

DMG MORI

5-Axis Control Horizontal Machining Center

INH 63
INH 80

INH 63
INH 80



100% Equipped with DMG MORI Technology for Zero Downtime

The manufacturing industry is facing diverse challenges - apart from labor shortage and the constant competition for higher productivity, there is also the need to respond to environmental concerns. Fully equipped with DMG MORI's latest technology, the INH 63 and INH 80 solve these challenges by process integration and maximized machine utilization. Process integration with the INH 63 and INH 80 not only maximize productivity, but also efficiently reduce CO₂ emissions and power consumption for green and sustainable production.

02



Access here for the video

• Steps in front of the machine door available as option.

Aircraft industry

Valve block



280 × 330 mm (11.0 × 13.0 in.) <Aluminum>

Industrial machinery

Spiral bevel gear



Ø 480 × 200 mm (Ø 18.9 × 7.9 in.) <Alloy steel>

Industrial machinery

Planet carrier



Ø 400 × 170 mm (Ø 15.7 × 6.7 in.) <Carbon steel>

Industrial machinery

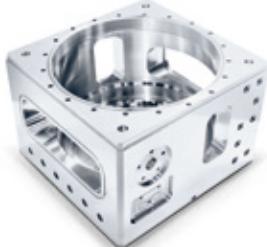
Impeller



Ø 601 × 192 mm (Ø 23.7 × 7.6 in.) <Aluminum>

Semiconductor industry

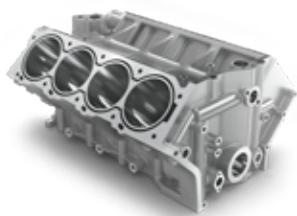
Chamber housing



720 × 720 mm (28.3 × 28.3 in.) <Aluminum>

Boats & Ships

Cylinder block



601 × 475 mm (23.7 × 18.7 in.) <Gray cast iron>

EV

Motor housing



410 × 320 mm (16.1 × 12.6 in.) <Aluminum>

EV

Battery case



600 × 490 mm (23.6 × 19.3 in.) <Aluminum>

Die & Mold

Die casting mold



310 × 240 mm (12.2 × 9.4 in.) <Tool steel>

Die & Mold

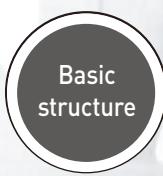
Injection mold



315 × 300 mm (12.4 × 11.8 in.) <Steel>

Shaping the Future of Production with Process Integration, Automation, DX, and GX

The INH 63 and INH 80 are fully equipped with functions to advance process integration, automation, DX, and GX, featuring an extremely rigid bed that efficiently suppresses vibration and thermal deformation, a powerMASTER spindle capable of heavy-duty and high-speed machining, and outstanding chip processing capabilities. The comprehensive technology package of INH 63 and INH 80 contribute to efficient, energy-saving, and sustainable production.



P06



- + Highly rigid machine structure with twin ball screw & slanted column

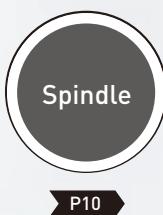


P12



- + Innovative vertical coolant tank for extra long unmanned operation

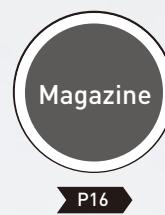
* Solutions against chip, coolant and mist troubles for long machining utilization with stable performance and a clean factory environment.



P10



- + powerMASTER spindle for heavy-duty and high-speed machining



P16



- + Large capacity tool magazine in compact size



P24



- + User-friendly operation panel



P32

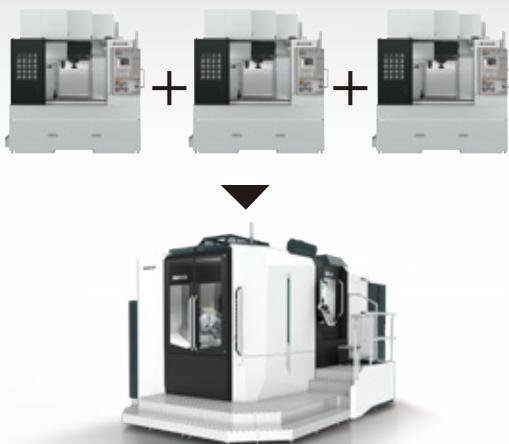


- + Easy & quick machining of complex shapes

DMG MORI MX

We optimize machining processes through process integration and automation, thereby contributing to green transformation, and manage this entire process by digital technology. We have defined this management system as "Machining Transformation (MX)", a revolution in the machining industry.

Process integration ➤ P20



Automation ➤ P22



- + Higher productivity and less setup work between processes

- + Higher machine utilization with automated operation at night and on weekends

DX ➤ P26



- + Digital tools for efficient and comfortable work environments

DX: Digital Transformation

GX ➤ P34



- + Energy-saving and sustainable production

GX: Green Transformation

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

Fusing Japanese and European Technology for Unparalleled Precision

Building upon a legacy of decades-long excellence in machine tool development and manufacturing in Europe, DMG MORI's 5-axis machining centers achieve unparalleled precision. With a 30-year history in producing 5-axis machines, we have consistently grown our expertise on a global level. The culmination of this extensive knowledge and cutting-edge technology is exemplified in the INH 63 / INH 80.

The INH Series:

DMG MORI's Most Advanced
5-Axis Control Horizontal
Machining Center in History

-
- 06
- + Perfect position control
 - + Comprehensive measures against thermal displacement and vibration
 - + High static, dynamic and spatial accuracy



Leading Manufacturer of 5-Axis Machining Centers

30 years of
manufacturing
experience



DMU P Series



monoBLOCK



duoBLOCK



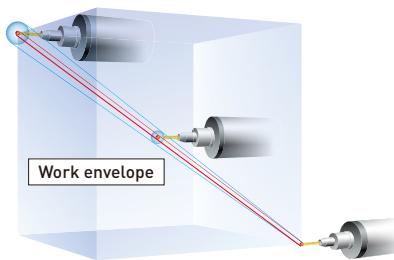
monoBLOCK (with swivel rotary table)

1990s

2000s

High volumetric accuracy across the entire work envelope

- + Straightness and squareness of the machine body can be achieved for machining



High positioning accuracy over long periods of time

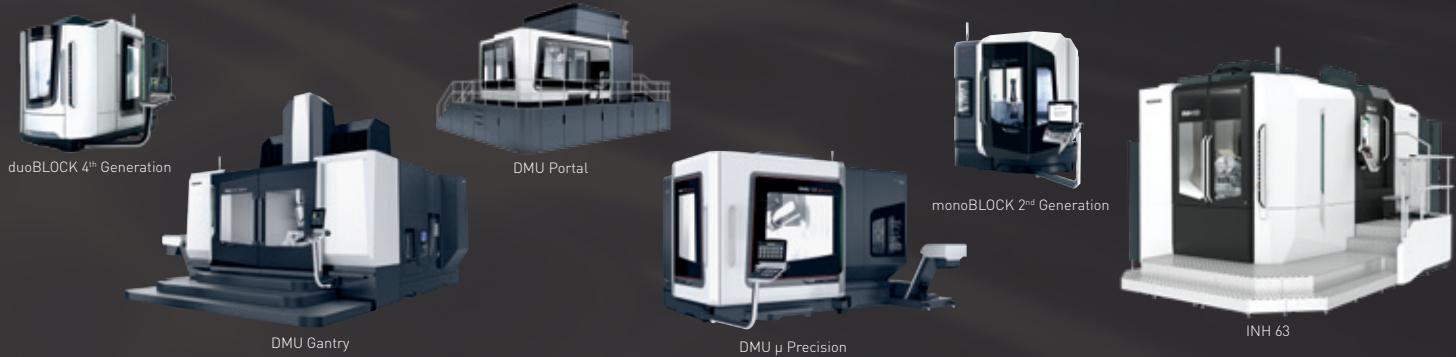
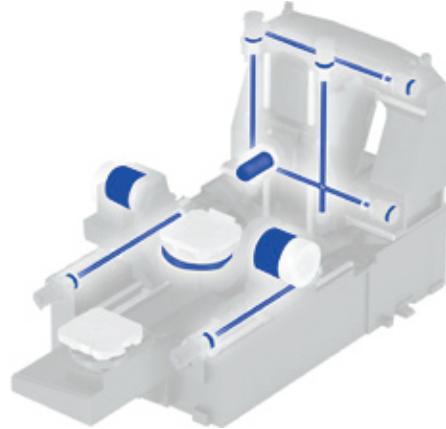
- + Highly reliable SmartSCALE (made by Magnescale) equipped as standard on all axes
- + Full closed loop control (Scale feedback)



Advanced design against thermal displacement

- + Efficient heat source cooling and minimized machine position displacement

- + Spindle motor
- + Ball screw
- + Ball screw nut
- + Servo motor



Applications and Parts

Highlights

Machine and Technology

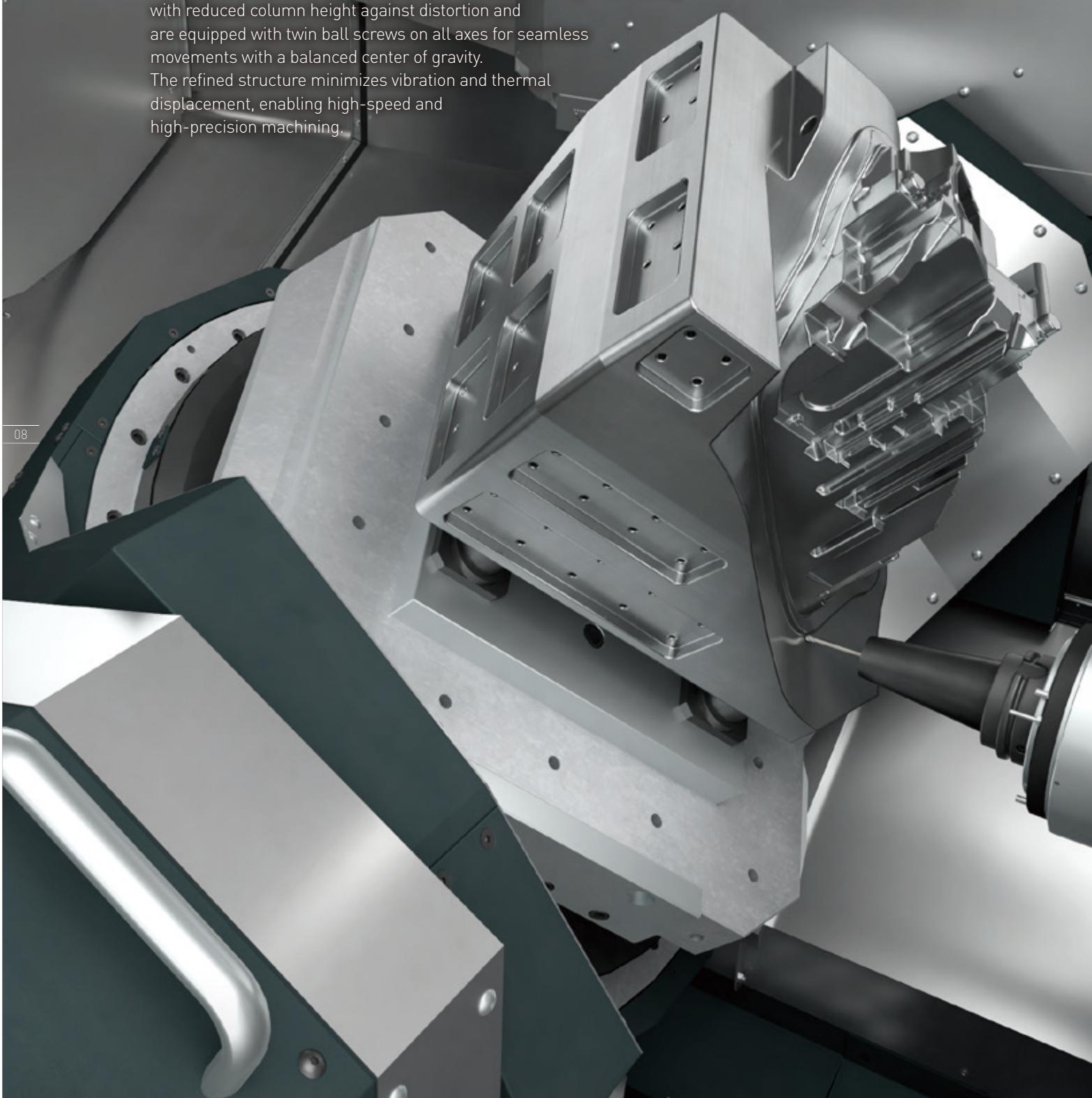
Others

Machine Specifications

Ideal Models for Process Integration Minimized Vibration and Thermal Displacement

The INH 63 and INH 80 have an enhanced structure for superior stability with reduced column height against distortion and are equipped with twin ball screws on all axes for seamless movements with a balanced center of gravity.

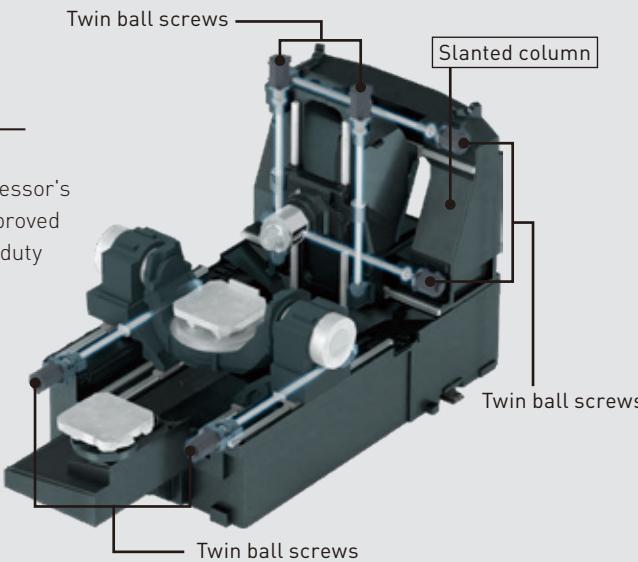
The refined structure minimizes vibration and thermal displacement, enabling high-speed and high-precision machining.



Twin ball screws on all axes + Slanted column

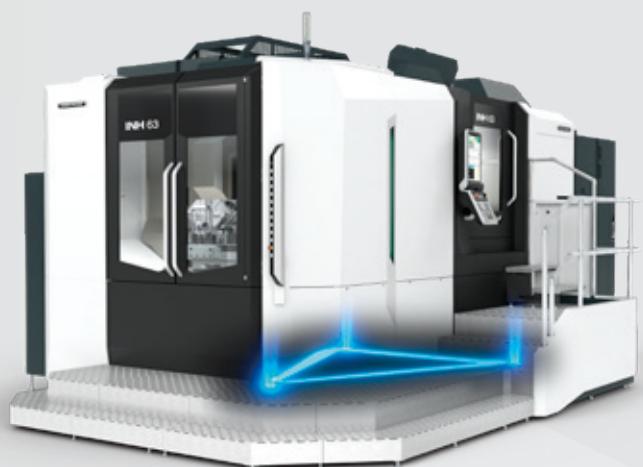
The INH 63 and INH 80 utilize an enhanced version of their predecessor's bed structure, adding new features to the proven design. The improved structure suits even difficult machining conditions such as heavy-duty cutting and long continuous operation.

- + Increased efficiency
- + Machining time reduction
- + Improved surface quality



3-point support structure

- + 3-point support machine structure for easy horizontal adjustment drastically reduces installation time
- + Minimize the impact of ground geometry and long-term deformation



Striving for precision with the latest analysis technology

- + Performance simulations created the extremely precise and rigid machine structure
- + Optimized base structure by utilizing analysis technology from the early design stage
- + Accelerated analysis cycles allow for the detailed and precise creation of machine components



Applications and Parts

Highlights

Machine and Technology

Others

Machine Specifications

powerMASTER Spindle for Outstanding Rigidity

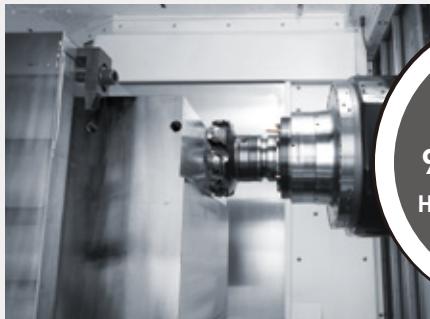
With a max. torque of 808 N·m [595.9 ft·lbf] and output of 85 / 40 kW [113.3 / 53.3 HP] as standard, the powerMASTER spindle maintains excellent performance through a wide range of machining operations from roughing to finishing and supports process integration.



400 V specification
(no need for voltage transformer)*

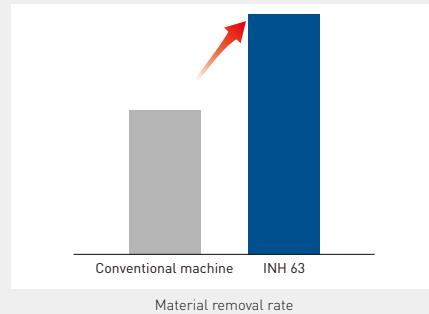
Suitable for heavy-duty and high-speed machining

■ Heavy-duty machining



Depth of cut
Standard spindle:
9 mm (0.4 in.)
High torque spindle:
12 mm (0.5 in.)

■ High-speed machining



**65%
UP!**

Cutting conditions

Material <JIS>	FCD450
Tool diameter mm (in.)	160 (6.3) <face mill>
Depth of cut mm (in.)	9 (0.4), 12 (0.5)

FCD: Ductile cast iron JIS: Japanese Industrial Standard

Cutting conditions

Material <JIS>	A5052
Tool diameter mm (in.)	100 (3.9)
Spindle speed range min ⁻¹	3,500
Width of cut mm (in.)	80 (3.1)

A5052: Aluminum JIS: Japanese Industrial Standard

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

• 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.

No. 50 taper spindle

- + Type of tool shank: HSK-A100 / BT50 / CAT50 / DIN50
- + Max. spindle speed: 12,000 min⁻¹
8,000 min⁻¹ <high torque>
16,000 min⁻¹ <high speed>
- + Spindle output: 85 / 40 kW (113.3 / 53.3 HP) <10%ED / cont>
80 / 45 kW (106.7 / 60 HP) <10%ED / cont> {high torque}
85 / 50 kW (113.3 / 66.7 HP) <10%ED / cont> {high speed}
- + Max. spindle torque: 808 N·m (595.9 ft·lbf) <10%ED>
1,414 N·m (1,042.9 ft·lbf) <10%ED> {high torque}
549 N·m (404.9 ft·lbf) <10%ED> {high speed}

Standard spindle
Max. spindle torque
**808 N·m
(595.9 ft·lbf)**

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

Image of warranty periods

Machine: Standard warranty

Spindle: 3-year warranty

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

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

Chips, coolant, and mist generated during machining can cause severe machine troubles and are major hindrances to automation. The INH 63 and INH 80 adopt state-of-the-art technology to eliminate such problems, enabling long unmanned machine utilization for maximized automation effects.

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

zero-sludgeCOOLANT pro



Access here for the video

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: 1,320 L [348.5 gal.]
<30% more than previous model>
- + Hybrid cleaning method against chip accumulation

2. Coolant tank with less cleaning

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

3. Energy-saving

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



Innovative
Vertical
Coolant Tank

Highly efficient
large-sized pumps

- + Inverter-controlled

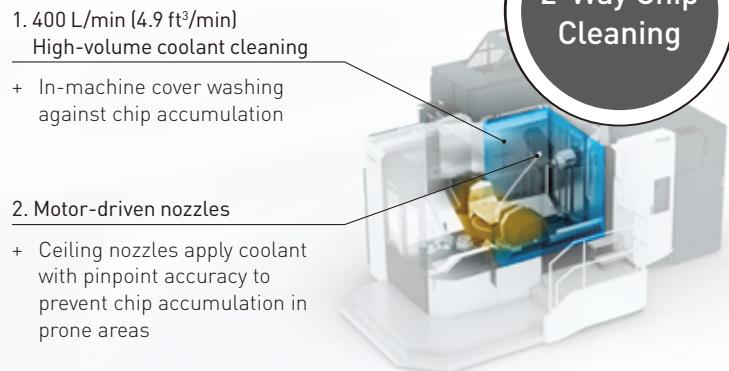


1. 400 L/min (4.9 ft³/min)
High-volume coolant cleaning

- + In-machine cover washing against chip accumulation

2. Motor-driven nozzles

- + Ceiling nozzles apply coolant with pinpoint accuracy to prevent chip accumulation in prone areas



2-Way Chip
Cleaning

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.



Access here for the video

Also removes
chips from
workpieces

- + 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



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



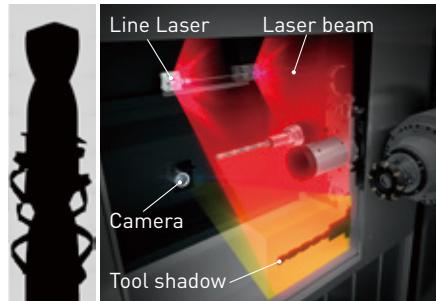
Two motor-driven nozzles move according to chip location and quantity

Detection system for Tool breakage & Chip winding

Detects tool breakage and chip winding by laser scanning and image analysis of the tool shadow.

- + Compares the tool images before and after machining
- + No tool-specific setting required
- + Detection performed inside the tool magazine, no effect on cycle time

Detection time
0.8 sec.



● The pictures are illustrations.

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



13

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

COMPACT

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

High maintainability

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

ENERGY-SAVING

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

Mist collection
efficiency of
99.97% or
more*²



zeroFOG



Access here for the video

*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.

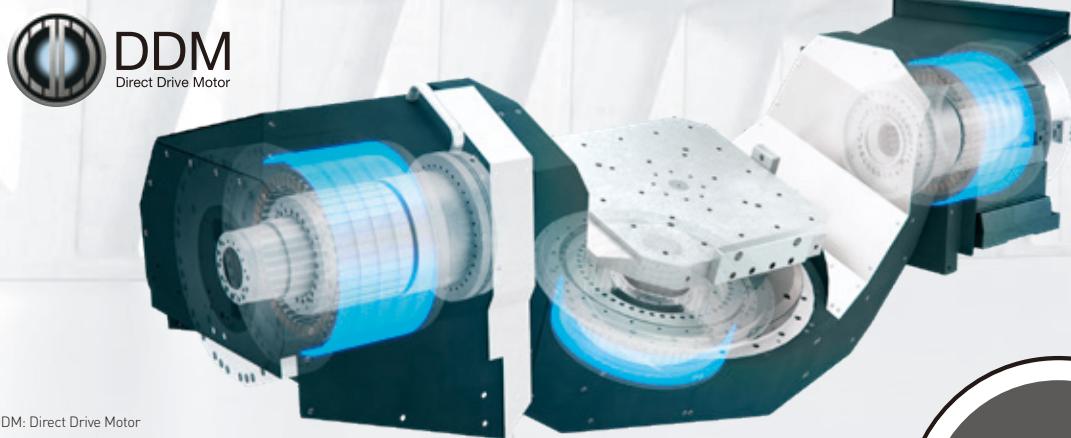
*4 The method of mounting on the machine varies depending on the model and specifications.

Pallet for Automation

Easy Workpiece Loading and Unloading

The machine come standard with hydraulic / pneumatic interfaces that can fully integrate into automation and greatly improve customers' productivity.

The standard rotary table uses a high-speed rotary axis drive system DDM (Direct Drive Motor) that achieves zero backlash.



DDM: Direct Drive Motor

Direct drive motor

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

**Minimum pallet indexing angle
0.001°**

Servo Sense for Table <Z-axis, A-axis, B-axis>

Table acceleration / deceleration can be optimized according to the workpiece or fixture weight

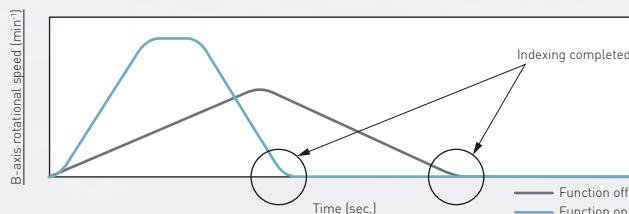
Previously, the rapid traverse acceleration / deceleration of the table feed axes was constant regardless of the workpiece or fixture weight, often resulting in long machining times. With Servo Sense for Table, acceleration and deceleration can be optimized for maximum machine performance.

- + Optimized acceleration / deceleration for reduction of machining time

Example: Reduction in the B-axis indexing time

Shorter positioning and machining time by adjusting maximum speed and acceleration according to workpiece mass

Comparison of 180 degree indexing time (INH 63): Workpiece mass 500 kg [1,100 lb.]



**Reduced by
43%!**

Hydraulic / pneumatic interfaces essential for automation equipped as standard^{*1}

Easy automation integration with standard hydraulic and pneumatic interface.



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



*3 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

*1 Option available: hydraulic and pneumatic interfaces for controlling in-machine workpiece clamping from the operational panel

Hydraulic / pneumatic fixtures

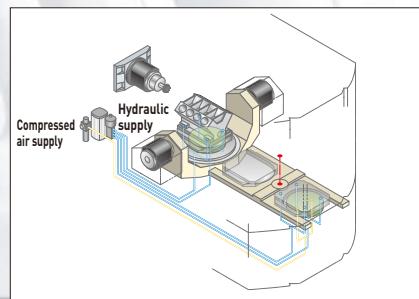
Offer optimal hydraulic / pneumatic fixtures based on our extensive experience and machining know-how.



- + 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

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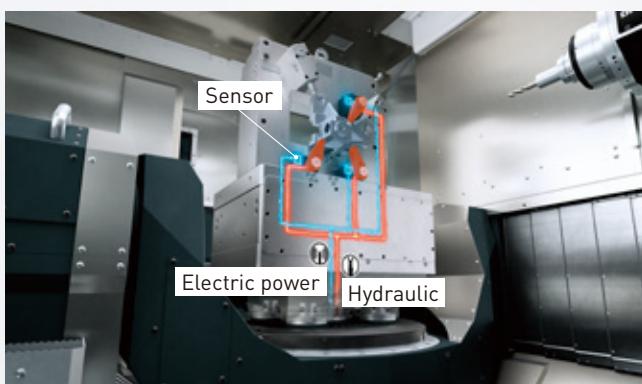
Pallet interface for communication between fixture and machine*

An innovative pallet interface to further boost automation. By transmitting not only conventional hydraulic and pneumatic pressure but also electric power and signals, fixtures can be controlled more flexibly.

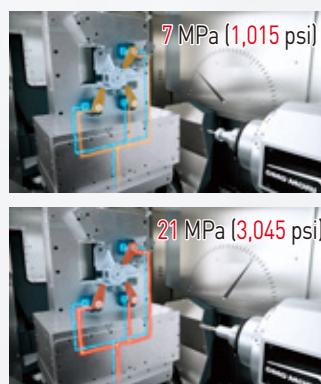
- + Additional transmission of electric power and signals
- + Workpiece clamping force can be monitored

* To be launched in 2024.

• For details, please consult our sales representative.



Additional transmission of electric power and signals



Monitoring clamping force

Large-capacity Tool Storage in Compact Size

The INH 63 and INH 80 are equipped with a wheel magazine by standard for smooth and fast indexing of up to 63 tools on each wheel, offering a total storage capacity of up to 363 tools on compact space. The magazine operation panel allows for tool checks, calls and registrations directly at the magazine.

Tool storage capacity

Wheel-type: 63, 123, 183, 243, 303, 363 tools

- + Max. tool length: 700 mm (27.5 in.) <INH 63> /
800 mm (31.4 in.) <INH 80>
- + Max. tool mass: 35 kg (77 lb.)
- + Max. tool diameter <without adjacent tools / with adjacent tools>:
320 mm (12.5 in.) / 110 mm (4.3 in.)

Tool Loading Unit

The automatic loading / unloading unit eliminates heavy manual work and makes the operation safer and smoother.

	INH 63	INH 80
Tool-to-tool*1	sec.	2.3*2
Cut-to-cut (chip-to chip)*1	<MAS> <ISO>	sec. 5.2 Min.: 4.4 / Max.: 26.8 Min.: 4.8 / Max.: 27.2

ISO 10791-9 JIS B6336-9 ISO: International Organization for Standardization

JIS: Japanese Industrial Standard

*1 Wheel-type (123 tools)

*2 If tool weight is less than 15 kg (33 lb.).

● HSK-A100

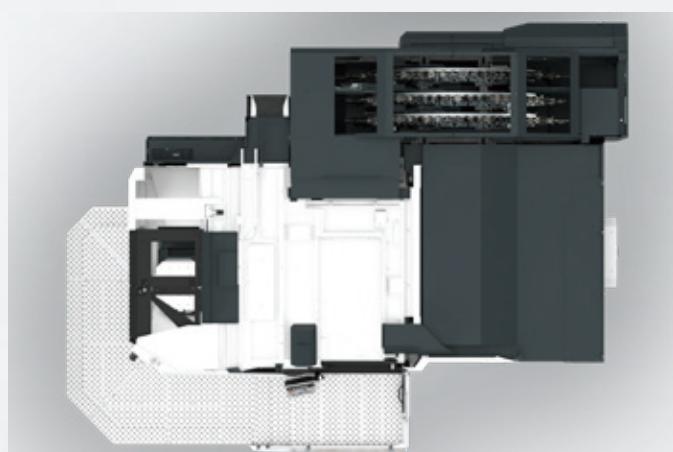
● The time differences are caused by the different conditions (travel distances, etc.) for each standard.

● Depending on the arrangement of tools in the magazine, the cut-to-cut (chip-to-chip) time may be longer.

Easy & safe
heavy tool
loading



Compact size is ideal for automation systems



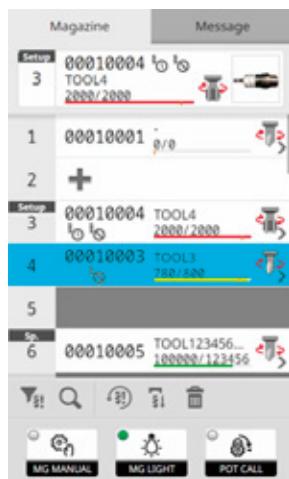
27.4%
smaller
size*

For max.
363
tools*

17

* Option

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.

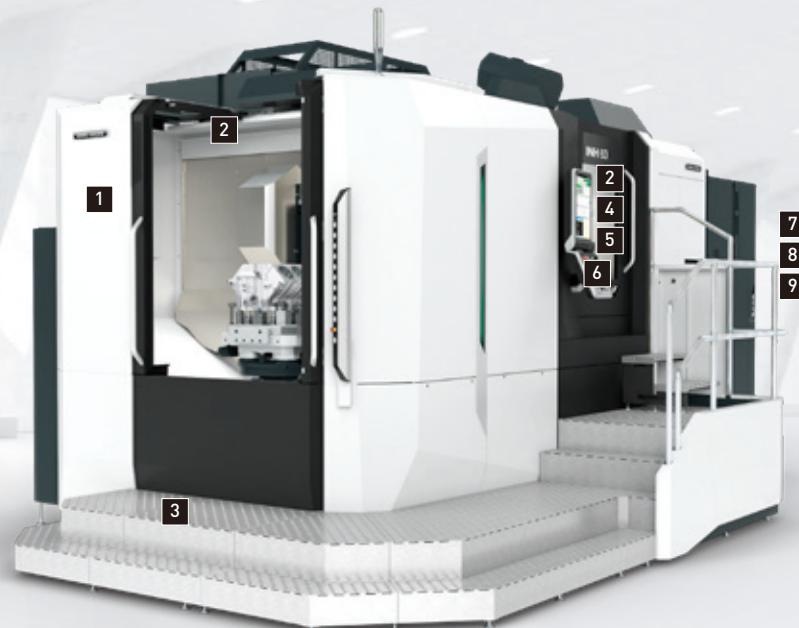
- + Intuitive tool search & call
- + Tool life status indicated in different colors for easy monitoring
- + Filter function to display all tools that need maintenance on screen
- + Can also be operated with gloves on



Access here for the video

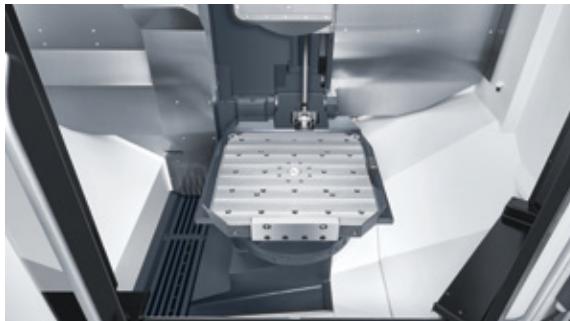
Improved Design for User-friendly & Comfortable Operations

The INH 63 and INH 80 feature a larger machine window and other improved design elements to answer the needs of machine operators for higher comfort and safety during daily operations.

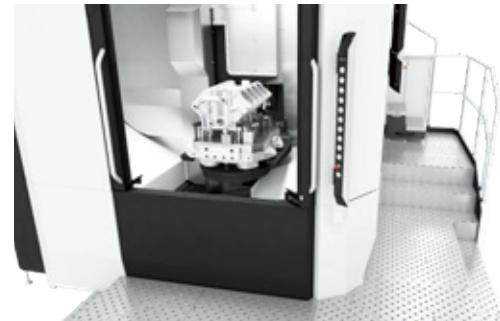


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1 Double front door for extra wide opening



External steps* for easy access between setup station and operation panel



* Option

2 Front / Operation doors with open ceiling

- + Easy loading of large-sized workpieces
- + The operation door opens with the ceiling cover to prevent coolant from dripping on the working area



Easy-to-grip handle to support safe operations inside the machine

4

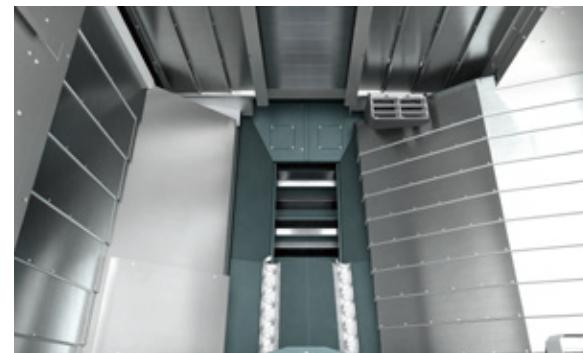


Window for perfect view on processes

5



Stainless steel cover for smooth chip flow



Centralized and easy-to-access location of hydraulic / pneumatic equipment

7



Immediately recognize the timing of coolant refill

- + LEDs indicate coolant levels to save time for inspections
- + Digital display of coolant concentration and temperature possible^{*1}



*1 Option

• The pictures are illustrations.

The transparent tank clearly indicates the amount of coolant remaining.

Chip conveyor with variable outlet height^{*2}

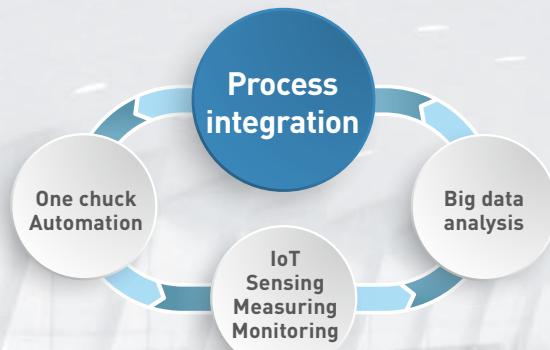


**Outlet height easily adjustable
845–1,130 mm (33.3–44.5 in.)**

*2 Available only with scraper-type chip conveyors.

Significantly Reduced Setups with Process Integration High-precision Machining in One Chucking

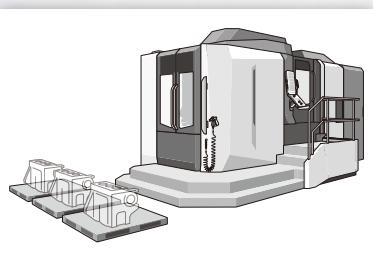
Process integration is the starting point for automation and digitization. By integrating machining processes, automation solutions can be introduced more easily and DX for production management with less human labor is promoted.



Six added values from process integration

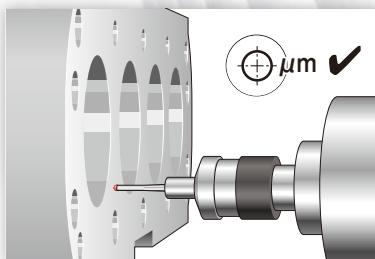
Process integration enables higher productivity and return on investment.

Reduction of work-in-process inventory



- + Less work-in-process inventory between processes for easier inventory management

Higher accuracy



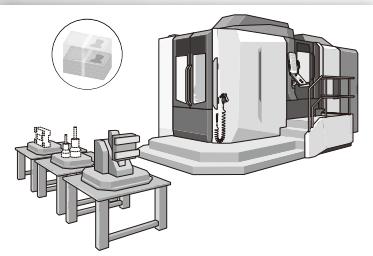
- + Reduction of manual setup work such as for workpieces and tools
- + Avoids mounting errors of workpieces

Faster delivery



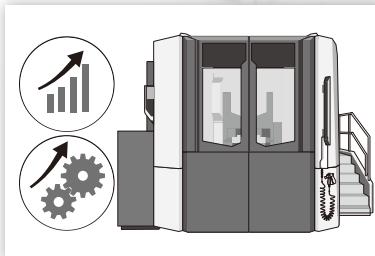
- + Less setup work between processes
- + Shorter lead times

Reduced cost for fixtures & tools



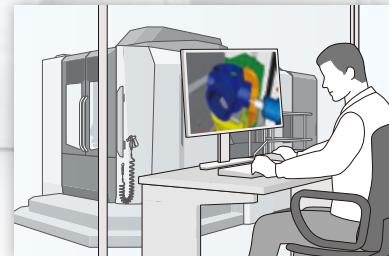
- + Tools & fixtures for only 1 machine instead of multiple machines
- + Shorter time for fixture production and procurement

Higher utilization



- + Reduced waiting time between processes

Operator efficiency



- + Allows operators to attend to higher value-added work away from the machine

Machining possible with A-axis at -180° Advance process integration and prevent chip accumulation

A-axis: 240°
(+45°--195°)

With its tilting table, the INH 63 / INH 80 can machine complex-shaped workpieces with high accuracy in one setup. Tilting the A-axis helps remove accumulated chips and coolant from the workpiece and table.



Innovative Automation Systems to Meet On-site Needs

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

CPP system (Compact Pallet Pool)

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



LPP system (Linear Pallet Pool)

This system can be equipped with multi-level pallet racks, providing a high level of automation. System configuration is highly flexible.



Access here for the video

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.



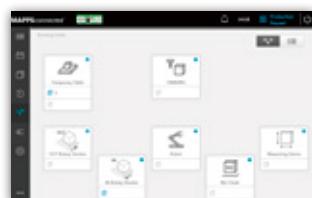
Access here for the video

MATRIS

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

MATRIS controller

Simple screen design facilitates the monitoring and operation of the entire system in an intuitive and interactive manner.



System monitor screen

Check transfer status on a screen that displays the equipment as they are actually arranged



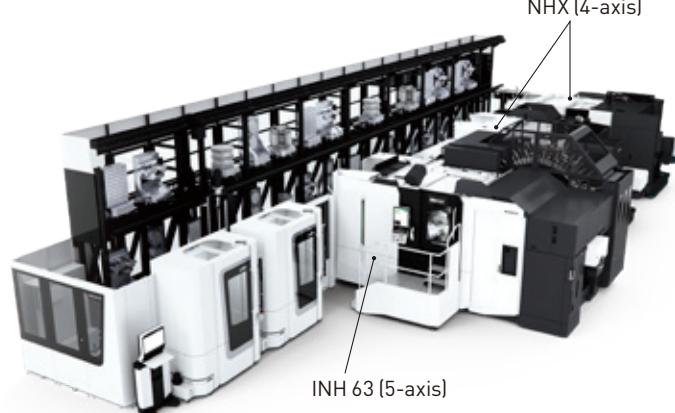
Access here for the video

Mixed use of 4-axis and 5-axis machines

Automation systems can be built with new 5-axis machines and existing 4-axis machines. A single automation system can process a large variety of workpieces.



Pallet sharing*



* Pallets can be shared between the NHX & NH DCG Series.

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.
(CE Marking acquired for European safety standards)

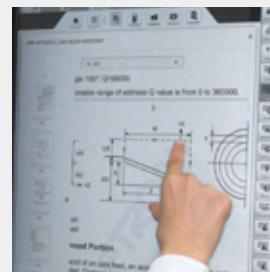


1 Large touch screen

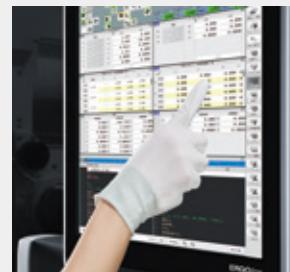
Superior visibility and intuitive operation.

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

* Option



Electrostatic touch panel



Can also be operated with gloves on

2 Hardware buttons that are easy to press

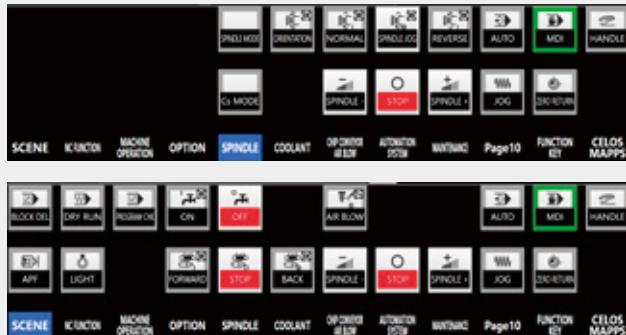
Ideal for program input where accuracy is required.



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

3 HYBRID BAR

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



Example of displayed buttons

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

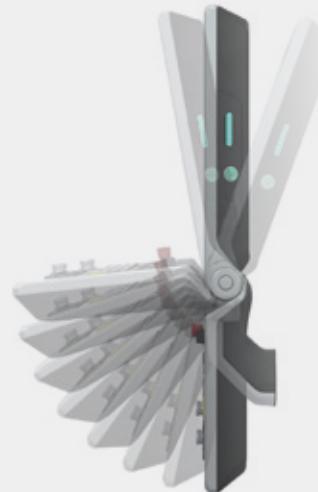
4 Useful applications that reinforce your production processes



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

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

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



6 Simple input screen for smooth completion of setup

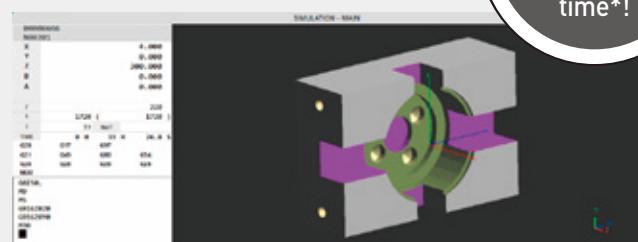


- + Easy-to-understand animations and diagrams guide you through the setup
- + For tool change, simply select a tool from the list
- + Enables anybody to safely perform tool change or measuring
- + Significantly reduces setup time

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

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

Compared with previous panel
30% reduced time*



Drawing simulation

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

Intel Core is a trademark or registered trademark of Intel Corporation.

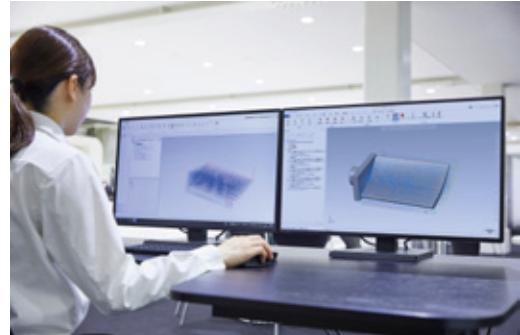
Digital Solutions

Promoting the Digital Transformation of Your Shopfloor

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

Digital Transformation of programming Program Creation in CAD / CAM

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

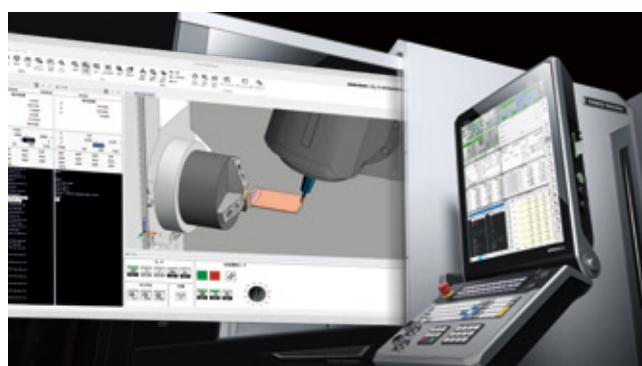


CELOS DYNAMICpost^{*1}



Access here for the video

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



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

*1 Option

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



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

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



Access here for the detail of TULIP



MESSENGER

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

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



Access here for the video



NETservice

Quickly recover from any problems!

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

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



Robust security

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

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

Whitelist security software



Network Construction and Connection Services for Factories

DMG MORI GATEWAY



DMG MORI GATEWAY provides a one-stop cloud connection for machines of all makes and ages, allowing you to monitor the shop floor status in real time.

The implementation requires no effort on the part of customers and can be completed by DMG MORI engineers. The IoT-based, real-time shop floor visualization will help you make better business decisions and maximize production efficiency.

DMG MORI GATEWAY

Connectable to third-party machines and peripherals

Data stored in the DMG MORI cloud

Shop floor network built by DMG MORI engineers

Data accessible from PCs, tablets, and smartphones



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

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.

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MORE SERVICE

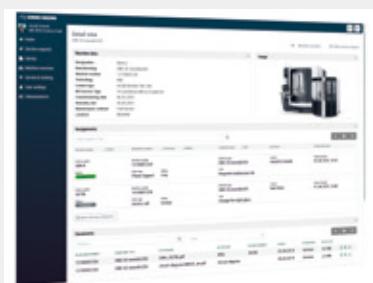
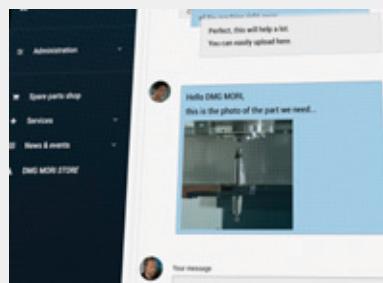
- + No queue: Simple online problem description
- + Pre-filled service inquiries: Send machine details, photos or videos
- + Immediate processing: The "right" service expert will process the inquiry with priority

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



One Stop Service for Various Needs

DMG MORI Qualified Products

The DMG MORI Qualified Products [DMQP] program is designed to certify 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

Vise / Stationary Chuck



Fixtures

Super high-pressure coolant system



Coolant



Coolant



Tool setting

Shrink fit system



Tool balance measuring system



Utilize in combination with CELOS DYNAMICpost for maximum performance.

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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.

hyperMILL®

Mastercam

SIEMENS
NX

CAM-TOOL

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



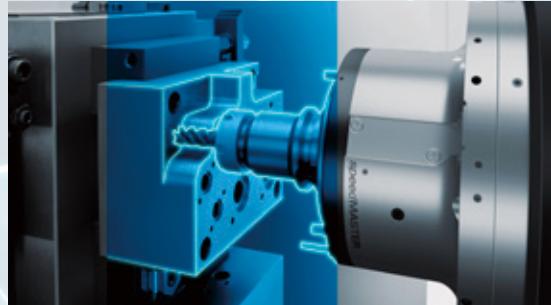
MPC (Machine Protection Control)^{*1}

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



Easy tool monitoring

Monitoring load of spindle and traveling axes



CELOS Chatter Control^{*1*3}

Selects optimum conditions for preventing chatter



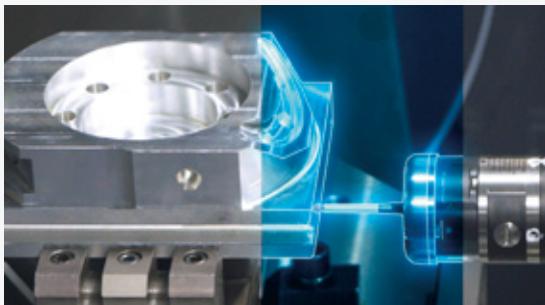
Application tuning cycle

Easy feed setting according to the machining process (with in-process adjustment)



Measuring Pro

Simple interactive guidance shortens measurement cycle time



3D quickSET

Easy adjustment of swivel axis misalignment on 5-axis machines



*1 Option *2 Consultation is required *3 Machines with SIEMENS NC will be supported from 2024.

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

For Sustainable Production

The INH 63 and INH 80 are designed to save energy and reduce CO₂ emissions through process integration, automation and digitization, allowing for energy-efficient and sustainable production. DMG MORI is committed to reduce CO₂ emissions across the entire supply chain and has been certified by SBT* in 2021.



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ACCREDITED BY SBT*



Carbon footprint reduction targets by 2030

Scope 1 and Scope 2

-46.2%

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

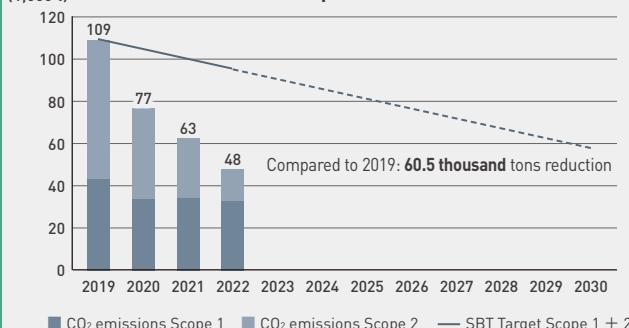
Scope 3

-13.5%

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

Carbon footprint trend (SBT target value ratio)

Scope 1 + 2





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

Energy saving achieved by GREENMODE functions and higher machine performance

Besides the GREENMODE functions, higher machine performance contributes to shorter machining time and less power consumption.

Higher machine performance

1. 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)
- Power consumption up to 57%*1 less than predecessor (NHX 6300)
(with in-machine coolant application)



2. Optimal discharge pressure for each tool realizes energy-saving high pressure applications with low heat generation

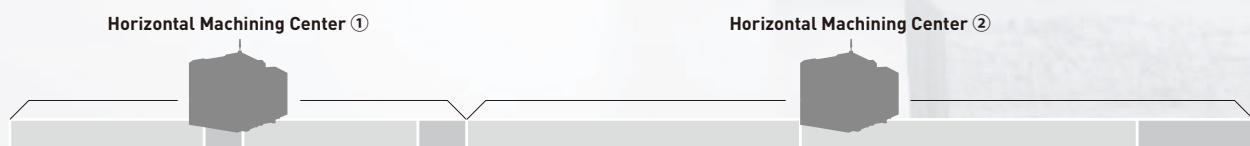
- + Adjustable pressure <1.0 to 10.0 MPa (145-1,450 psi)*2 for each tool
- + Pump speed control contributes to energy savings
(Conventional machine: pressure fixed for all tools, pump speed constant)

GREENmode		
GREEN monitoring	GREEN idle reduction	GREEN control
+ Visualize power consumption and CO ₂ emission amount	+ 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	+ Quicken standard M codes + Inverter-controlled coolant supply
GREEN device		
+ High-brightness LED light + Hydraulic pump with an inverter		

*1 Calculated with 16 hours × 240 days per year and 24 yen/kW *2 Option

Reduced machining time and energy consumption by process integration

Conventional process (4-axis Horizontal Machining Center × 2, 7 processes) Cycle time



Process integrated with INH (INH 80 × 2, 2 processes) Cycle time



Power consumption and CO₂ emissions per workpiece

Conventional process

(4-axis Horizontal Machining Center × 2, 7 processes)

Process integrated with INH

(INH 80 × 2, 2 processes)

Reduced by
33%

Conventional	INH
Power consumption (kWh)	40.5
CO ₂ emissions (kg-CO ₂)	18.5

Target workpieces: Cylinder head

- Power consumption and CO₂ emissions are calculated based on customer examples using 4-axis horizontal machining centers in conventional operations. The result may vary for different models and machining processes.
- CO₂ base emission factor: 0.000457 t-CO₂/kWh

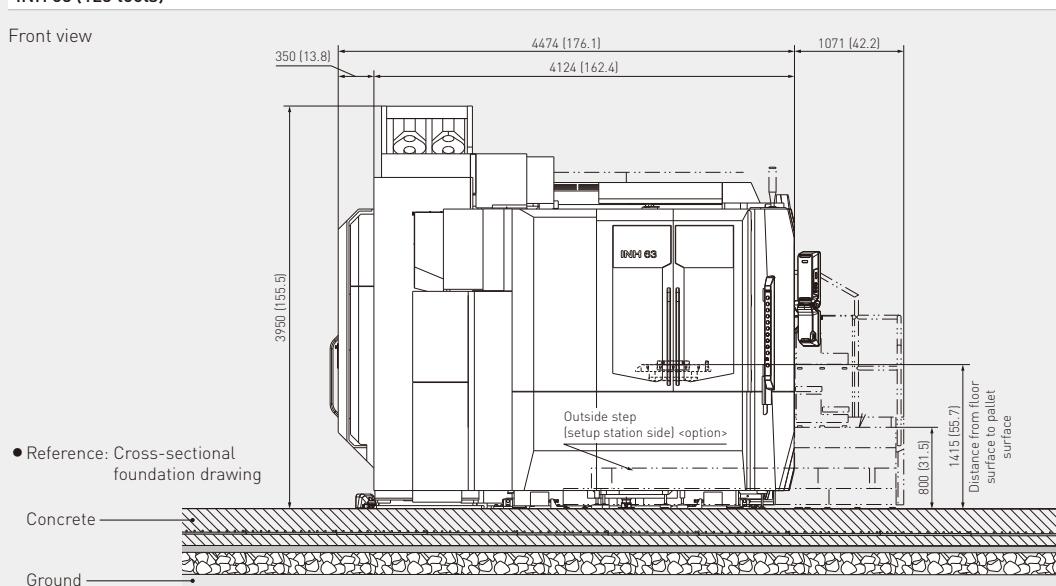
• For machining with highest precision, the following temperature conditions are recommended:
Ambient temperature: 20-23 °C
Temperature variation [max]: 0.4 °C/h

INH 63 / INH 80

Machine Size

INH 63 (123 tools)

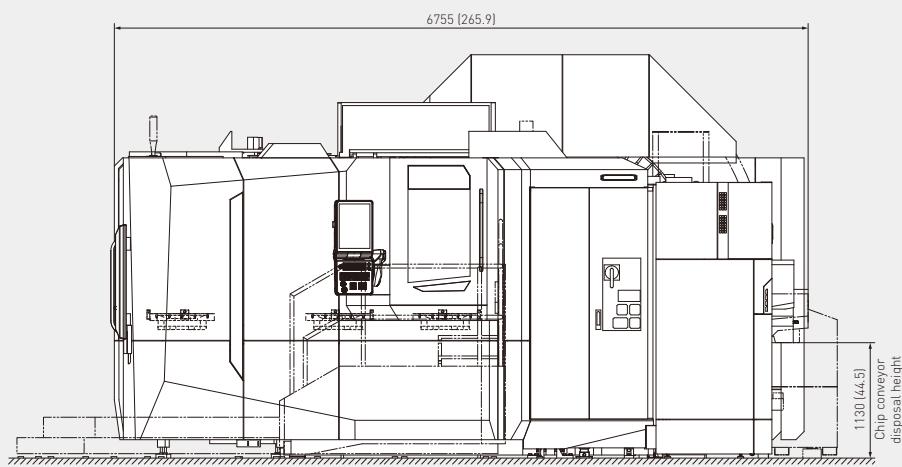
Front view



• Appropriate floor surface flatness and ground strength are required to maximize performance.

Details of foundation and soil bearing capacity are included in the drawing documents. For details, please consult our sales representative.

Side view



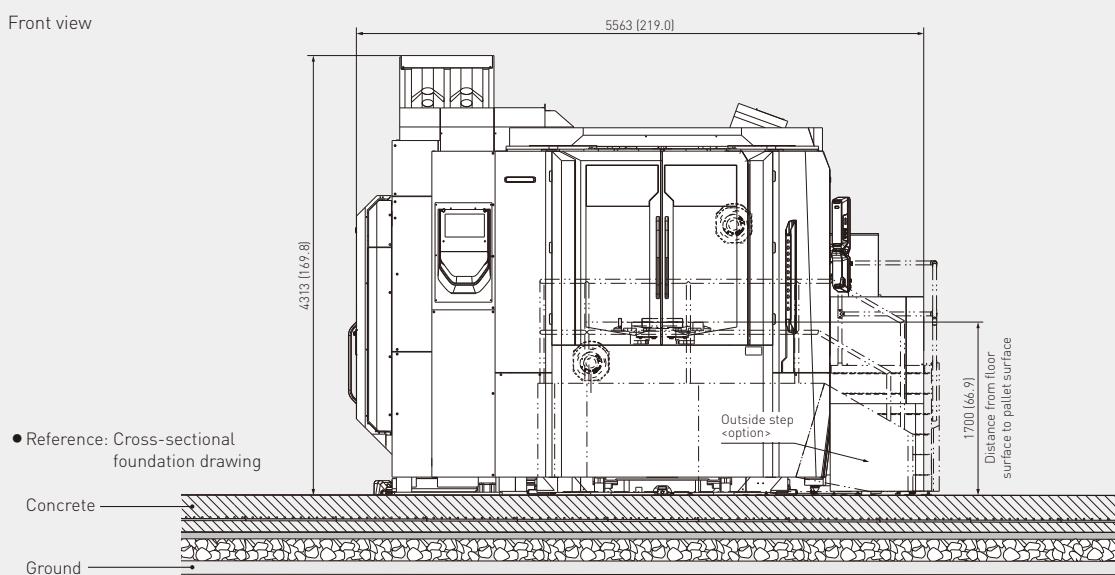
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• Appropriate ambient temperature and temperature fluctuation range are required to maximize performance. For details, please consult our sales representative.

- For machining with highest precision, the following temperature conditions are recommended:
 - Ambient temperature: 20-23 °C
 - Temperature variation (max): 0.4 °C/h

INH 80 (123 tools) mm (in.)

Front view



- Reference: Cross-sectional foundation drawing

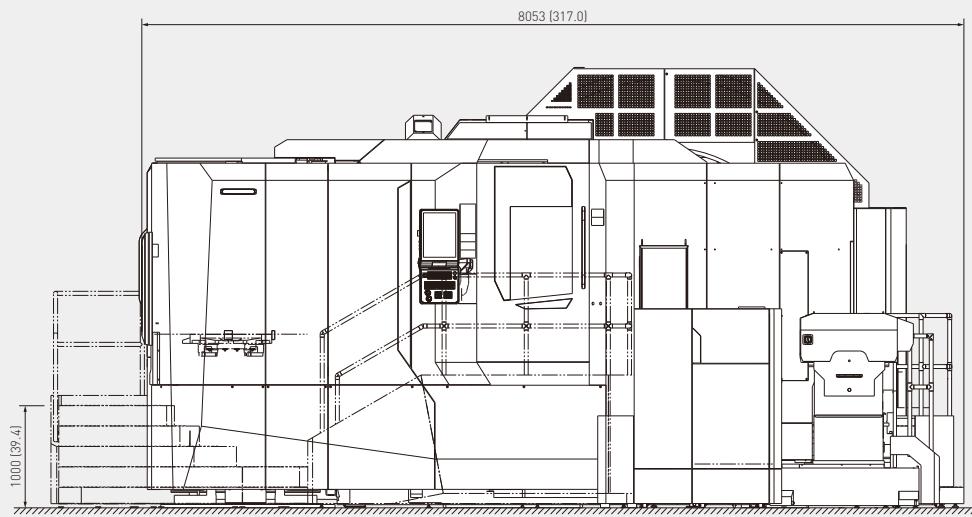
Concrete

Ground

- Appropriate floor surface flatness and ground strength are required to maximize performance.

Details of foundation and soil bearing capacity are included in the drawing documents. For details, please consult our sales representative.

Side view



5484210

- Appropriate ambient temperature and temperature fluctuation range are required to maximize performance. For details, please consult our sales representative.

Applications and Parts

Highlights

Machine and Technology

Others

Machine Specifications

INH 63 / INH 80

Machine Specifications

		INH 63	INH 80
Travel			
X-axis travel <longitudinal movement of saddle>	mm (in.)	1,050 (41.3)	1,400 (55.1)
Y-axis travel <vertical movement of spindle head>	mm (in.)	1,100 (43.3)	1,350 (53.1)
Z-axis travel <cross movement of pallet>	mm (in.)	1,050 (41.3)	1,350 (53.1)
Distance from pallet center to spindle gage plane	mm (in.)	100–1,150 (3.9–45.3)	100–1,450 (3.9–57.1)
Pallet			
Pallet working surface	mm (in.)	630 × 630 [24.8 × 24.8]	800 × 800 (31.5 × 31.5)
Pallet loading capacity	kg (lb.)	1,000 (2,200) ^{*1}	2,000 (4,400) ^{*2}
Pallet indexing angle		A-axis: 240° [+45°–195°], B-axis: 360°	
Max. workpiece swing diameter	mm (in.)	1,070 (42.1) ^{*3}	1,500 (59.0) ^{*4}
Max. workpiece height	mm (in.)	1,000 (39.3) ^{*5}	1,300 (51.1) ^{*6}
Spindle			
Max. spindle speed	min ⁻¹	12,000 16,000 <high speed> 8,000 <high torque>	
Feedrate			
Rapid traverse rate	mm/min (ipm)	X, Y: 65,000 (2,559.1) Z: 60,000 (2,362.2)	X, Y: 60,000 (2,362.2) Z: 50,000 (1,968.5)
Cutting feedrate	mm/min (ipm)	X, Y: 0–65,000 (0–2,559.1) Z: 0–60,000 (0–2,362.2) {when using high-precision control <look-ahead control>}	X, Y: 0–60,000 (0–2,362.2) Z: 0–50,000 (0–1,968.5) {when using high-precision control <look-ahead control>}
ATC			
Type of tool shank		HSK-A100 ^{*7} , BT50 ^{*7} , CAT50 ^{*7} , DIN50 ^{*7}	
Tool storage capacity		Wheel-type: 63, 123, 183, 243, 303, 363	
Max. tool diameter <with adjacent tools>	mm (in.)	110 (4.3)	
Max. tool diameter <without adjacent tools>	mm (in.)	320 (12.5)	
Max. tool length	mm (in.)	700 (27.5)	800 (31.4)
Max. tool mass	kg (lb.)	35 (77.0)	
APC			
Number of pallets		2	
Pallet changing time	s	30	40

		INH 63	INH 80
Motor			
	12,000 min ⁻¹	kW (HP)	85 / 40 (113.3 / 53.3) <10%ED / cont>
Spindle drive motor	16,000 min ⁻¹ <high speed>	kW (HP)	85 / 50 (113.3 / 66.7) <10%ED / cont>
	8,000 min ⁻¹ <high torque>	kW (HP)	80 / 45 (106.7 / 60) <10%ED / cont>
Machine size			
Machine height <from floor>		mm (in.)	3,950 (155.5)
Floor space** <width X depth>		mm (in.)	4,474 X 6,755 (176.1 X 265.9)*8*9 5,563 X 8,053 (219.1 X 317.0)*9
Mass of machine <including coolant tank and 123-tool magazine>		kg (lb.)	34,500 (75,900)*8*9 47,000 (103,400)
Control unit			
FANUC			F31iB5 Plus

*1 1,500 kg (3,300 lb.) without A-axis tilting.

*2 3,000 kg (6,600 lb.) without A-axis tilting.

*3 1,050 mm (41.3 in.) for pallet pool specification.

*4 1,450 mm (57.1 in.) for pallet pool specification.

*5 1,300 mm (51.2 in.) without A-axis tilting.

*6 1,450 mm (57.1 in.) without A-axis tilting.

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

*8 Excluding outside step.

*9 Tool storage capacity: 123-tool specifications (option)

● 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.

● Max. tool diameter: the maximum tool diameter is limited to 230 mm (9.0 in.) or less when using the spindle at 10,000 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 February 2024.

INH 63 / INH 80

Standard & Optional Features

●: Standard features
○: Options

		INH 63	INH 80	
Spindle				
Type of tool shank	HSK-A100*1	●	●	
	CAT50*1	○	○	
	DIN50*1	○	○	
	BT50*1	○	○	
Output	12,000 min ⁻¹ : 85 / 40 kW (113.3 / 53.3 HP) <10%ED / cont>	●	●	
	16,000 min ⁻¹ : 85 / 50 kW (113.3 / 66.7 HP) <10%ED / cont> {high speed}	○	○	
	8,000 min ⁻¹ : 80 / 45 kW (106.7 / 60 HP) <10%ED / cont> {high torque}	○	○	
Pallet / APC				
Setup station	Manual indexing	●	○	
	Automatic indexing	○	●	
Auto-coupler spec. {with pallets}	Hydraulic 2 circuits + workpiece seating detection 2 circuits	●	●	
	Hydraulic 4 circuits + workpiece seating detection 4 circuits	○	○	
Magazine				
Tool storage capacity	63 tools {wheel-type}	●	●	
	123 tools {wheel-type}	○	○	
	183 tools {wheel-type}	○	○	
	243 tools {wheel-type}	○	○	
	303 tools {wheel-type}	○	○	
	363 tools {wheel-type}	○	○	
Magazine operation panel		●	●	
Coolant				
Coolant system		●	●	
Shower coolant		●	●	
Coolant gun	Setup station side	●	●	
	Setup station side and machining side	○	○	
Through-spindle coolant / air {switching specifications}		○	○	
Through-spindle coolant system {center through}*2*3	1.5 MPa (217.5 psi)	●	●	
	10.0 MPa (1,450 psi) {variable pressure type}	○	○	
Through-spindle coolant system {side through}*2*3	1.5 MPa (217.5 psi)	○	○	
	10.0 MPa (1,450 psi) {variable pressure type}	○	○	
Coolant chiller {separate type}	For standard coolant only	○*4	○*4	
zeroFOG		○	○	
Chip disposal				
Chip conveyor	INH 63: Rear discharge INH 80: Side disposal	Scraper type {SUS drum filter type}	●	●
		Scraper type {wedge wire drum filter type}	○	○
		Scraper type {SUS drum filter type, inner pan type}	○	○
		Magnet scraper type	○	○
		Hinge type {screen box filter type}	○	○
zero-sludgeCOOLANT pro*3			●	●
Motor-driven coolant nozzle for in-machine washing			●	●
AI chip removal			○	○

●: Standard features
○: Options

		INH 63	INH 80
Measurement			
In-machine measuring system (table)* ⁵	Touch sensor (tool length + diameter) Laser sensor (tool length + diameter) Laser sensor (tool length + diameter) Touch sensor (tool length only)	(R) ○ (R) ○ (B) ○ (B) ○	○ ○ ○ ○ ○ ○ ○ ○
In-machine measuring system (spindle)* ^{5*6}	Touch sensor (radio signal transmission type) Touch sensor (radio signal transmission type) Touch sensor (radio signal transmission type) Touch sensor (optical signal transmission type) Touch sensor (optical signal transmission type)	(Mp) ● (R) ○ (B) ○ (R) ○ (B) ○	● ● ○ ○ ○ ○ ○ ○ ○ ○
Detection system for Tool breakage & Chip winding		●	●
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)	○	○
Manual pulse generator (separate type)		●	●

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

*2 Including zero-sludgeCOOLANT pro.

*3 When using oil-based coolant, please consult our sales representative.

*4 DMQP (DMG MORI Qualified Products)

*5 The specifications vary depending on the manufacturers. [R: Made by RENISHAW B: Made by BLUM Mp: Made by MARPOSS]

*6 Equipped with the spindle for which the spindle bearing uses a high wear resistance ceramic ball. So the energization type touch sensor cannot be used.

- DMQP: Please see Page 30 for details.

- For details, please check the Detailed Specifications.

- Catalog information last updated in February 2024.

- Specifications, accessories, safety device and function are available upon request.

- Some options are not available in particular regions. For details, please consult our sales representative.

 Flammable coolant such as oil-based coolant has a high risk of ignition, and will cause fire or machine breakage if ignited.

If you have to use a flammable coolant for any reason, please be sure to consult our sales representative.

INH 63 / INH 80

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



Scraper type [SUS drum filter type]

—

Long

Long

Short

Powdery

Cotton-like
with ø 50 mm
(ø 2.0 in.)○: less than
70 mm (2.7 in.) /
— : 70 mm (2.7 in.)
or more

○

○^{*3*4}

—

Scraper type [wedge wire drum filter type]^{*1}

—

—

○: less than
100 mm (3.9 in.) /
— : 100 mm (3.9 in.)
or more

○

○^{*4}

—

Scraper type [SUS drum filter type, inner pan type]^{*1}

—

—

—

—

—

—

Magnet scraper type^{*1*2}

—

—

—

○

○

—

Hinge type (screen box filter type)^{*1*2}○: less than 30 mm
(1.1 in.)

○

○

○^{*8*9}○^{*4*8}

○

◎: 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.)	—	
○	○* ^{3*4}	—	○* ^{5*6}	○* ^{3*4}	—	—	
○	○* ⁴	—	○	○* ⁴	—	—	
—	—	—	—	—	—	○* ⁷	
○	○	—	—	—	—	—	
○* ^{8*9}	○* ^{4*8}	○	○* ^{8*9}	○* ^{4*8}	○	—	

*1 Option

*2 For chip conveyor installation, INH 63 requires additional floor space on the rear side and INH 80 on the side of the machine. For details, please consult our sales representative.

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

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

*5 Increased amounts of aluminum, titanium, or other floating chips may hinder the water flow through the drum filter and cause overflow.

It may necessary to limit the volume of discharged coolant.

*6 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.

Therefore, select hinge-type scrapers (screen box filter type).

*7 Depending on the material, chips may become entangled in the scraper, causing overload stop and scraper damage.

Also, the drum filter is prone to clogging and may require frequent cleaning.

*8 The maintenance of the screen box filter may become more frequent as the amount of short chips / powder chips increases.

During maintenance of the screen box filter, the conveyor tank must be pulled out.

*9 In case of continuous discharge of short chips in large quantity, the chip feed may not be able to keep up, resulting in an overload stop.

● The options table shows the general options when using coolant.

Changes may be necessary if you are not using coolant, or depending on the amount of coolant, compatibility with machines, or the specifications required.

● Be sure to select a chip conveyor that suits the shape of your chips.

When using special or difficult-to-cut material (chip hardness HRC45 or higher), please consult our sales representative.

● Please consult our sales representative if dry machining or carbon machining needs to be performed.

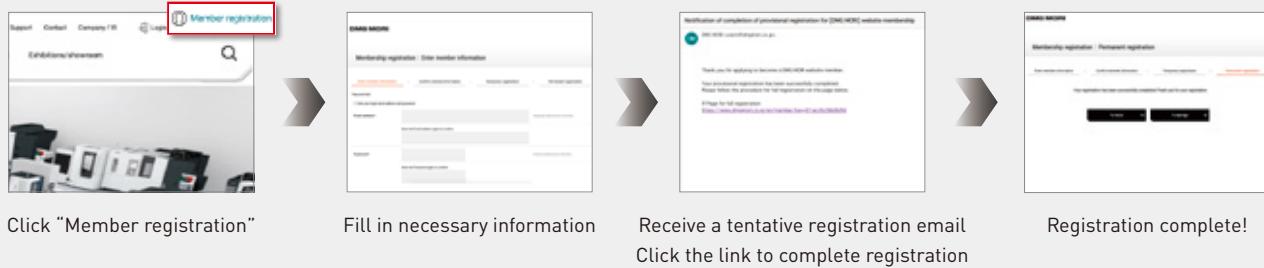
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+ Catalog information last updated in March 2024. Please note that specifications are subject to change without prior notice.

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

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

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