

NV6000 DCG/40

NV6000 DCG/40 HSC

NV6000 DCG/50

High-Precision Vertical Machining Center

NV6000 DCG



Its accuracy, the best in the world.

The NV6000 DCG, with its large Y-axis travel of 600 mm (23.6 in.), has joined the NV Series, which has been well received by our customers worldwide as the next generation of vertical machining centers since release in 2002.

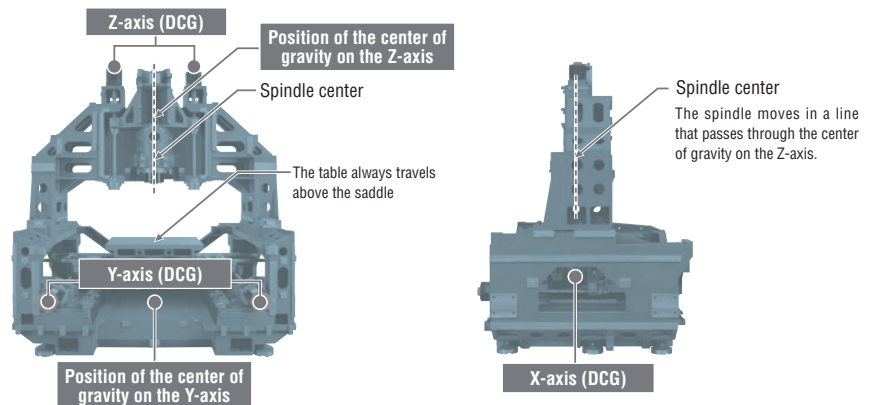
The NV6000 DCG is an ideal machine that offers all the features required for a vertical machining center, such as high precision, high speed and high efficiency, contributing to greater profits for our customers.



Principal mechanisms

Basic structure

The NV6000 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

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>

NV6000 DCG

42 m/min (1,653.5 ipm)

Feedrate <X, Y and Z axes>

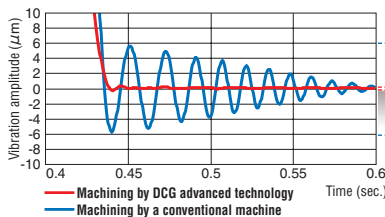
NV6000 DCG

42 m/min (1,653.5 ipm)

<with AI contour control>

Residual vibration comparison

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



Machining by
DCG advanced
technology

Machining by a
conventional
machine

(machine type: NV4000 DCG)

Machine size



W: Width
D: Depth
H: Height

NV6000 DCG/40

(W) **2,814 mm**
(110.8 in.)

(D) **3,305 mm**
(130.1 in.)

(H) **3,015 mm**
(118.7 in.)

NV6000 DCG/50

(W) **4,433 mm*1**
(174.5 in.)

(D) **4,189 mm*2**
(164.9 in.)

(H) **3,169 mm**
(124.8 in.)

*1 Including a 1,203 mm (47.4 in.) step for the magazine and a 416 mm (16.4 in.) oil cooler.
*2 Including a 884 mm (34.8 in.) oil cooler.

Working area

Despite its compact body, the NV6000 DCG ensures a large work envelope suitable for various workpieces.

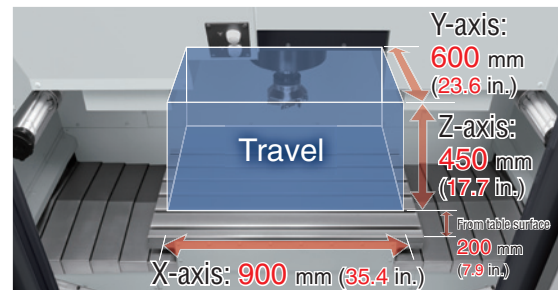


Table working surface

1,000×600 mm
(39.4×23.6 in.)

Table loading capacity

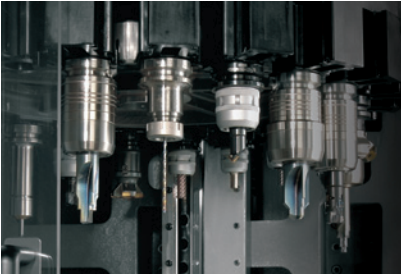
800 kg (1,760 lb.)

ATC, Magazine

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



Adopting tool magazines with an original space-saving design.



Tool changing time Cut-to-cut (chip-to-chip)

Tool changing time	NV6000 DCG/40 <20-tool (without ATC shutter)>	NV6000 DCG/50 <30-tool>
Max. <ISO>	5.9 sec.	14.9 sec.
Min. <ISO>	4.2 sec.	9.0 sec.
<MAS>	4.3 sec.	9.0 sec./10.3 sec.*

ISO 10791-9 JIS B6336-9

ISO: International Organization for Standardization JIS: Japanese Industrial Standard

* For a tool of 10 kg (22 lb.) or heavier.

● 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

NV6000 DCG/40

1.6 sec.

NV6000 DCG/50

2.8 sec./3.9 sec.*

* For a tool of 10 kg (22 lb.) or heavier.

Tool storage capacity

NV6000 DCG/40

20 tools

40 tools OP

60 tools OP

NV6000 DCG/50

30 tools

60 tools OP

Spindle

A DDS (Direct Drive Spindle) motor has been used for the spindle drive, with a gearless, variable speed design to bring out full power at all speeds.



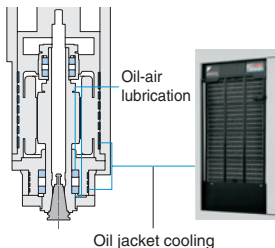
	NV6000 DCG/40	NV6000 DCG/40 HSC	NV6000 DCG/50
Max. spindle speed	12,000 min ⁻¹	20,000 min ⁻¹ 30,000 min ⁻¹ OP	8,000 min ⁻¹ 15,000 min ⁻¹ OP
Spindle acceleration time (0 → 12,000 min ⁻¹)	1.30 sec.	2.52 sec. (0 → 20,000 min ⁻¹)	1.72 sec. (0 → 8,000 min ⁻¹)
Spindle deceleration time (12,000 min ⁻¹ → 0)	1.17 sec.	2.31 sec. (20,000 min ⁻¹ → 0)	1.41 sec. (8,000 min ⁻¹ → 0)

Tool clamp power

NV6000 DCG/40 **13,500 N (3,034.8 lbf)**

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.

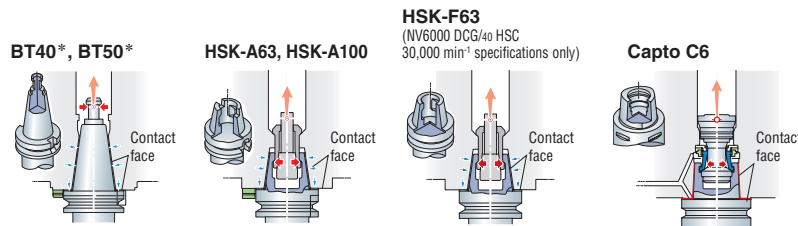


Oil cooler

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.



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

● See the page 21 for details.

● 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

The absolute magnetic linear scale (full closed-loop control) made by Magnescape is effective for high-precision positioning, and is available as an option.

- 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 is used that delivers very little temperature fluctuation.

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.

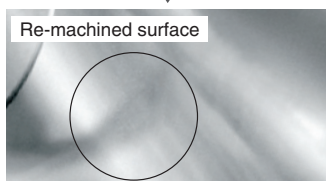
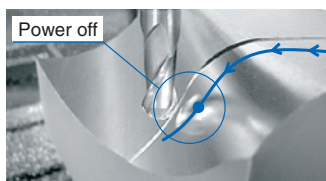


When using oil-based coolant, please be sure to consult with our sales representative.

- 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 workability

Excellent access to the table and a smoothly opening roof for easier setup when using a crane.
The NV6000 DCG was designed as a vertical machining center with maximum ease of use and setup.



Swivel-type operation panel

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



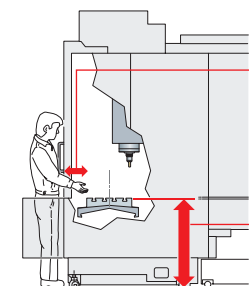
The open/close ceiling

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.

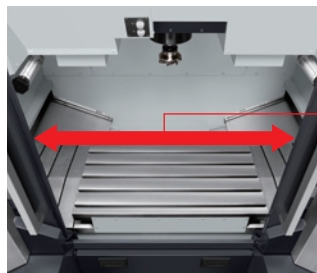


Distance from table

161 mm (6.3 in.)

Height of table top surface

975 mm (38.4 in.)

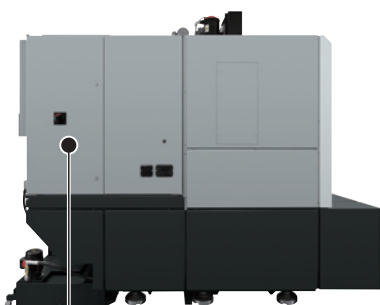


Door opening

910 mm (35.8 in.)

Maintenance

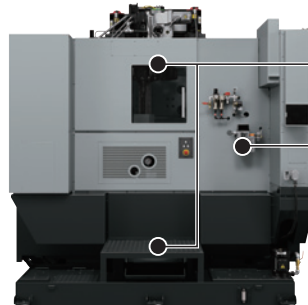
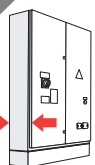
The NV6000 DCG is designed with features for ease of maintenance to increase the machine operating rate.



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>



Replacement of spindle unit

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

Access to equipment

Visibility of the magazine has been improved with the addition of a door with a window. In addition, the coolant tank can be used as steps to facilitate access to gauges and other instruments.



Centralized layout of devices

Devices which need to be inspected every day are gathered together at the rear of the machine.

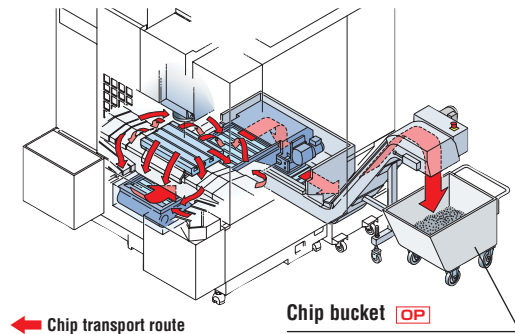


Peripheral equipment

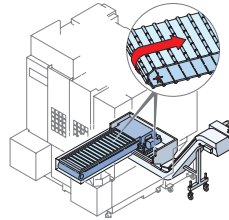
Chip conveyor

[OP]

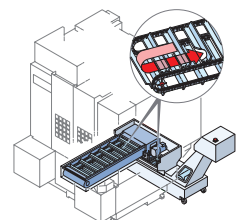
Chips that fall from the Y-axis tilted panel down into the center trough are automatically discharged out of the machine by the chip conveyor. This design prevents chips from accumulating.



Hinge type



Scraper type + drum filter type



Specifications	Workpiece material and chip size					○: Suitable ×: Not suitable
	Steel		Cast iron	Aluminum/non-ferrous metal		
	Long	Short	Short	Long	Short	
Hinge type+drum filter type	Consultation is required	○	○	○	○	
Hinge type		○	×	○	×	
Scraper type+drum filter type		×	○	×	○	
Magnet scraper type	Consultation is required	×	○	×	×	

● 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.

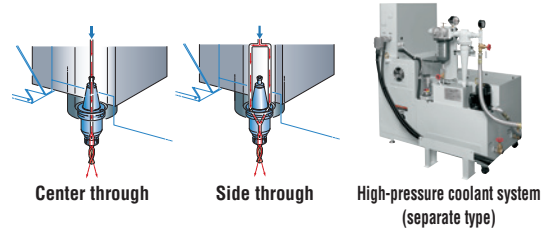
Through-spindle coolant system

[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.



⚠ 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, 300

- 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
17 min⁻¹ ▶ 150 min⁻¹ Approx. 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

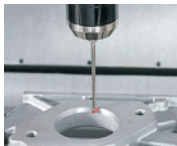
For the measuring devices, an automatic measuring function can be selected alone or in combination with manual measuring functions. Select the right devices for your use.

Automatic measurement

OP

Touch sensor (spindle)

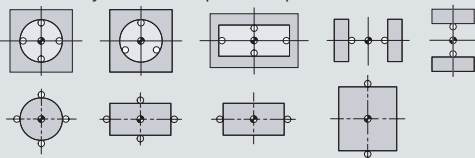
- Automatic centering and automatic measurement are possible.
- Automatic measurement applications are included.



Automatic measurement applications

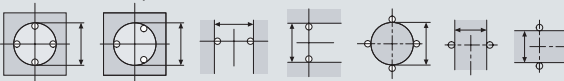
Centering

Automatically sets the workpiece zero point.



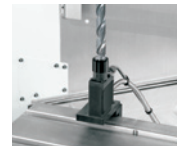
Measurement

Measures the workpiece dimensions.



Touch sensor (table)

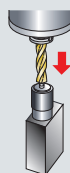
- Automatic tool length measurement and automatic breakage detection are possible.
- Automatic measurement applications are included.



Automatic measurement applications

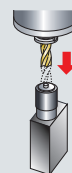
Tool length measurement

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

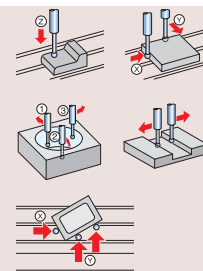
The machining reference point can be calculated simply by applying the sensor from the Z, X and Y-axis directions.

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)

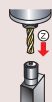
Touch sensor (tool length)



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)

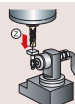
Touch sensor (tool length/tool diameter)



Tool setter function (manual measurement application)

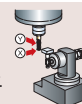
Tool length measurement

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 (NV6000 DCG/40)

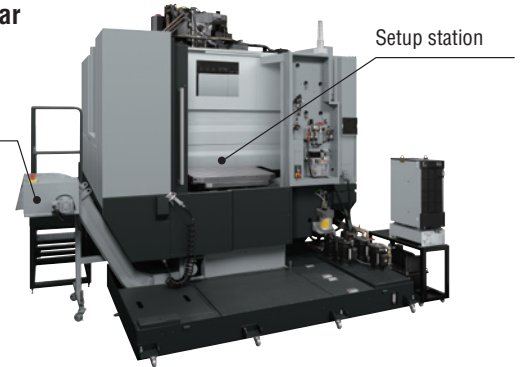
[OP]

- The APC uses a 2-station turn-type design. Cycle time is shorter than that of a shuttle-type machine.
- A new design allows access from the back of the machine when setting up the APC. This contributes to space savings.

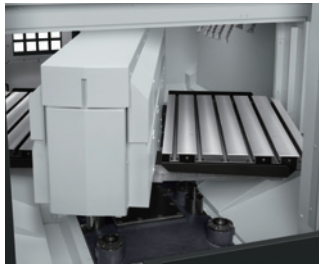
Machine front



Machine rear

Chip conveyor
(external) [OP]

- When APC is selected, 200 mm (7.9 in.) raised column specifications are required.



Pallet changing time

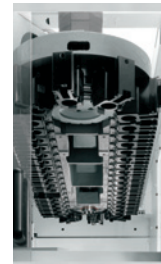
25 sec.

- To prevent APC interference, this specification includes time required for the spindle protection tool to be moved until after the APC turning is complete.
- When there are adjacent tools. Depending on the arrangement of tools in the magazine, the APC time may be longer.
- Without ATC shutter

Pallet size

900×600 mm (35.4×23.6 in.)

- The photo shows the NVD6000 DCG/40.



Tool storage capacity

40/60 tools

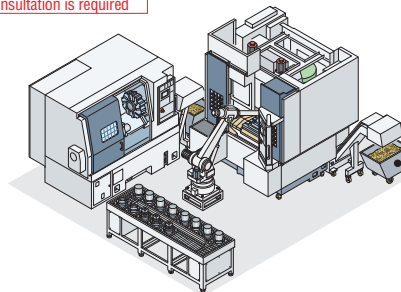
- For APC specifications, a dummy tool which is mounted on the spindle during APC operation is included.

- The photo shows the NV4000 DCG.

Workpiece transfer robot

[OP] Consultation is required

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



Chip bucket [OP]

- The illustration shows the NV4000 DCG.

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

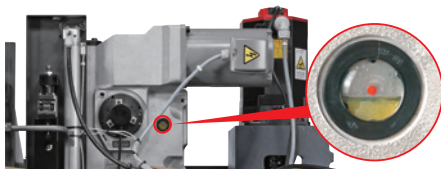
Reduction in environmental burden

Eco-friendly design

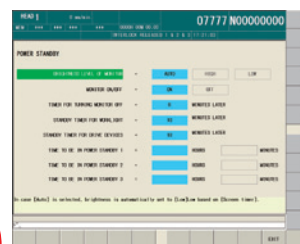
Reduced consumption of lubricating oil

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)

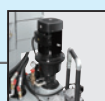
Selected peripherals with superior quality, performance and maintainability.

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 (NV6000 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.

☐ 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

High-Performance Operating System
for Machining Centers



● 19-inch operation panel

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

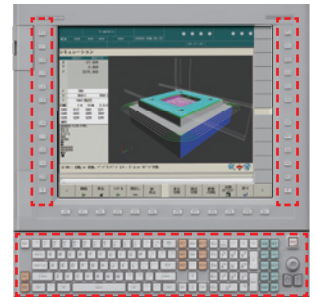
Outstanding operability

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%**

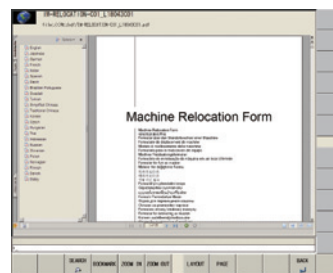
Main specifications

Main memory	2 GB
User area	Standard: 6 GB
Interface	<ul style="list-style-type: none"> • USB 2.0 6 ports (Screen side: 2, Bottom of operation panel: 1, Back of operation panel: 3) • LAN 2 ports (1000BASE-T) • RS-232-C port
Soft-keys	Left/right 12 keys Bottom 12 keys

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.



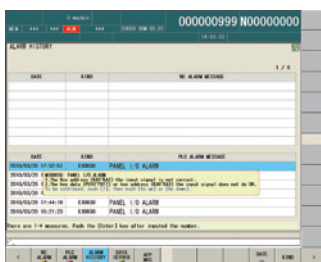
Viewable file types

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

Improved ease of maintenance

Alarm help function

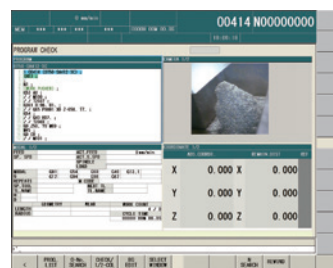
When an alarm occurs, MAPPS identifies the cause of the trouble and provides solutions.



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

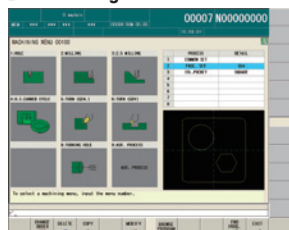
- Inside machine (to check machining)
- Tool magazine (to check cutting tools)
- Chip bucket (to check chip accumulation)

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.

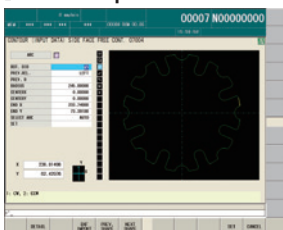
Machining menu



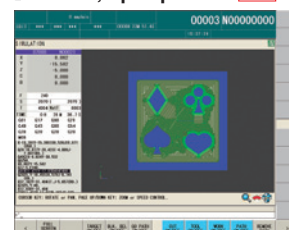
List display function



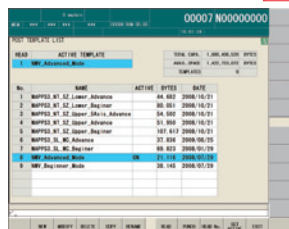
Contour input



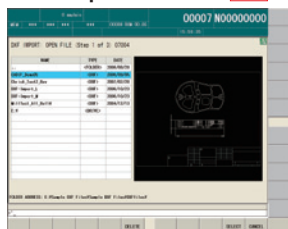
Islands, open pockets



MORI-POST advanced mode



DXF import function*1



MORI Automatic Programming System for Machining Center

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.



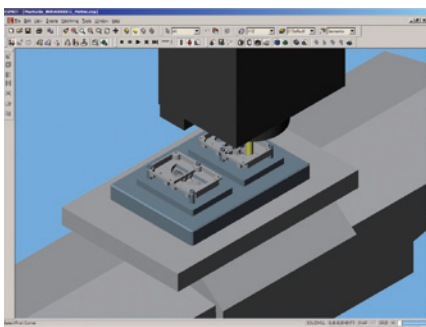
*1 A mouse is required. Please prepare a mouse by yourself.

CAM software

OP



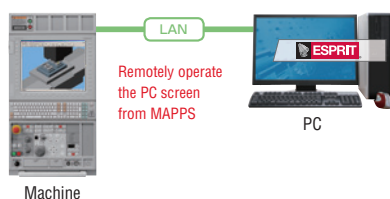
ESPRIT® allows you to create complex 3D programming with high-added value. By just installing the software on your PC with connection to LAN, you will be able to use it. (Once the software is started on the computer, it can be used for up to 7 days without LAN connection)



- 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)

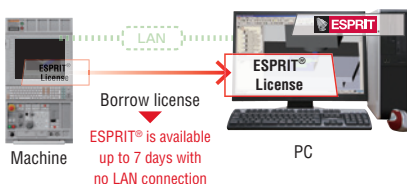
Remote Desktop <Patent pending>

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 November 2013.

MORI-NETWORK

Network Application Systems

MORI-NET, MORI-SERVER, MORI-MONITOR

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

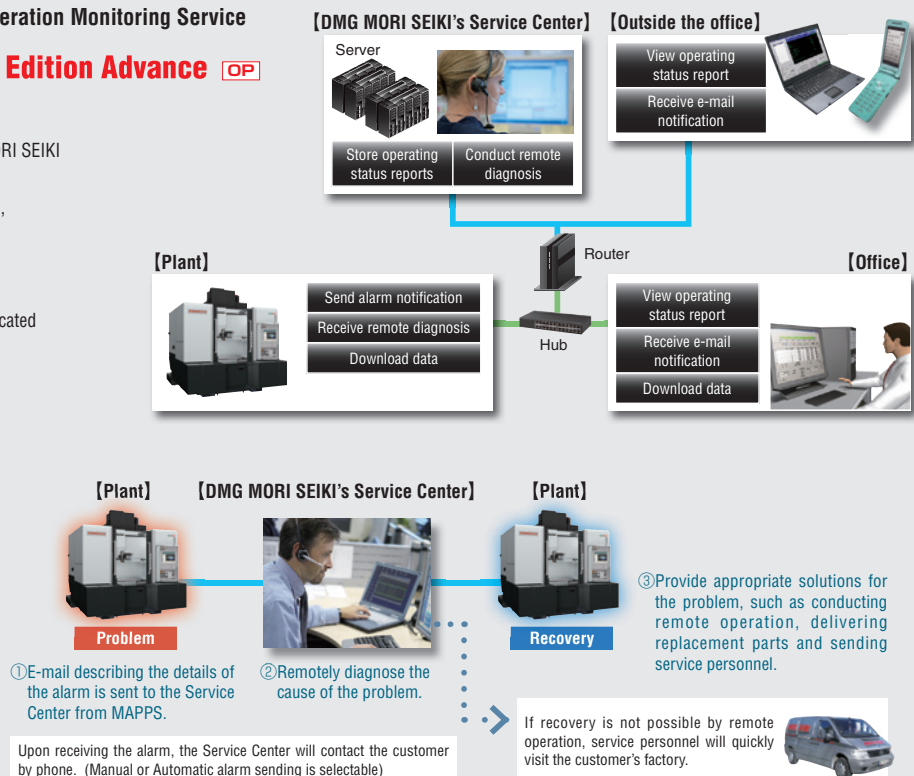
■ Features

- 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.

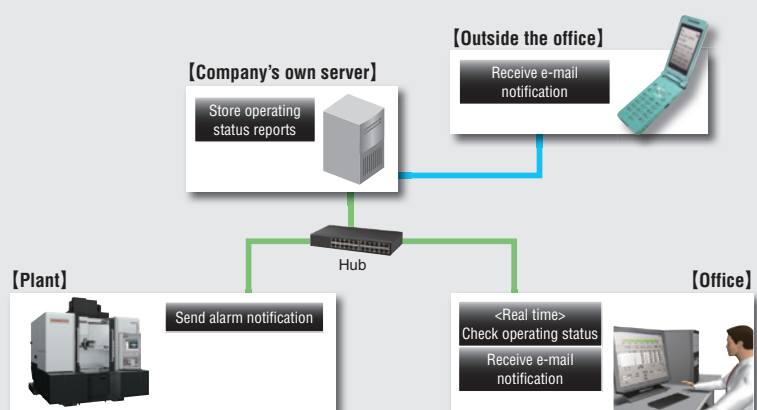


Machine Operation Monitoring System

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

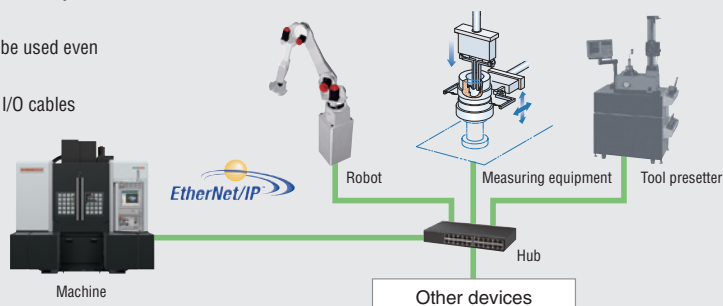
MAPPS EtherNet/IP I/F OP

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

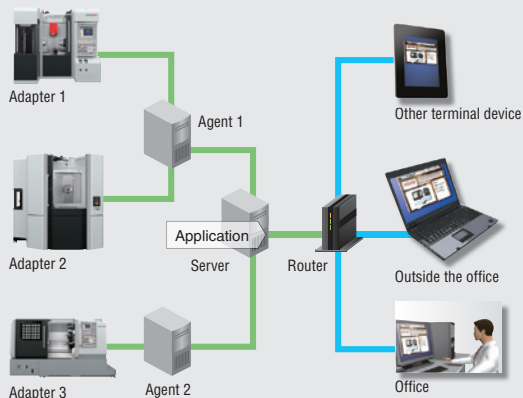
MAPPS MTConnect I/F

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			NV6000 DCG/40	NV6000 DCG/40 HSC	NV6000 DCG/50
Travel	X-axis travel <longitudinal movement of table>	mm (in.)	900 (35.4)		
	Y-axis travel <cross movement of saddle>	mm (in.)	600 (23.6)		
	Z-axis travel <vertical movement of spindle head>	mm (in.)	450 (17.7)		
	Distance from table surface to spindle gauge plane	mm (in.)	200—650 (7.9—25.6)		
Table	Distance from table surface to floor surface	mm (in.)	975 (38.4)		
	Working surface	mm (in.)	1,000×600 (39.4×23.6)		
	Table loading capacity	kg (lb.)	800 (1,760)		
	Table surface configuration <T slots width×pitch×No. of T slots>		18 mm×100 mm×6 (0.7 in.×3.9 in.×6)		
Spindle	Max. spindle speed	min ⁻¹	12,000	20,000 [30,000]	8,000 [15,000]
	Number of spindle speed ranges		1		
	Type of spindle taper hole		No. 40		No. 50
	Spindle bearing inner diameter	mm (in.)	70 (2.8)	70 (2.8) [60 (2.4) <30,000 min ⁻¹ specifications>]	100 (3.9)
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) <with AI contour control>		
	Jog feedrate	mm/min (ipm)	0—5,000 (0—197.0) <20 steps>		
ATC	Type of tool shank		BT40* [HSK-A63] [DIN40] [CAT40] [Capto C6]	BT40* [HSK-A63] [DIN40] [CAT40] [HSK-F63 <30,000 min ⁻¹ specifications>] [Capto C6]	BT50* [HSK-A100] [DIN50] [CAT50]
	Type of retention knob		DMG MORI SEIKI 90° type [45° (MAS-I)] [60° (MAS-II)] [HSK]		
	Tool storage capacity		20 [40] [60]		30 [60]
	Max. tool diameter	With adjacent tools mm (in.)	φ 80 (φ 3.1) [φ 70 (φ 2.7) <40-, 60-tool>]		φ 120 (φ 4.7)
		Without adjacent tools mm (in.)	φ 125 (φ 4.9)		φ 240 (φ 9.4)
	Max. tool length	mm (in.)	300 (11.8)		350 (13.7)
	Max. tool mass	kg (lb.)	8 (17.6)	8 (17.6) [3 (6.6) <30,000 min ⁻¹ specifications>]	20 (44)
	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		Technical memory random
	Tool changing time	Tool-to-tool s	1.6		2.8/3.9 <for a tool of 10 kg (22 lb.) or heavier>
	● 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)	<MAS> s	4.3 <for a tool of 10 kg (22 lb.) or heavier>	
		ISO 10791-9 JIS B6336-9	20-tool <without ATC shutter>: 5.9 <max.>/4.2 <min.>		30-tool: 14.9 <max.>/9.0 <min.>
Motor	Spindle drive motor	12,000 min ⁻¹ kW (HP)	18.5/15/11 (24.7/20/15) <10 min/30 min/cont> (high-speed winding side)	—	—
		20,000 min ⁻¹ kW (HP)	—	18.5/15/11 (24.7/20/15) <10 min/30 min/cont> (high-speed winding side)	
		[30,000 min ⁻¹] kW (HP)	—	18.5/13 (24.7/17.3) <1 min/cont>	—
		8,000 min ⁻¹ kW (HP)	—		30/22 (40/30) <30 min/cont> (high-speed winding side)
		[15,000 min ⁻¹] kW (HP)			
	Feed motor	kW (HP)	X: 4.5 (6) Y, Z: 4.0 (5.3)		
	Coolant pump motor <50/60 Hz>	kW (HP)	0.6 (0.8)/1.02 (1.36)		
Power sources <standard>	Electrical power supply <cont>	ISO 10791-9 JIS B6336-9 (kVA)	36.1		49.1
	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	Hydraulic oil tank capacity	L (gal.)	20 (5.3)		
	Coolant tank capacity	L (gal.)	345 (91.1) <without chip conveyor> [600 (158.4) <APC specifications>]		345 (91.1) <without chip conveyor>
Machine size	Machine height	mm (in.)	3,015 (118.7) [3,215 (126.6) <APC specifications>]		3,169 (124.8)
	Floor space <width×depth>	mm (in.)	2,814×3,305 (110.8×130.1)		4,433 (174.5) *1×4,189 (164.9) *2 *1 Including a 1,203 mm (47.4 in.) step for the magazine and a 416 mm (16.4 in.) oil cooler. *2 Including a 884 mm (34.8 in.) oil cooler.
	Mass of machine	kg (lb.)	10,160 (22,352)		10,970 (24,134) [12,300 (27,060) <60-tool>]
Noise data	A-weighted, time-average radiated sound	dB	61—80 (Measurement uncertainty is 4 dB)		

[] Option ISO: International Organization for Standardization JIS: Japanese Industrial Standard NV6000DCG (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.
- Max. tool diameter: the maximum tool diameter is limited to 170 mm (6.6 in.) or less when using a No. 50 taper spindle at 10,000 min⁻¹ or higher.
- Tool storage capacity (40 tools, 60 tools) <NV6000 DCG/40>: 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 No. 40 spindle taper and 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 November 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 November 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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