

DMG MORI

NV4000 DCG

Machining Center



High-Precision Vertical Machining Center

NV4000 DCG NV4000 DCG HSC

HSC: High Speed Cutting

Presenting the ideal vertical machining center.

High speed and high-quality—in order to combine these conflicting factors,

DMG MORI SEIKI took a fresh look at the structure of machine tools.

The best answer we came up with was the DCG (Driven at the Center of Gravity) technology, which controls machine vibration.

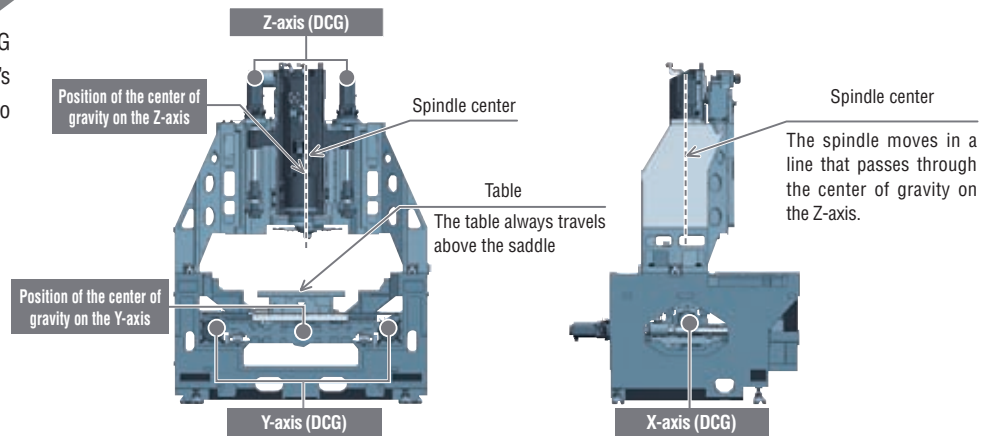
The NV4000 DCG, a high-precision vertical machining center, achieves both high speed and high quality thanks to the innovative technology.



Principal mechanisms

Basic structure

The NV4000 DCG incorporates the DCG on all axes. Also, DMG MORI SEIKI's original structure made it possible to eliminate spindle and table overhang.



Driven at the Center of Gravity



Original technology

The 24th Technology Development Award from the Japan Society for Precision Engineering

Our DCG technology controls vibration, which is one of the main enemies of high speed and high precision, by driving structural parts at their center of gravity.

Features of DCG

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

■ Rapid traverse rate <X, Y and Z axes>

42 m/min (1,653.5 ipm)

■ Feedrate <X, Y and Z axes>

42 m/min (1,653.5 ipm) {for look-ahead control <theoretical value>}

■ Max. acceleration

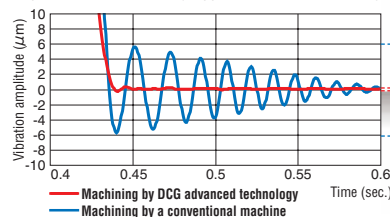
Standard

X and Y axes **0.60 G** {5.88 m/s² (19.29 ft/s²)}

Z-axis **0.56 G** {5.49 m/s² (18.01 ft/s²)}

Residual vibration comparison

Rapid traverse rate 100% (stopped in the Z-axis direction)



Machining by DCG advanced technology

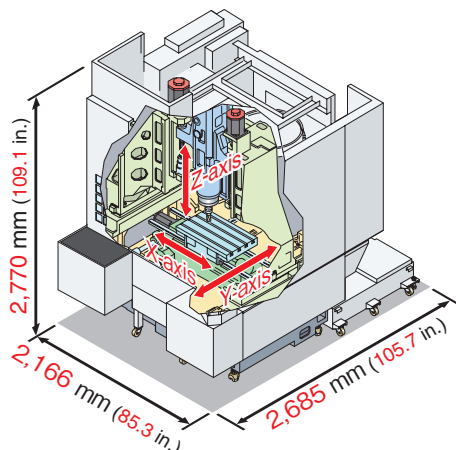
Machining by a conventional machine

High acceleration **OP**

X and Y axes **0.80 G** {7.84 m/s² (25.72 ft/s²)}

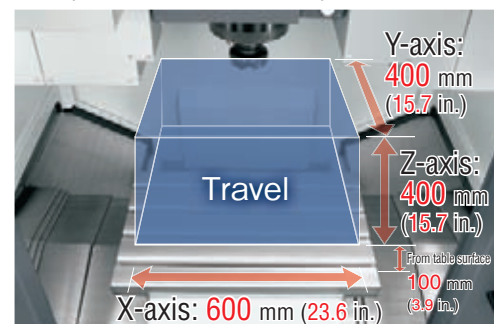
Z-axis **1.10 G** {10.78 m/s² (35.36 ft/s²)}

Axis configuration, machine size



Working area

Despite its compact body, the NV4000 DCG ensures a large work envelope suitable for various workpieces.



■ Table working surface

700×450 mm (27.6×17.7 in.)

ATC, Magazine

By using the ATC, which allows high-speed tool change, non-cutting time is dramatically reduced.



Tool changing time

Cut-to-cut (chip-to-chip)

20 tools

5.5 sec. (max.)

3.6 sec. (min.)

40 tools **OP**

10.9 sec. (max.)

3.6 sec. (min.)

- Without ATC shutter
- ISO 10791-9, JIS B6336-9
- The time differences are caused by the different conditions (travel distances, etc.) for each standard.
- Depending on the arrangement of tools in the magazine, the cut-to-cut (chip-to-chip) time may be longer.

Tool-to-tool **1.0 sec.**

Tool storage capacity

20 tools

40 tools **OP**

60 tools **OP**

- For APC specifications, a dummy tool which is mounted on the spindle during APC operation is included.



We use a space-saving tool magazine that fits in the standard installation space even if options are selected.



ISO: International Organization for Standardization JIS: Japanese Industrial Standard

Spindle



Max. spindle speed

NV4000 DCG

12,000 min⁻¹

NV4000 DCG HSC

20,000 min⁻¹

30,000 min⁻¹ **OP**

- Please use a flange tool when cutting at 15,000 min⁻¹ or higher.

Spindle acceleration time

NV4000 DCG

1.30 sec. (0→12,000 min⁻¹)

NV4000 DCG HSC

2.43 sec. (0→20,000 min⁻¹)

Spindle deceleration time

NV4000 DCG

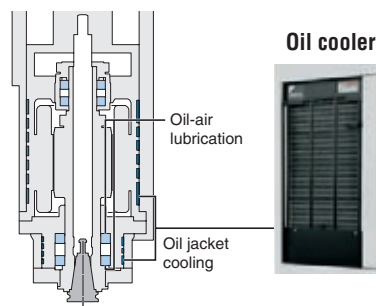
1.17 sec. (12,000 min⁻¹→0)

NV4000 DCG HSC

2.20 sec. (20,000 min⁻¹→0)

Spindle cooling

Stator coil in DDS motor: the coolant supplied by the oil cooler minimizes heat diffusion by circulating through an oil jacket, which is placed around the stator coil.

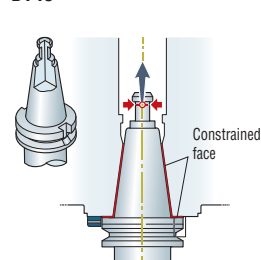


Two-face contact specifications

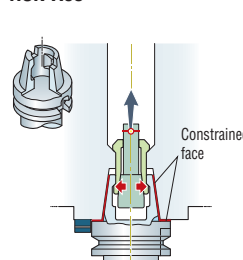
OP

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

BT40*

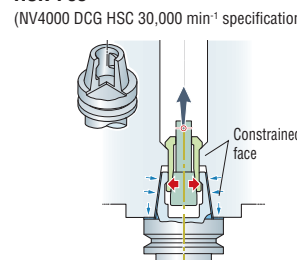


HSK-A63



HSK-F63

(NV4000 DCG HSC 30,000 min⁻¹ specifications only)



* When the two-face contact specification is selected, a two-face contact tool and other tools cannot be used together.

● All DMG MORI SEIKI spindles are made in-house to better meet our customer needs. For details, please consult with our sales representative.

High-precision equipment

Direct scale feedback

OP



Resolution

0.01 μm

Magnescape

High accuracy absolute scale SR87

- High accuracy, high resolution
- Greater accuracy than optical scale
- Highly resistant to condensation and oil
- Vibration and impact resistant characteristics

Oil cooler (separate type)

OP

An energy-saving oil cooler is used that delivers very little temperature fluctuation. Cooling oil is circulated to counter thermal displacement.



Coolant cooling system (separate type)

OP

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.

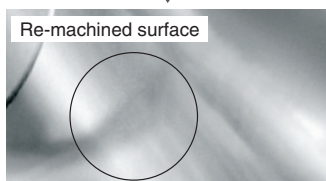
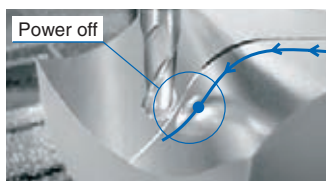


**When using oil-based coolant,
please be sure to consult with our sales representative.**

- While this unit is not the only way to completely control the temperature of the coolant, it makes a major contribution to preventing increases in the oil temperature.

Z-axis drop prevention function ideal for blackouts

Raising the spindle slightly during blackouts prevents any contact between the tool and the workpiece caused by the spindle dropping.



※ The Z-axis drop prevention function is not available in the following situations.

1. When the feed axis servo alarm has gone off.
2. When the power supply module alarm has gone off.
3. When the communication alarm between the CNC and the amp has gone off.

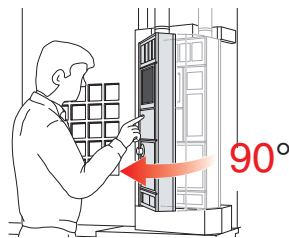
Improved convenience

Since the NV4000 DCG has been designed for ease of use, improvements have been made to the door width and distance from the workpiece, thereby enhancing overall convenience.



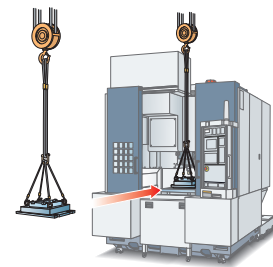
Swivel-type operation panel

The operation panel which can swivel from 0 degree to 90 degrees improves operability and visibility.



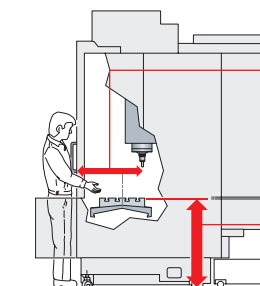
The open/close ceiling

The top panel can be opened and closed, making crane accessibility quick and easy.



Accessibility

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

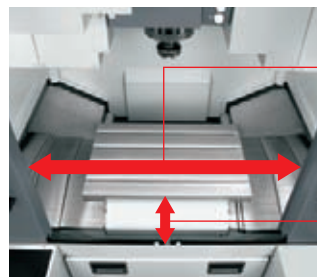


Distance from the front of the machine to the spindle center

640 mm (25.2 in.)

Distance from floor surface to table surface

900 mm (35.4 in.)



Door opening

885 mm (34.8 in.)

Distance from door to table

215 mm (8.5 in.)

Maintenance

The NV4000 DCG is designed with features for ease of maintenance to increase the machine operating rate.

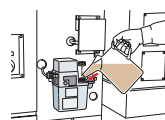


Transparent magazine

Visibility of the magazine has been improved with the addition of a door with a window.

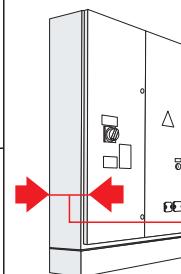


A closer lubrication tank



Slimmer electrical cabinet

A slim electrical cabinet closes the proximity between you and the insides of the machine during maintenance.



300 mm (11.8 in.)
<including doors>

Centralized layout of devices

Controls are on the side panel to facilitate maintenance.

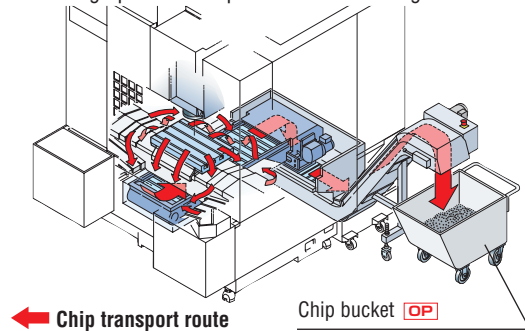


Peripheral equipment

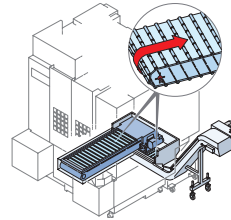
Chip conveyor

OP

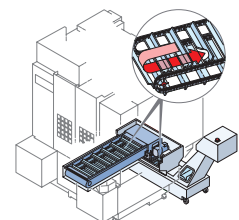
Chips that fall from the Y-axis tilted panel down into the center trough are automatically discharged out of the machine by the chip conveyor. This design prevents chips from accumulating.



Hinge type



Scraper type+drum filter type



Specifications	Workpiece material and chip size				
	Steel		Cast iron Short	Aluminum/non-ferrous metal	
	Long	Short		Long	Short
Hinge type+drum filter type	○	○	○	○	○
Hinge type	○	○	×	○	×
Scraper type+drum filter type	×	○	○	×	○
Magnet scraper type	×	○	○	×	×

● Chip size guidelines

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

● The options table below 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 with our sales representative.

● Chip conveyors are available in various types for handling chips of different shape and material. For details, please consult with our sales representative.

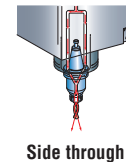
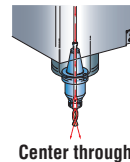
Through-spindle coolant system

OP

The through-spindle coolant system effectively eliminates chips, cooling the machine point, and lengthening the lives of your tools.

		Unit on coolant tank	Separate type
Discharge pressure	MPa (psi)	1.5 (217.5)	1.5/3.5/7.0 (217.5/507.5/1,015)
Installation space <width>×<depth>	mm (in.)	360×360 (14.2×14.2) (line filter unit)	780×1,085 (30.7×42.7) (high-pressure coolant system)
Water-soluble coolant		○	○
Oil-based coolant		×	○*
Coolant filtration accuracy		40 μ m	20 μ m

* Oil-based coolant may not be filtered appropriately depending on its viscosity. In such cases it is advisable to select the high-pressure coolant unit (special option), which uses a ceramic backwashing filter in the filtration system instead of a regular cyclone filter. Please contact our sales representative for details.



High-pressure coolant system (separate type)

⚠ Do not use a flammable coolant or oil-based coolant because it may ignite and cause fire or machine breakage. If you have to use a flammable coolant for any reason, please consult with our sales representative.

Rotary table DDRT Series

OP



For models (4-axis)

DDRT-200, 260

● The photo shows the DDRT-260.

It is possible to equip the machine with the high-speed, high-accuracy DDRT Series rotary table which incorporates the DDM (Direct Drive Motor). The high-efficiency machining using 4 axes and high-speed and high-precision indexing realize process integration.

(for details on the machining ranges, please consult with our sales representative.)

- Equipped with DDM
- Zero backlash
- Achieves high-precision indexing
- Offers stable machining through powerful clamping
- Allows high-efficiency machining using 4 axes

Rotational speed of the table

Conventional machine **DDRT-260** Compared with conventional machine Approx.

17 min⁻¹ ▶ 150 min⁻¹ 9 times greater

Positioning accuracy

Conventional machine **DDRT Series** Compared with conventional machine

20 sec. ▶ 5 sec. 1/4

Features of DDM



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

Measurement

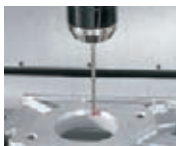
For the measuring devices, an automatic measuring function can be selected alone or in combination with manual measuring functions. Select the right devices for your use.

Automatic measurement

OP

In-machine measuring system (spindle)

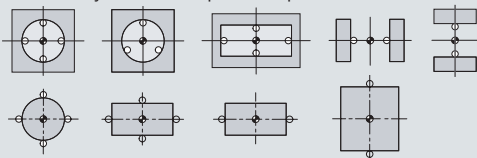
- Automatic centering and automatic measurement are possible.
- Automatic measurement applications are included.



Automatic measurement applications

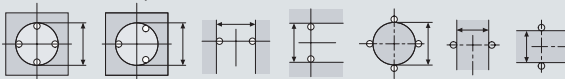
Centering

Automatically sets the workpiece zero point.



Measurement

Measures the workpiece dimensions.



In-machine measuring system (table)

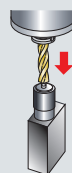
- Automatic tool length measurement and automatic breakage detection are possible.
- Automatic measurement applications are included.



Automatic measurement applications

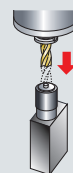
Tool length measurement

Measures tool length automatically.



Tool breakage detection

Prevent further damage with the automatic tool breakage detection.



Automatic measurement



Manual measurement functions

OP

Manual measurement applications can be added to the automatic measurement function.

Workpiece measurement function

OP

In-machine measuring system (spindle)
Optical type touch sensor



In-machine measuring system (spindle)
Inductive type touch sensor

Work setter function (manual measurement application)

Reference plane measurement

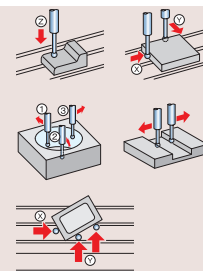
The machining reference point can be calculated simply by applying the sensor from the Z, X and Y-axis directions.

Reference hole measurement

Centering a boss, hole, groove or width can be done at any two or three points, simply by applying the sensor.

Coordinate rotation measurement

Machining can be done without changing the program even if the workpiece is attached crookedly, simply by performing this operation within the X-axis and Y-axis plane.



Tool measurement function

OP

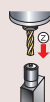
In-machine measuring system (table)
Touch sensor (tool length)



Tool setter function (manual measurement application)

Tool length measurement

The tool length value can be registered automatically to the designated tool offset number.



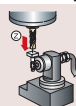
In-machine measuring system (table)
Touch sensor (tool length/tool diameter)



Tool setter function (manual measurement application)

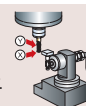
Tool length measurement

The tool length value can be registered automatically to the designated tool offset number.



Tool diameter measurement

The tool diameter value can be registered automatically to the designated tool offset number.



Transfer systems

2-station turn-type APC

OP

- We have succeeded in equipping the machine with an APC in the same installation space as previous machines.
- The APC uses a 2-station turn-type design. Cycle time is shorter than that of a shuttle-type machine.
- The new design allows access from the back of the machine during APC setup.

Machine front

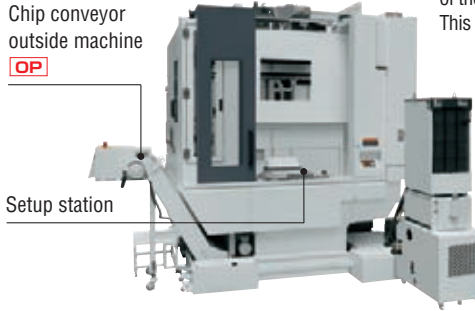


Machine rear

Chip conveyor outside machine

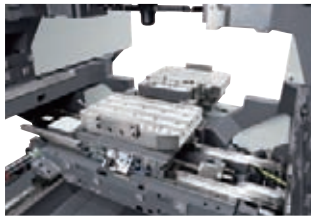
OP

Setup station



A new design allows access from the back of the machine when setting up the APC. This contributes to space savings.

- Separate space is needed for the oil cooler. Depth×width=843 mm×400 mm (28.5×15.7 in.) <on electrical cabinet side of machine rear>
- When APC is selected, raised column specifications <100 mm (3.9 in.) or 200 mm (7.9 in.)> are required.



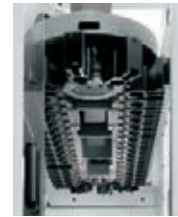
Pallet changing time

13 sec.

- To prevent APC interference, this specification includes time required for the spindle protection tool to be moved until after the APC turning is complete.

Pallet size

600×400 mm (23.6×15.7 in.)



Tool storage capacity

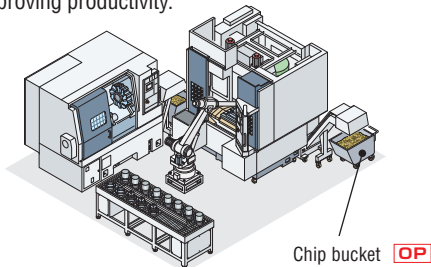
40/60 tools

- For APC specifications, a dummy tool which is mounted on the spindle during APC operation is included.

Workpiece transfer robot

OP Consultation is required

Robots make workpiece loading and unloading more efficient, improving productivity.

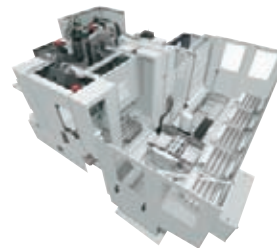


Chip bucket OP

CPP (Carrier Pallet Pool) systems

OP Consultation is required

The CPP is a simple and packaged system with a one-level pallet.



- When the number of machines or workpiece setup stations is two or more, the MCC-CPS or MCC-LPS III is required.
- For models and systems, please consult with our sales representative.

- The photo shows the NVD4000 DCG

● The colors and configurations shown in the photographs or illustrations may differ from those of the actual product.

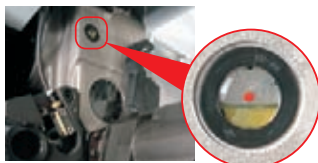
Reduction in environmental burden

Eco-friendly design

Reduced consumption of lubricating oil

Oil-bath ATC

An oil-bath design has been integrated into the ATC unit design. Compared with conventional oil drip designs, the amount of lubricating oil used has been radically reduced.



Power-saving function



Energy-saving settings screen

Automatic sleep function

If the keyboard is not touched after a certain amount of time and NC operation is not being performed, power is cut off to the servo motor, the spindle, the coolant pump and the chip conveyor, thereby saving energy.

Automatic machine light function

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

DMSQP (DMG Mori Seiki Qualified Products)

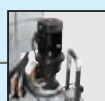
Selected peripherals with superior quality, performance and maintainability.

The DMSQP program is designed to certify peripherals that meet DMG MORI SEIKI standards in quality, performance and maintainability. DMSQP provides customers with even greater peace of mind.

Comprehensive support with machine + peripherals

DMG MORI SEIKI provides comprehensive support, from proposal to delivery and maintenance, for high-quality peripherals that offer superior performance and maintainability.

Comprehensive support with machine + peripherals



Through-spindle coolant system



Coolant cooling system



Mist collector

DMSQP



DMG MORI SEIKI Service Center

Advantages of DMSQP

- Qualified peripherals are arranged by DMG MORI SEIKI
- Two-year warranty, the same as machines
(Parts relating to machine breakdown will be guaranteed free for 2 years from the date of installation, and labor costs to repair will be free for 1 year)
- Toll-free phone support is available 24 hours a day, 365 days a year (Japan only)

Examples of qualified products (NV4000 DCG)

☐ Through-spindle coolant system

Coolant is supplied to the tool tip through the center of the tool and spindle.

☐ Coolant cooling system

It cools down coolant to offer better cutting performance and minimize thermal displacement in the workpiece.

☐ Mist collector

It removes mist, smoke, etc. generated inside the machine.

☐ Chip bucket

Chips discharged from the chip conveyor are collected into this bucket.

☐ In-machine measuring system (laser sensor)

☐ Refrigerating type air dryer

This unit removes moisture contained in the compressed air supplied by the compressor, preventing moisture-related problems in the pneumatic equipment.

☐ Tool wagon

☐ Tool cabinet

☐ Basic tooling kit

MAPPS IV

A New High-Performance Operating System
for Machining Centers



● 10.4-inch operation panel

A new high-performance operating system that pursues ease of use, and combines the best hardware in the industry with the advanced application/network systems.

- ▶ Outstanding operability thanks to upgraded hardware
- ▶ Enhanced functionality by using CAM software (option)
- ▶ New functions for easier setup and maintenance
- ▶ Various types of monitoring, including internal monitoring, are possible on the screen (option)
- ▶ In the event of trouble, DMG MORI SEIKI's remote maintenance service solves it smoothly **MORI-NET Global Edition Advance** OP

Outstanding operability

Vertical soft-keys

The vertical soft-keys can be used as option buttons or shortcut keys to which you can assign your desired screens and functions, allowing you to quickly display the screen you want.

Keyboard

A PC-type keyboard is used as standard, making key input easy. A keyboard with a conventional key layout is also available as an option.



Advanced hardware

Reduction of drawing time

Shorter drawing time was achieved thanks to increased CPU performance.

MAPPS III 68 sec.

MAPPS IV 45 sec.

Approx.
Reduced by **33%**

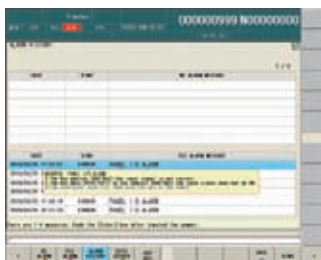
Main specifications

Main memory	1 GB
User area	1 GB
Interface	<ul style="list-style-type: none"> • USB 2.0 3 ports (Screen side: 1, Back of operation panel: 2) • LAN 2 ports (1000BASE-T) • RS-232-C port • Memory card slot
Soft-keys	Right 10 keys Bottom 12 keys

Improved ease of maintenance

Alarm help function

When an alarm occurs, MAPPS identifies the cause of the trouble and provides solutions.



Improved ease of setup

File display and Memo function

Data necessary for setups such as operating instructions, drawing data and text data can be viewed on MAPPS. Text data is editable.



Viewable file types

- PDF • TXT (Editable)
- Any file that can be displayed with Internet Explorer is available

Improved work efficiency

Fixed-point in-machine camera OP Consultation is required

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



Examples of camera locations

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

Conversational automatic programming

This function allows users to create programs simply by following the guidance on the screen.

Much of the programming process has been simplified due to the minimal key entry required for even the most complex shapes.

Machining menu



List display function



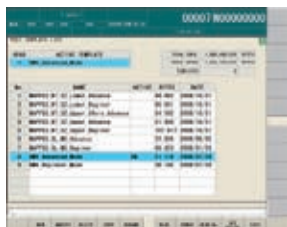
Contour input



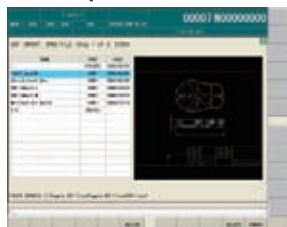
Islands, open pockets OP



MORI-POST advanced mode OP



DXF import function*1 OP



MORI Automatic Programming System for Machining Center OP

Application systems which let you create machining programs easily on your PC.

- Easy operation, simply by entering the product shapes while following the instructions on the screen.
- Its functions, data and operability are fully compatible with the conversational programming system of the MAPPS IV operating systems.

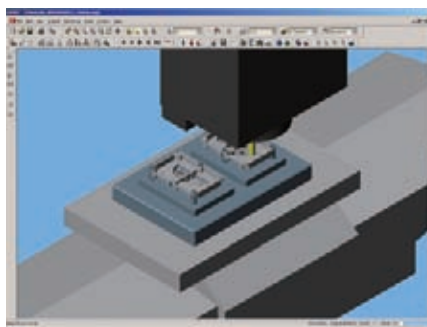


*1 A mouse is required. Please prepare a mouse by yourself.

CAM software OP



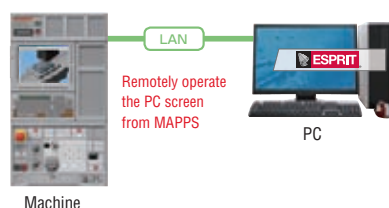
ESPRIT® allows you to create complex 3D programming with high-added value. By just installing the software on your PC with connection to LAN, you will be able to use it. (Once the software is started on the computer, it can be used for up to 7 days without LAN connection)



- **Postprocessor as standard**
- **CAM software will be ready to use once your machine is installed**
- **Cost for introducing CAM software can be saved**
- **ESPRIT® data can be modified on the machine** (through Remote Desktop connection*2)
- **The software can be installed on multiple PCs on the network** (It cannot be simultaneously started up on more than one PC)
- **2-year warranty support** (including free update)

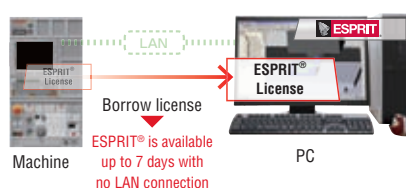
Remote Desktop <Patent pending>

ESPRIT® installed on your PC can be operated from your machine via LAN.*3 (It cannot be simultaneously started up on more than one PC)



License borrowing system

By borrowing the ESPRIT® license from the machine over LAN, ESPRIT® can be run on the PC up to 7 days without LAN connection (or turning on the machine).



Support system

Distributors/Trading companies, DMG MORI SEIKI Technical Centers and ESPRIT® Support Team will answer inquiries about the CAM software.



*2 Applicable Operating Systems: Windows® Vista Business/Ultimate, Windows® 7 Professional/Ultimate

*3 A mouse is required. Please prepare a mouse by yourself.

• A PC is required to use ESPRIT®. Please prepare PCs by yourself.

- The photo shown may differ from actual machine.
- Information about the screen is current as of January 2013.

For shorter total production time for all our customers

DMG MORI SEIKI's software Line-up

This network system application achieves fast information sharing and increased production efficiency.

— [Internet]
— [LAN]

Remote Maintenance/Machine Operation Monitoring Service

MORI-NET Global Edition Advance OP

■ Features

- Remote maintenance service by DMG MORI SEIKI Service Center
- Internet-based, high speed (max. 1 Gbps), large capacity network
- No server installation is required — reduction in initial cost
- Download various data from the server located at DMG MORI SEIKI

■ Remote alarm support

When an alarm goes off, an alarm notification will be sent to the DMG MORI SEIKI Service Center simply by pressing the "Send e-mail" button on MAPPS. DMG MORI SEIKI service personnel will remotely diagnose the cause of the problem, and quickly provide solutions for machine recovery.

- This service may not be available in some areas. Please contact our sales representative for details.

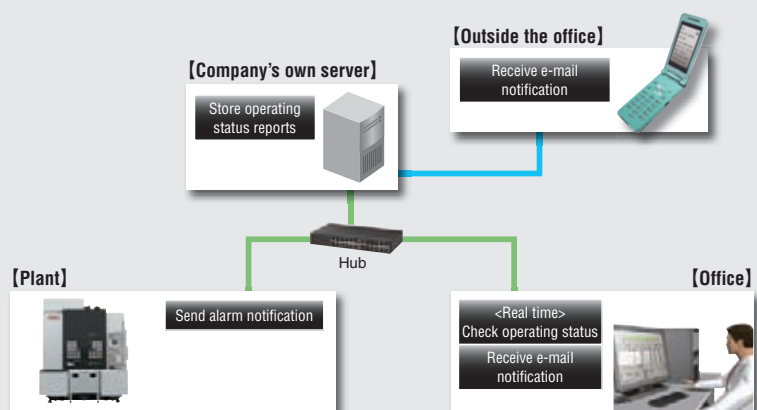


Machine Operation Monitoring System

MORI-NET LAN Edition OP

■ Features

- Intra-corporate network system
- Up to 30 machines can be connected with one server
- The operating status of your machines can be centrally managed in real time



Application for Data Transmission

MORI-SERVER [Standard features]

This enables high-speed transfer of programming data between your office computer and machine, reducing the lead time of pre-machining processes.

MAPPS Screen Remote Control and Browsing Application

MORI-MONITOR OP

This is an application which allows you to remotely operate and view the MAPPS screens from your office computer.

ACT Advanced Communication Technology

Advanced Communication Technology (ACT) connects machine tool and peripheral devices

DMG MORI SEIKI's new proposal, ACT, is designed to strengthen connections between machine tools and peripheral equipment by standardizing communication and software of the entire system. With ACT, standardization of interfaces of peripherals, simplified wiring, and labor saving can be achieved.

— [Internet]
— [LAN]

Industrial Network for Peripheral Equipment Control

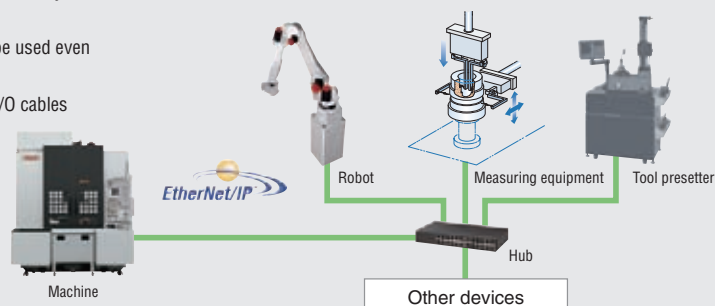
MAPPS EtherNet/IP I/F OP

This industrial network using the standard Ethernet (TCP/IP) offers high speed and reliable connection. Simple Plug and Play connections, which are made available just by connecting to the hub through MAPPS, enable you to build a system easily. The use of standard cables also helps to reduce costs.

■ Features

- Connections between a machine and peripheral equipment become easy because standard LAN cables are used
- Thanks to increased versatility, your peripheral equipment can be used even when the machine tools are replaced by new ones
- Reliability is significantly increased by reducing the number of I/O cables

- Easy system construction
- Connection with existing devices
- Inexpensive devices



Communication Interface for Monitoring Machine Operation

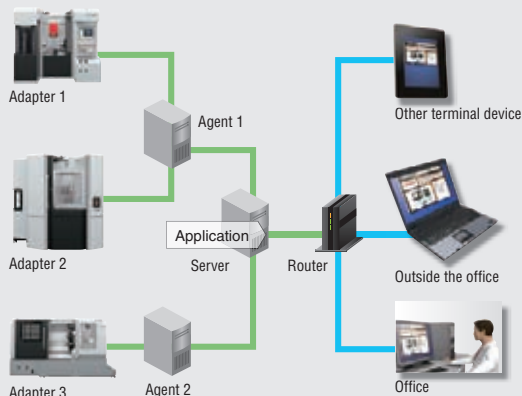
MAPPS MTConnect I/F

MTConnect, which was introduced by the Association for Manufacturing Technology (AMT) in 2008, is a new XML (Extensible Markup Language) based communication protocol that offers an open interface. This interface allows you to build a system to monitor the operating status of your machines.

■ Features

- Open communication interface allows you to access to your company's system
- This makes it possible for you to build a system to monitor the operating status of your machines via the Internet

■ System examples



■ Application examples



Your machines are displayed all at once, allowing you to quickly call up the machine you wish to check.



Operating status can be checked in real time.



You can check the operating history on the Gantt chart screen.

- A server and application must be prepared by the customer.
- For introduction of MTConnect, separate consultation is required.

Machine specifications

Item				NV4000 DCG		NV4000 DCG HSC	
				12,000 min ⁻¹		20,000 min ⁻¹	[30,000 min ⁻¹]
Travel	X-axis travel <longitudinal movement of table>			mm (in.)	600 (23.6)		
	Y-axis travel <cross movement of saddle>			mm (in.)	400 (15.7)		
	Z-axis travel <vertical movement of spindle head>			mm (in.)	400 (15.7)		
	Distance from table surface to spindle gauge plane			mm (in.)	100—500 (3.9—19.7) [150—550 (5.9—21.7) (APC <raised column 100 (3.9)> specifications)]		
Table	Distance from floor surface to table surface			mm (in.)	900 (35.4) [950 (37.4) <APC specifications>]		
	Table working surface			mm (in.)	700×450 (27.6×17.7) <for APC specifications, please check the pallet configuration diagrams.>		
	Table loading capacity			kg (lb.)	350 (770) [250 (550) <APC specifications>]		
	Table surface configuration <T slots width×pitch×No. of T slots>				18 mm×100 mm×4 (0.7 in.×3.9 in.×4)		
Spindle	Max. spindle speed			min ⁻¹	12,000	20,000	30,000
	Number of spindle speed ranges				1		
	Type of spindle taper hole				No. 40		No. 40 (HSK-F63)
	Spindle bearing inner diameter			mm (in.)	70 (2.8)		60 (2.4)
Feedrate	Rapid traverse rate			mm/min (ipm)	X, Y, Z: 42,000 (1,653.5)		
	Cutting feedrate			mm/min (ipm)	X, Y, Z: 1—42,000 (0.04—1,653.5) (for look-ahead control <theoretical value>)		
	Jog feedrate			mm/min (ipm)	0—5,000 (0—197.0) <20 steps>		
ATC	Type of tool shank				BT40* [DIN40] [CAT40] [HSK-A63]		HSK-F63
	Type of retention knob				DMG MORI SEIKI 90° type [45°(MAS-I)] [60°(MAS-II)] [HSK-A63]		HSK-F63
	Tool storage capacity				20 [40] [60]		
	Max. tool diameter	With adjacent tools	mm (in.)	80 (3.1) [70 (2.7) <with the 40- and 60-tool specified tool magazine>]			
		Without adjacent tools	mm (in.)	125 (4.9)			
	Max. tool length			mm (in.)	250 (9.8)		
	Max. tool mass			kg (lb.)	8 (17.6)		3 (6.6)
	Max. tool mass moment <from spindle gauge line>			N·m (ft·lbf)	11 (8.1) <a tool with a mass moment greater than the maximum tool mass moment may cause problems during ATC operations even if it satisfies other conditions.>		
	Method of tool selection				Fixed address, shorter route access		
	Tool changing time		Tool-to-tool	s	1.0		
	● The time differences are caused by the different conditions <travel distances, etc> for each standard. ● Depending on the arrangement of tools in the magazine, the cut-to-cut (chip-to-chip) time may be longer.		Cut-to-cut (chip-to-chip) <without ATC shutter>	MAS ISO 10791-9 JIS B6336-9	s	2.8 20-tool specifications: 5.5 (max.), 3.6 (min.) [40-tool specifications: 10.9 (max.), 3.6 (min.)]	
Motor	Spindle drive motor			kW (HP)	18.5/15/11 (24.7/20/15) <10 min/30 min/cont> (high-speed winding side)		18.5/13 (24.7/17.3) <1 min/cont>
	Feed motor			kW (HP)	X: 1.6 (2.1), Y: 1.6 (2.1)×2, Z: 3.0 (4.0)×2		
	Coolant pump motor (50 Hz/60 Hz)			kW (HP)	0.6 (0.8)/1.02 (1.37)		
Power sources <standard>	Electrical power supply <cont>			I94315A01 (kVA)	27.7		30.0
	Compressed air supply			MPa (psi), L/min (gpm)	0.5 (72.5), 200 (52.8) (when the tool tip air blow is regularly used, air supply of more than 300 L/min (79.2 gpm) is separately required) <ANR>		
Tank capacity	Coolant tank capacity			L (gal.)	340 (89.8) [375 (99.0) <APC specifications>]		
Machine size	Machine height			mm (in.)	2,770 (109.1) [2,870 (113.0) <APC specifications>]		
	Floor space <width×depth>			mm (in.)	2,166×2,685 (85.3×105.7) [2,571×2,715 (101.2×106.9) <APC specifications> ● Separate space is needed for the oil cooler. Depth×width=843 mm×400 mm (28.5×15.7 in.) (on electrical cabinet side of machine rear)]		
	Mass of machine			kg (lb.)	6,740 (14,828) [7,450 (16,390) <APC specifications>]		
Noise data	A-weighted, time-average radiated sound pressure level			dB	58—77 (Measurement uncertainty is 4 dB)		

[] Option ISO: International Organization for Standardization JIS: Japanese Industrial Standard

NV4000DCG (200901)

* When the two-face contact specification is selected, a two-face contact tool and other tools cannot be used together.

● 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 storage capacity (40 tools, 60 tools): with the APC specifications, a dummy tool to be mounted on the spindle during APC operation will be included.

● ANR: ANR refers to a standard atmospheric state; i. e., temperature at 20 °C (68 °F), absolute pressure at 101.3 kPa (14.7 psi) and relative humidity at 65%.

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

● Compressed air supply: please be sure to supply clean compressed air <air pressure: 0.7 MPa (101.5 psi), pressure dew point: 10 °C (50 °F) or below>.

● A criterion capacity to select a compressor is 90 L/min (23.8 gpm) per 0.75 kW (1 HP). However, this figure may differ depending on the type of compressors and options attached. For details, please check the compressor specifications.

● Noise data: the measurement was performed at the front of the machine with a maximum spindle speed of 12,000 min⁻¹. Please contact our sales representative for details.

● The information in this catalog is valid as of January 2013.

HSC: High Speed Cutting

DMG MORI

2-year warranty, twice the peace of mind.

For machines delivered outside of Japan, parts relating to machine breakdown will be guaranteed free for 2 years from the date of installation, and labor costs to repair will be free for 1 year. Please contact our sales representative for details.



<Precautions for Machine Relocation>

EXPORTATION: All contracts are subject to export permit by the Government of Japan. Customer shall comply with the laws and regulations of the exporting country governing the exportation or re-exportation of the Equipment, including but not limited to the Export Administration Regulations. The Equipment is subject to export restrictions imposed by Japan and other exporting countries and the Customer will not export or permit the export of the Equipment anywhere outside the exporting country without proper government authorization. To prevent the illegal diversion of the Equipment to individuals or nations that threaten international security, it may include a "Relocation Machine Security Function" that automatically disables the Equipment if it is moved following installation. If the Equipment is so-disabled, it can only be re-enabled by contacting DMG MORI SEIKI or its distributor representative. DMG MORI SEIKI and its distributor representative may refuse to re-enable the Equipment if it determines that doing so would be an unauthorized export of technology or otherwise violates applicable export restrictions. DMG MORI SEIKI and its distributor representative shall have no obligation to re-enable such Equipment. DMG MORI SEIKI and its distributor representative shall have no liability (including for lost profits or business interruption or under the limited service warranty included herein) as a result of the Equipment being disabled.

- DCG, DDM, BMT and ORC are trademarks or registered trademarks of DMG MORI SEIKI CO., LTD. in Japan, the USA and other countries.
- If you have any questions regarding the content, contact our sales representative.
- The information in this catalog is valid as of October 2013. 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 SEIKI is not responsible for differences between the information in the catalog and the actual machine.

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