Price List

NHX 4000 3rd Generation

nhx-4000.dmgmori.com

Highlights

- High-performance 20,000min-1 spindle with 50Hp at the world's highest level to ensure overwhelming cutting capability and speed
- SmartSCALE with super-high accuracy and outstanding reliability on all axes as standard
- 60m/min rapids, up to 1.2Gs of acceleration for a 2.2 second chip-to-chip time
- Hydraulic/pneumatic interfaces essential for automation as standard
- High-rigidity bed with three-point support
- Zero Sludge Coolant Tank as standard to drastically improve chip disposal performance
- In-machine measuring system (spindle) and Tool breakage detection (Magazine) as standard

Investment summary

Machine and Options				
Basic Machine				
NHX 4000 <3rd Generation>	J-A01807	1	327,000.00	USD
Control				
Fanuc_F31iB with CELOS	J-007254	1	0.00	USD
CELOS - ERGOline Touch	J-003261	1	0.00	USD
Spindle				
High-speed spindle 20,000 min-1, 37/ 26/ 18.5 kW	J-019094	1	0.00	USD
Options for Spindle				
Spindle Taper 7/24 Taper #40 (two-face contact)/ Grip CAT <CAT40 two-face contact>	J-007285	1	245.00	USD
Preparation for Center Through-spindle coolant system	J-007251	1	0.00	USD
Retention Knob: Special (Center-Through) (7/24 Taper #40)	J-019117	1	0.00	USD
Table				
Full 4th axis rotary table (STD)	J-019008	1	0.00	USD
Options for Table				
Specification of Pallet : inch	J-017088	1	0.00	USD
Auto-Coupler Hydraulic Fixture Interface 6x2 ports (hydraulic 2 circuits + workpiece seating detection 2 lines) (STD)	J-019017	1	0.00	USD
Pressure setting for Hydraulic Fixture Interface: 7MPa (STD)	J-019081	1	0.00	USD
Tool Magazine				
Tool storage capacity 60 tools (STD)	J-019095	1	0.00	USD
Coolant supply / Chip removal				
Usable Coolant Type: Water-Soluble Coolant	J-G00428	1	0.00	USD
Chip conveyor outside machine (rear discharge, drum filter type) (STD)	J-008057	1	0.00	USD
Interface for Through-spindle Coolant System (7.0 MPa, Variable Pressure Steps) (ChipBLASTER)	J-019034	1	0.00	USD
Without Coolant Chiller	J-014459	1	0.00	USD
Interface for Mist collector (duct only, dia. 150 mm)	J-005079	1	655.00	USD
Measuring / Monitoring				
In-machine measuring system (spindle) optical signal transmission type touch sensor (RENISHAW, OMP60) + workpiece setter function (STD)	J-019010	1	0.00	USD
In-machine measuring system (table) touch sensor (Magnescale) + tool setter function (tool length + diameter)	J-008107	1	6,610.00	USD
Automation				
Signal lamp 4 colors (Red, yellow, green, blue)	J-004166	1	495.00	USD
Interface for EtherNet/IP (SK-OP)	J-015384	1	850.00	USD
General Options				
Voltage of Customer Factory 220 V	J-G00951	1	0.00	USD

* further description see attachment

Frequency 60 Hz	J-G00961	1	0.00	USD
Setting Unit inch	J-004472	1	0.00	USD
Technology Cycle				
Without AI Chip Removal	J-014015	1	0.00	USD
Measuring Pro	J-056140	1	0.00	USD
Screen Text Language				
Screen display English	J-000080	1	0.00	USD
Price machine and options			**335,855.00**	**USD**

Services				
Options for MAPPS / SIEMENS / CELOS Control*				
IoTconnector (SK-OP)	J-011731	1	0.00	USD
NETservice (SK-OP)	J-011732	1	0.00	USD
Machine Data Connector (MDC) (SK-OP)	J-011734	1	0.00	USD
Special constructions services				
DMFS FFP Costing	SK001	1	21,421.00	USD
DMFS FFP Costing	SK002	1	14,281.00	USD
Sales company services				
SV1: Standard Machine Installation	Z-COST01	1	0.00	USD
DMG MORI Precision Protection Program	Z-COST05	1	20,152.00	USD
DMG MORI Connect	Z-COST06	1	1,000.00	USD
EG1: Standard Machine Training	Z-COST07	1	0.00	USD
Price services			**56,854.00**	**USD**

Price machine and options	**335,855.00**	**USD**
Price services	**56,854.00**	**USD**
Total price	**392,709.00**	**USD**

* further description see attachment

DMG MORI Connect

Streamline your production process while maximizing output and machine lifecycle.
2 years of service included during standard machine warranty.

DMG MORI Messenger Cloud

- Real time monitoring and history analysis platform
- Convenient web access from PCs and mobile devices
- Simple data exports for in-depth evaluation and reporting

DMG MORI NET*service*

- Remote diagnosis supported by DMG MORI service experts
- Immediate and direct support minimizes downtime and service costs
- Secure encrypted connection

YouTube video

* further description see attachment

DMG MORI Manufacturing USA
NHX 4000 3rd Generation

Machine and Options			USD	USD
Basic Machine				
NHX 4000 Horizontal machining center Travel X/Y/Z: 560/560/660 mm 22.0/22.0/26.0 in. Pallet size: 400x400 mm 15.7x15.7 in. Pallet surface: Tap (metric, inch) with Pallet edge locator Coolant gun for setup station side Oil skimmer Zero Sludge Coolant Tank In-machine measuring system (spindle) touch sensor (Renishaw OMP60) + workpiece setter Tool breakage detection system Water-glycol chiller (spindle cooling) Manual pulse generator (separate type) Full closed loop control (Scale feedback) This machine requires an anchor for the leveling jack as standard. By fixing this machine to the floor, minimize the movement due to vibration during operation or slight earthquakes. *Before pulling the machine body into the installation area, it is necessary to make holes in the floor where it is to be anchored and drive the bolt anchors. Please refer to the foundation diagram for details such as dimensions and positions.	J-A01807*	1		327,000.00
Control				
Control F31iB with CELOS (NHX4000) Control unit : Fanuc F31iB Operation system : CELOS (MAPPS V)	J-007254*	1		0.00
CELOS - ERGOline Touch It is a machine operation panel with 21.5-inch multi touch screen, which realizes comfortable operability. It documents, visualizes and centrally manages the order, process and machine data, allowing the networking with CAD/CAM and also the function extension using applications. The user-friendly, highly-productive MAPPS system is installed.	J-003261*	1		0.00

* further description see attachment

Spindle

High-Speed Spindle 20,000 min-1, 37/26/18.5 kW Motor spindle speedMASTER® Spindle speed: 35 - 20,000 min-1 Output: 37/26/18.5 kW (50/34.7/24.7 HP) (15%ED/30min/cont) Torque: 221/107/86.8 Nm (163/78.92/64.02 ft·lbf) (10%ED/15min/cont) MASTER series spindle: Covered by a 3-year warranty service	J-019094	1	0.00

Options for Spindle

Spindle Taper 7/24 Taper #40 (Two-face contact)/Grip CAT <CAT40 Two-face contact> This specification uses the spindle No. 40 7/24 taper (Two-Face Contact) /Grip CAT tool holder. The grip type and retention knob type of ATC are specified separately.	J-007285	1	245.00
Center Through-Spindle Coolant System It can supply coolant through the holes of the spindle and tool. The coolant supply path to the tool tip is a center-through type. Effective for removing chips, cooling a machining point and prolonging a tool life. *Coolant pump is not included.	J-007251	1	0.00
Retention Knob: Special (Center-Through) (7/24 Taper #40) The spindle collet applicable to the special (center-through) retention knob is installed. *Tool retention knob is not included. *The through-spindle coolant specification requires a dedicated retention knob.	J-019117	1	0.00

Table

Full Rotary B-Axis Specifications (Standard Specification) Minimum pallet indexing angle is 0.001 °. It is applicable to the B-axis index machining and simultaneous 4-axis machining. The High torque DD (direct drive) motor enables high-speed and high-precision indexing without maintenance. (Specification) Min. indexing angle: 0.001° Drive system: Direct drive motor Clamping system: Hydraulic (Disk Brake) Max. speed: 100 min-1	J-019008	1	0.00

Options for Table

Specification of Pallet : inch	J-017088	1	0.00

* further description see attachment

Auto-Coupler (With Pallets) 2 Hydraulic Circuits + 2 Workpiece Seating Detection Circuits (Standard Specification) The auto-coupler is adopted to supply the two hydraulic circuits and two seating detection ports for workpiece fixtures. The clamping/unclamping is made using the pushbuttons on the setup station, or can be made automatically with the program commands. (Setup Station Side) Two hydraulic circuits for the clamping/unclamping Two air ports for the workpiece seating detection (Machine Side) Hydraulic pressure is supplied only to the port for sustained clamping. The supply is branched into two ports in one circuit. The seating detection and unclamping are not possible in the machine. During pallet change, the hydraulic pressure is maintained by check valves in the auto-couplers. Fixture hydraulic pressure: Max. 7 MPa (1,015 psi). *This specification does not include the automatic indexing setup station and the automatic door (setup station side). Caution) Be careful when equipping the machine with pallets of already-existing machines. When the existing machines are not the auto-coupler specification ones, the pallets must not be shared. 【Safety Notes】 Even when the supply of hydraulic pressure is cut off, the pressure remains inside the fixture circuit, meaning the fixture keeps clamping or unclamping the workpiece. However, when the door is left open for a long time, the pressure inside the circuit will gradually decrease, potentially leading to clamping errors or falling workpieces. Accordingly, when the door is left open for a long time, the operator should either remove the workpiece from the fixture, or take a measure to prevent the workpiece from falling. We urge that operators be educated and trained regarding this risk and the procedure for avoiding it.	J-019017	1	0.00
Pressure Setting for Auto-Coupler Specification: 7 MPa (1,015 psi) The hydraulic pressure setting for fixture is 7 MPa (1,015 psi). *If pressure over 7MPa or less than 4MPa is required, please order it as a special specification.	J-019081	1	0.00

* further description see attachment

Tool Magazine

Tool Storage Capacity 60 Tools (Standard) Ring-type magazine Tool capacity: 60 tools (including one tool mounted in the spindle) Technical random address type Max. tool diameter: - With adjacent tools: Φ70 mm (dia.2.76 inch.) - Without adjacent tools: Φ170 mm (dia.6.69 inch.) Max. tool length: 450 mm (17.72 inch.) (NHX4000) 550 mm (21.65 inch.) (NHX5000) Max. tool mass: 12 kg (26.4 lb.) Max. tool moment (from gage line): 7.84 Nm (5.78 ft·lbf) *Please refer to the separate tool restriction diagram for other restrictions.	J-019095	1	0.00

Coolant supply / Chip removal

Applicable Coolant Type: Water-Soluble Coolant If the oil-based coolant is used with the water-soluble coolant specification, it may cause poor accuracy, machine troubles or fire. It is necessary to select the oil-based coolant specification for using the oil-based coolant.	J-G00428	1	0.00

* further description see attachment

External Chip Conveyor (Rear Discharge, Drum Filter Type) (Standard Specification) The scraper type chip conveyor efficiently discharges chips in the machine into the container (order separately) at the rear of the machine. The drum filter rotates during operation to filter coolant, so that the clarified coolant returns to the tank. (The spray nozzles are also provided to clean the drum filter.) It is equipped with the overload detection function is provided to detect the overload on the conveyor. Also, the conveyor rotation direction can be reversed by pressing the reverse button. *Please select the oil-based coolant specification when using oil-based coolant. *Please consult DMG MORI when the chip length exceeds 200 mm (7.89 inch.). Chip discharge port height: 1,090 mm (42.91 inch.) (NHX4000,NHX5000,NHC4000,NHC5000) 1,100 mm (43.31 inch.) (NHX5500,NHX6300,NHC5500,NHC6300,NHX8000,NHC8000) Tank capacity: 800 L (211.2 gal.) (NHX4000,NHX5000,NHC4000,NHC5000,NHC5500) 1,025 L (270.6 gal.) (NHX5500) 1,085 L (286.44 gal.) (NHC6300) 1,200 L (316.8 gal.) (NHX6300) 1,260 L (332.64 gal.) (NHX8000,NHC8000) Depth of tank: 400 mm (15.75 inch.)	J-008057	1	0.00
Interface for Through-spindle Coolant System (7.0 MPa, Variable Pressure Steps) (ChipBLASTER) I/F for mounting the high-pressure coolant system (separate type). Supplies the high-pressure coolant to the tool tip from the center of the spindle through the retention knob and the tool. Effective for removing chips, cooling a machining point and prolonging a tool life. The predefined 8 steps of pressure can be selected by the M-code. Max. discharge pressure: 7 MPa (1,015 psi) *The high pressure coolant unit is not included. *Please prepare the power source supplied to the high pressure coolant unit separately. *If EtherNet/IP connection is needed, need to select another option. *When using the super-high-pressure coolant system, the machining accuracy may be influenced by a rise in the coolant temperature. Select the coolant chiller and mist collector to reduce the influence on the machining accuracy.	J-019034	1	0.00

* further description see attachment

Without Coolant chiller If the coolant chiller is not selected, the units (spindle, table) inside the machine might be heated by the coolant, and thermal displacement might cause defective machining dimensions.	J-014459	1	0.00
Mist Collector Interface (Duct Only, Φ150 mm (dia.5.91 inch.)) I/F for mounting the mist collector that collects, absorbs and dehydrates mist, dust particles and oily fumes generated during machining using the filter. This specification includes the duct from the duct hose outlet to the machine body only. The mist collector, duct hose, drain hose, stand, fixture and electrical components set are not included.	J-005079	1	655.00

Measuring / Monitoring

In-machine Measuring System (Spindle) Optical Signal Transmission Type Touch Sensor (Renishaw, OMP60) + Workpiece Setter Function Using the optical touch sensor mounted on the spindle, the workpiece is positioned and the positions of the fixture and workpiece are measured. The workpiece coordinate values read by the touch sensor are transmitted using an infrared beam to the NC unit via the receiver installed inside the machine. Chips and coolant adhering to the receiver can be removed by air blowing. However, please clean the receiver periodically. Dirt on the receiver will cause a reception error alarm. When processing automated systems or ceramics, etc., please select a radio wave type touch sensor that does not generate a receiving alarm even if it gets dirty. Also included is the workpiece setting function to measure the machining reference point and center point and modify workpiece coordinate manually, effective when workpiece not suitable for automatic measurement, such as when the workpiece is mounted out of the X-axis or Y-axis. The touch sensor is housed in the tool magazine and mounted into the spindle by automatic tool change.	J-019010	1	0.00

* further description see attachment

In-Machine Measurement System (Table) Touch Sensor (Magnescale) + Tool Setter Function (Tool Length + Tool Diameter) The Magnescale touch sensor mounted on the table allows the tool length and diameter measurements and the tool breakage detection(※1). During machining, the touch sensor is stored under the dedicated cover to prevent it from contacting chips and coolant. Direct air blow to the sensor prevents measurement of tools with chips or coolant adhering to them. Tool Setter Function (Tool Length + Tool Diameter): This function enables manual measurement of the tool length and tool diameter. This spec. does not support rotational measurement. Also, the "Individually check teeth " in the Siemens spec. is not supported because it is measured using rotational measurement. ※1 This spec. does not support tool breakage detection in the Siemens spec.	J-008107	1	6,610.00

Automation

Signal Lamp 4 Colors (Red, Yellow, Green, Blue) The machine status is indicated by the LED color. It is mounted at top front of machine so that it is visible from a distance. The power-saving, maintenance-free LEDs with a viewing angle of 360 degree is adopted. The color specification can be selected from the following two types: <Type 1> - Red: Various alarms - Yellow: Program end (M02/M30) - Green: Automatic mode operation <Type 2 (Standard)> - Red: Various alarms - Yellow: The cycle start prohibited - Green: Automatic mode operation - Blue: During Operation mode 2/3 being selected *Buzzer function is not included. Please select the "Signal Lamp Buzzer" specification separately.	J-004166	1	495.00

* further description see attachment

EtherNet/IP I/F I/F for exchanging control signals between the machine and peripheral equipment using the EtherNet/IP communication protocol. It is necessary for connecting the peripheral equipment that supports EtherNet/IP. The wiring is saved compared to normal hard wiring communication as the control signals are exchanged via the EtherNet communication. This specification includes I/F for receiving and executing emergency stop signals transmitted from peripheral equipment via separate non-LAN cable. *The LAN cable between the machine and peripheral equipment is not included. *When the machine is shipped, the circuit is short-circuited if there is no external device connected. Please make sure to remove the jumper wire when installing machine at the customer's factory.	J-015384	1	850.00

General Options

Voltage of Customer Factory 220 V This machine is shipped with voltage set to 220 V specification. (Caution) IF the setting is incompatible, there is a possibility of trouble such as operation abnormality and alarm occurrence. Be sure to check the supply voltage and frequency of the customer's factory.	J-G00951	1	0.00
Frequency 60 Hz This machine is shipped with frequency set to 60 Hz specification. (Caution) IF the setting is incompatible, there is a possibility of trouble such as operation abnormality and alarm occurrence. Be sure to check the supply voltage and frequency of the customer's factory.	J-G00961	1	0.00
Setting Unit, Inch The unit to be used for the screen display and program commands is set to "inch". Turning: "Inch" specification for the turret	J-004472	1	0.00

* further description see attachment

Technology Cycle

Without AI Chip Removal AI chip removal is not equipped. When the amount of chips generated is large or the chips are heavy, such as in aluminum machining or heavy-duty cutting, chips may accumulate in the machining chamber and cleaning work may be required. Continued operation of the machine with accumulated chips may result in damage to parts and chip conveyor and overload alarms of the servo axis. AI chip removal is recommended when the amount of chips is large or when long continuous operation.	J-014015	1	0.00
Measuring Pro This is a function to measure a workpiece using in-machine measuring system (spindle) touch sensor. It is possible to program automatic measurements on a dedicated guidance screen. In addition to various measuring functions, measuring time saving and measuring data export can be realized. Cannot be used with special shaped touch sensors such as L-shaped probes and cross-shaped probes.	J-056140	1	0.00

Screen Text Language

Screen display English Language on MAPPS Screen: English Language on MAPPS Warning Screen: English Language on NC Screen: English Language on PC Screen: English	J-000080	1	0.00

Price machine and options	**335,855.00**

Services	USD	USD

Options for MAPPS / SIEMENS / CELOS Control*

IoTconnector The IoTconnector allows the use of online services of DMG MORI (e.g. NETservice)	J-011731*	1	0.00
NETservice A software installed on IoTconnector for qualified support by Internet-based remote diagnostics	J-011732*	1	0.00

* further description see attachment

Machine Data Connector (MDC) A software installed on IoTconnector for uniform machine data interface as an integrated function of the DMG MORI Connectivity Hardware	J-011734*	1	0.00

Special constructions services

DMFS FFP Costing	SK001	1	21,421.00
DMFS FFP Costing	SK002	1	14,281.00

Sales company services

SV1: Standard Machine Installation	Z-COST01	1	0.00
DMG MORI Precision Protection Program	Z-COST05	1	20,152.00
DMG MORI Connect A 2-year subscription of DMG MORI connectivity software: + Messenger Cloud - Machine monitoring through web application + NETservice 4.0 - Remote service by DMG MORI Hotline via CELOS APP *NETservice is only available on machines with IoTconnector	Z-COST06	1	1,000.00
EG1: Standard Machine Training	Z-COST07	1	0.00

Price services	**56,854.00**

Price machine and options	**335,855.00**
Price services	**56,854.00**
Total price	**392,709.00**

* further description see attachment

Attachment

Technical Description

J-A01807

Basic machine NHX 4000 <3rd Generation>

The specifications below apply to a basic machine without additional options. Specifications in square brackets [ ] are values or features for a machine with additional options.

Travel

X-axis travel <longitudinal of movement of saddle>	mm (in.)	560 (22.0)
Y-axis travel <vertical movement of spindle head>	mm (in.)	560 (22.0)
Z-axis travel <cross movement of pallet>	mm (in.)	660 (26.0)
Distance from pallet surface to spindle center	mm (in.)	80 - 640 (3.1 - 25.2) [T-slot: 60 – 620 (2.4 – 24.4)]
Distance from pallet center to spindle gage plane	mm (in.)	70 - 730 (2.8 – 28.7)

Pallet

Distance from floor surface to pallet surface	mm (in.)	1,050 (41.3) [T-slot: 1,070 (42.1)]
Pallet working surface	mm (in.)	400 x 400 (15.7 x 15.7)
Pallet loading capacity	kg (lb.)	400 (880)
Maximum workpiece swing diameter	mm (in.)	630 (24.8)
Maximum workpiece height	mm (in.)	900 (35.4) [T-slot: 880 (34.6)]
Pallet surface configuration		M16 (1/2-13 UNC) Tap: 24 holes Pitch 80 mm (3 1/8 in.)
Minimum pallet Indexing angle		0.001° <full indexing table> [1°]
Pallet indexing time <90°>	sec	0.73 <full indexing table> [1.65 <1° indexing table>]

Spindle

Max. spindle speed:		
- Standard	min^{-1}	20,000
- High torque	min^{-1}	[15,000]
Max. spindle speed torque <10%ED>:		
- Standard	N·m (ft·lbf)	221 (163.0)
- High torque	N·m (ft·lbf)	[250 (184.4)]
Type of spindle taper hole		No. 40
Spindle bearing inner diameter	mm (in.)	80 (3.1)

Feedrate

Rapid traverse rate:		
- X-axis	mm/min (ipm)	60,000 (2,362.2)
- Y-axis	mm/min (ipm)	60,000 (2,362.2)
- Z-axis	mm/min (ipm)	60,000 (2,362.2)
Cutting feedrate <with high precision control>	mm/min (ipm)	0 - 60,000 (0 – 2,362.2)
Jog feedrate	mm/min (ipm)	0 - 5,000 (0 – 197.0) <20-step>

ATC

Type of tool shank		BT40 [CAT40] [DIN40] [HSK-A63]
Type of retention knob		DMG MORI 90° type [45° <MAS-I>] [60° <MAS-II>] [DIN] [Special <center through>]
Tool storage capacity:		
- Ring-type	tools	60
- Chain-type	tools	[120]
- Rack-type	tools	[180] [240]
Maximum tool diameter <with adjacent tools>	mm (in.)	70 (2.7)
Maximum tool diameter <without adjacent tools>:		
- Ring-type	mm (in.)	170 (6.6)
- Chain-type, rack-type	mm (in.)	[140 (5.5)]
Maximum tool length	mm (in.)	450 (17.7)
Maximum tool mass	kg (lb.)	12 (26.4)
Maximum tool mass moment <From spindle gauge line>	N·m (ft·lbf)	7.84 (5.78)
Method of tool selection:		
- Ring-type		Technical memory random
- Chain-type		Fixed address, shorter route access
- Rack-type		Fixed address
Tool changing time <cut-to-cut> {60-tool <ring-type>}	sec	2.2

APC

Number of pallets		2
Method of pallet change		Turn type

Motor

Spindle drive motor <15%ED/30 min/cont>:		
- Standard	kW (HP)	37/26/18.5 (50/34.7/24.7)
- High torque	kW (HP)	[37/26/22 (50/34.7/30)]
Feed motor:		
- X-axis	kW (HP)	5.5 (7.5)
- Y-axis	kW (HP)	5.5 (7.5)
- Z-axis	kW (HP)	4.5 (6)
- B-axis	kW (HP)	3.5 (4.7) <full 4th axis rotary table> [2.5 (3.3)]
Coolant pump motor	kW (HP)	1.1 + 1.1 (1.5 + 1.5)

Tank capacity

Coolant tank capacity	L (gal.)	800 (211.2)

Machine Size

Machine height <from floor>	mm (in.)	2,540 (100.0)
Floor space <width x depth>	mm (in.)	2,680 x 4,181 (105.5 x 164.6)
Mass of machine <with coolant tank>	kg (lb.)	8,500 (18,700)

J-007254

NC Unit F31iB

Controlled axis

Controlled axis	X, Y, Z, B
Simultaneously number of controllable axes	4 axes
Least input increment	0.001 mm
Max commandable value	±999,999.999 mm
Stroke limit check before movement	

Software damper	Abnormal load detection function
Load monitor function C	Soft key type

Operation

Dry run	
Single block	
Jog feed	0−5,000 mm/min (0−197.0 ipm) <20 steps>
Manual reference position return	
Manual pulse handle feed	Manual pulse generator: 1 unit x1, x10, x50, x100 (per pulse)
Z-axis neglect	
Program restart	

Interpolation function

Nano interpolation	
Uni-directional approach/unidirectional positioning	
Helical interpolation	Optional 2 axes and other 1 axis

Feed function

Rapid traverse rate	Max. 60,000 mm/min (2,362.2 ipm)
Feed per minute/cutting federate <when using high-precision control <look-ahead control>>	1 – 60,000 mm/min (0.01 – 2,362.2 ipm)
High accuracy control <Look-ahead control>	
Rapid traverse override	F - 100% <20 steps>
Constant tangential feedrate control	
Feedrate override	0 - 200% <10% increments>
Feedrate override cancel	
AI contour control I	Look-ahead blocks are up to 30 blocks.
AI contour control II	Look-ahead blocks are up to 200 blocks.

Program input

Optional block skip	
Program number/program name	32 arbitrary characters
Absolute/incremental command	
Decimal point programming	Electrical calculator type decimal point programming is changeable using parameter.
Radius specification	
Plane selection	
Programmable data input	
Sub-program call	Up to 10 nestings
Custom macro	
Custom macro common variables	1,100 variables (#100 to #199, #500 to #999, #98000 to #98499)
Drilling cycle	
FS15 format	
Additional workpiece coordinate systems	300 sets
Coordinate system rotation	

Miscellaneous function/spindle function

Spindle override	50 - 150% <10% increments>
Spindle orientation	
Synchronous tapping	

Tool function/Tool offset function

Tool function <T function>	T8-digit
Number of tool offsets	64 sets <A set is defined as radius and length combination. If radius and length offset data are set individually, the value indicates the number of data.>
Tool offset data memory C	D/H code, geometry and wear offset data
Tool length correction	
Tool radius offset	
Tool length measurement	
Rotary table dynamic fixture offset	
Tool management system	

Mechanical accuracy compensation

Backlash compensation	±9,999 pulses
Rapid traverse/cutting feed backlash compensation	
Stored pitch error compensation	
Interpolation type pitch error compensation	

Editing function

Expanded program editing	A limitation in the copy buffer (10 KB)
Background editing	
Undo/Redo function <MAPPS>	
Line no. display <MAPPS>	

Setting and display

Status display	
Clock function	
Position read-out, position display	
Program comment display	190 characters
Parameter setting display	
Message list display	
Sensor information display	Power consumption
Message history display	
Running time display/No. of parts display	
Actual feedrate display	
Self-diagnosis function	Includes alarm display, I/O signal diagnosis, ladder diagram
Operation panel: Display section	21.5-inch + 15.6-inch TFT color LCD

Data input/output

I/O interface	Network drive, USB memory
6 GB Program storage area (storage area for user data including NC program)	Files up to 10 MB in size can be edited

Standard Equipment

Pallet/Pallet changing system

- 2-station turn-type APC
- Form of pallet - tap <metric, inch>
- Full 4th axis rotary table
- Pallet edge locator
- Hydraulic/pneumatic interface <with pallets> <Hydraulic 2 circuits + workpiece seating detection 2 circuits>

Spindle

- Spindle drive motor is 37/26/18.5 kW (50/34.7/24.7 HP) <15%ED/30 min/cont.> and max. spindle speed is 20,000 min^{-1}.
- Type of tool shank BT40
- Type of retention knob – Special <center through>
- Tool storage capacity is 60 tools. <ring type>

Coolant

- Coolant system
- Shower coolant <used at the same time as spindle coolant>
- Coolant float switch <lower limit detection>
- Coolant gun
- Through-spindle coolant system (unit on coolant tank) center through 1.5 MPa (217.5 psi) *Not included when "Interface for Through-spindle coolant..." option is selected.
- Oil skimmer

Chip disposal

- Chip conveyor <Rear discharge, drum filter type + cyclone filter>
- Air blow for tool tip <when the tool tip air blow is regularly used, air supply of more than 300 L/min (79.2 gpm) is separately required>
- Zero sludge coolant tank

Measurement

- In-machine measuring system (spindle)
- Tool breakage detection system (magazine)

High accuracy positioning

- Full closed loop control (Scale feedback)
- Spindle water-glycol chiller (chilling unit)

Safety features

- Full cover
- Door interlock system: front door/ set up station door/ magazine door/ electrical cabinet door
  Mechanical lock: front door/ set up station door/ magazine door
- Low hydraulic pressure detecting switch
- Low air pressure detecting switch
- Residual pressure exhaust valve

Others

- Automatic power-off system
- LED worklight
- Pallet seating confirmation
- Leveling jack <anchor type>
- Manual pulse generator (separate type)
- Hand tools

J-003261

CELOS to facilitate machine operation.

Can be networked with CAD / CAM products.
Open to forward-looking CELOS APP extensions.
Uniform interface for all the new high-tech machines from DMG MORI SEIKI.
Integrated management, documentation and visualization of order, process - and machine data.

Screen / Panel:	21.5 "ERGOline Touch ® control with multi touch screen Multi touch machine control panel for pioneering operating comfort Stepless adjustment of screen and machine control panel Display of access permission
SMARTkey ®:	Personalized authorization of the operator. Customized access rights to the control and the machine. Internal USB memory
APP SELECTOR:	Central selection mask for direct access by means of intuitive touch control and access to all available applications, divided into five major groups: Production, Accessories, Support, Monitoring, Configuration
APPs "Production": CONTROL:	MAPPS system with touch screen operation 6 function window-set for easy access to the machine information. Machine operation scene-based automatic window-set change

	allows users to access the necessary information for each operation easily
JOBMANAGER:	Systematic planning, managing and preparing orders Machine-related creation and configuration of new orders Structured storage of all production-relevant data and documents Simple visualization of jobs including NC programs and resources
JOB ASSISTANT:	complete jobs / processing of orders Menu driven set-up of the machine and processing of Production orders in the dialog Reliable error prevention through notes with binding acknowledgement function
APPs " accessories":	
TECH CALCULATOR:	calculating of technology data, dimensions and values Material - and process-dependent calculation process optimized Data for example for speed, feed, or spindle load Standards-conforming discovery defined dimensions, Providing data/dimensions as required by the standards for example, for Fits or thread Scientific calculator
CAD-CAM-VIEW:	visualizing of workpieces and optimizing of program data Direct remote access to external CAD/CAM-computer Central master data as the basis of the part visualization Immediate change options for processing steps NC programs and CAM strategies directly to the control
DOCUMENTS:	Digital library of full-text search Clear library structure for easy and quick orientation Digital storage of all machine-relevant manuals, Documentations and customer data Full text search and bookmark feature for recurring Lookup fields
ORGANIZER:	Calendar, and memo functions User-defined messaging functions Individual messages with SMART key ® Identification
APPs " support":	
NETSERVICE:	Qualified support through Web-based remote diagnosis Remote communication with the service of DMG MORI SEIKI directly at the control unit Online troubleshooting and technical support via Internet Highest data security through VPN access
MACHINE CHECK:	Controlled maintenance and repair of the machine Process-based login system for maintenance with control function Preventative service and maintenance planning
APPs "Monitoring":	
STATUS MONITOR:	Machine status in real time

	Visualization of machine condition (spindle load,...) Displaying job information with quantity, lot size and Term to maturity Maintenance messages and warnings Energy return feed display
APPs " configuraton":	
ENERGY SAVING:	Automated energy management Categorized balance display for different machine States (Hold, ready for operation, processing) Programmatic Shutdown, WarmUp and StandBy functions for Machine, pneumatic, screen and lighting of workroom Utilization - and time-based process analysis as base of the Consumption optimization
SETTINGS:	Individualization and personalization SMART key ® -based user and rights management Individual APP customization General system settings

J-011731

IoTconnector
The **IoT***connector* enables to use the DMG MORI online services (eg **NET***service*). Thanks to an integrated firewall, the machine is protected against attacks despite the online connection. In addition, the **IoT***connector* receives security updates via an integrated DEVICE MANAGEMENT.

J-011732

NETservice
The NETservice stands for a couple of new features for optimal remote service support. Besides of an interactive remote desktop feature for a direct view on HMI and control, direct file transfer of service related files the experts of DMG MORI can be involved in a single or multi-user-conference. A chat and whiteboard functionality complete the conference functionality.
Your customer benefits at a glance:
- Fast support through access to CELOS, IPC and NC
- Intuitive operation
- High transparency thanks to logging of all service activities
- Deposit of individual user profiles and rights
- Chat functionality for communication between customer and service
The usage of NETservice is free of charge for the duration of the machine warranty and ends automatically. NETservice after Warranty is subject to monthly costs. The DMG MORI Service is able to create a suitable offer.
Requirements of usage:
- Requires IoTconnector
- Requires Internet connection to the machine.

J-011734

Machine Data Connector (MDC)
Uniform machine data interface as an integrated function of the DMG MORI Connectivity Hardware independent of the machine controller, the machine signals are available as a signal output through one of the following protocols:
+ MQTT (MQTT client)
+ MTConnect (MTConnect Agent Version 1.4.0.3)
+ OPC-UA (DMG MORI OPC-UA Server Configuration)
The used protocol is to be configured at machines with CELOS (Version 6) through the App "Connector Management"
Updates for the software function of the Machine Data Connector will be provided directly to the DMG MORI

Connectivity Hardware via DMG MORI Device Management. An Internet connection of the DMG MORI Connectivity Hardware is required for this update function.
The following signals are available:
- Machine Serial Number
- Operating hours
- Power On Time
- Controller Mode
- Status Stack Light
- Number of active alarms
- Notifications (Alarm/Warnings)
- Part Program Name
- Current Program Execution Time
- Spindle Override
- Desired Parts
- Feed Override
- Number of active Tool
- Rapid Override
- Execution State
- Part Counter
- Part Counter overall
- Additive DMG MORI machines (powder nozzle or powder bed) have a different signal set because of their machine technology.

Delivery:
- Software“ Machine Data Connector“ as integrated function of DMG MORI Connectivity Hardware
- Manual