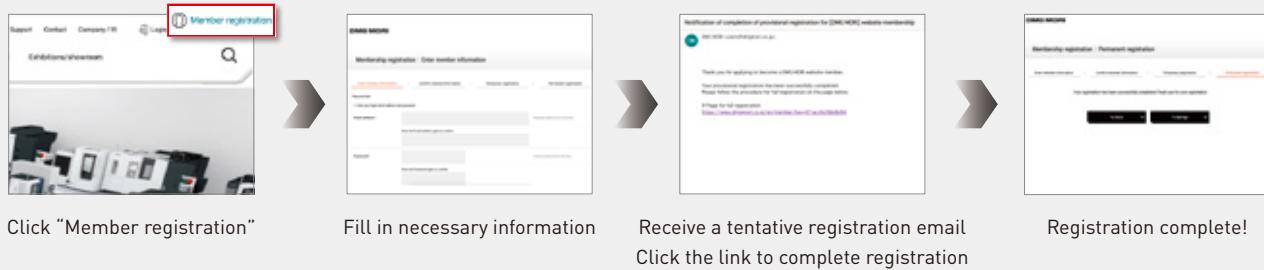
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+ The machines shown in the catalog may differ from the actual machines. The location and the size of the nameplates may also differ from the actual machines, or the nameplates may not be attached to some machines.

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

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