NLX2500SY/700
Project no: 340/710338-2

We are pleased to present the following quotation of the above mentioned machine with the following specification:

NLX 2500 | 700
Stock machine: 7023000518B

Highlights

- Slideways are used for all axes
- Coolant circulation inside the castings controls thermal displacement
- With BMT (Built-in Motor Turret), milling capability is comparable to machining centers
- Y-axis travel: ±50 mm (Y axis spec.)
- Max. turning length 705 mm
- Spindle 2 max spindle speed: 6,000 min-1 (Counter Spindle Spec.)

DMG MORI
NLX 2500 | 700

Basic Machine

I-A01439* NLX 2500 | 700 - Milling Specification

Control

I-006140* Control M730UM with CELOS (NLX2500)
NC unit : MITSUBISHI M730UM
Operation system : CELOS (MAPPS V)

I-003261* 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.

Spindle

I-016101 (Spindle 1) Standard Spindle 18.5/18.5/15 kW, 4,000 min-¹
The NLX 2500 adopts a highly reliable spindle designed to minimize thermal displacement. The advanced spindle labyrinth structure and the spindle air purge adopted for the machine (option for the 2-axis turning specification) achieves the highly durable spindle by preventing coolant from entering the spindle.
Max spindle speed: 4,000 min-¹
Chuck size: 10 inch, 12 inch (8 inch. also for the 2-axis turning specification)
Spindle nose type: JIS A2-8
Through-spindle hole diameter: Ø91 mm (dia.3.58 inch)
Min spindle indexing angle: 0.001°
Spindle drive motor: 18.5/18.5/15 kW (24.7/24.7/20 HP) (25%ED/50%ED/cont)
Spindle torque: 599/505/409 Nm (441.8/372.47/301.66 ft·lbf) (25%ED/50%ED/cont)

* further description see attachment

I-016104 (Spindle 2) Standard Spindle 11/7.5 kW, 6,000 min-1
The Spindle 2 specification enables continuous machining of both surfaces. The combination of rotary tools and the Y-axis function enables integrated machining from turning to secondary/back face machining, and multi-axis machining, allowing for process integration.
Max spindle speed: 6,000 min-1
Chuck size: 6 inch., 8 inch
Spindle nose type: JIS A2-5
Through-spindle hole diameter: Ø 43 mm (dia.1.69 inch)
Min spindle indexing angle: 0.001°
Spindle drive motor: 11/7.5 kW (15/10 HP) (25% ED/cont)
Spindle torque: 77.8/53.1 Nm (57.38 / 39.16 ft·lbf) (25% ED/cont)

Chuck for Main spindle

I-020602
(Spindle 1) KITAGAWA 10-inch Hollow Chuck BB210A821
Three-jaw hydraulic chuck manufactured by Kitagawa Iron Works.
Chuck outer diameter: Ø 254 mm (dia.10 inch)
Through-hole diameter: Ø 81 mm (dia.3.19 inch)
Gripping diameter: Max Ø 254 mm (dia.10 inch), Min Ø 41 mm (dia.1.61 inch)
Jaw stroke (diameter): 8.8 mm (0.35 inch.)
Plunger stroke: 19 mm (0.75 inch)
Max. allowable pull force: 48.8 kN (10.97 klbf)
Max. static gripping force: 126 kN (28.32 klbf)
Dynamic gripping force at max. speed: 42 kN (9.44 klbf)
Max. allowable speed: 4,500 min-1
Mass: 34.7 kg (76.34 lb.)
(recommended option)

* further description see attachment

I-020333 (Spindle 1) Hollow Cylinder Set for KITAGAWA 10-inch Hollow Chuck BB210A821
Hollow cylinder Kitagawa SR1781 and hollow draw pipe R75245 are included as a set. Chuck is not included. Please see the chuck-cylinder combination diagram for the combination with chuck and the specification.
Cylinder inner diameter: Ø 173 mm (dia.6.81 inch.)
Piston stroke: 25 mm (0.98 inch)
Piston thrust: push side 53.5 kN (12.03 klbf), pull side 48.8 kN (10.97 klbf) (for BB 210)
Max hydraulic pressure: 4 MPa (580 psi)
Max allowable speed: 4,500 min^{-1}
*When using B-210A821
(recommended option)

Chuck for Counter spindle

I-020340 (Spindle 2) KITAGAWA 6-inch Hollow Chuck B206A521F
Three-jaw hydraulic chuck manufactured by Kitagawa Iron Works.
Chuck outer diameter: Ø 169 mm (dia.6.65 inch)
Through-hole diameter: Ø 45 mm (dia.1.77 inch)
Gripping diameter: max Ø 169 mm (dia.6.65 inch), min Ø 16 mm (dia.0.63 inch)
Jaw stroke (diameter): 5.5 mm (0.22 inch)
Plunger stroke: 12 mm (0.47 inch)
Max allowable pull force: 22 kN (4.95 klbf)
Max static gripping force: 57 kN (12.81 klbf)
Dynamic gripping force at max speed: 19 kN (4.27 klbf)
Max allowable speed: 6,000 min^{-1}
Mass: 13.7 kg (30.14 lb)
(recommended option)

* further description see attachment

I-020339	(Spindle 2) Solid Cylinder Set for KITAGAWA 6-inch Hollow Chuck B206A521F Solid cylinder Howa C1SB115 and draw pipe R74279 are included. Chuck is not included. Please see the chuck-cylinder combination diagram for the combination with chuck and the specification. Cylinder inner diameter: Ø 115 mm (dia.4.53 inch) Piston stroke: 20 mm (0.79 inch) Piston thrust: push side 20.2 kN (4.54 klbf), pull side 21.6 kN (4.86 klbf) Max hydraulic pressure: 3.5 MPa (507.5 psi) Max allowable speed: 6,000 min^{-1} *When using B206A521F **(recommended option)**

Equipment for Chucks

I-002276	Chuck Foot Switch (Double) for Spindle 1 and Spindle 2 The switch to clamp or unclamp the chuck by foot. Pushing the lock release plate of each foot switch forward releases the lock and enables the chuck foot switch pedal to be depressed. The chucks for spindle 1 and spindle 2 are clamped or unclamped respectively using their double foot switches. **(recommended option)**

Turret

I-020757	Rotary Tool Spindle 40.5/16 Nm (29.87/11.8 ft·lbf), 10,000 min^{-1} Rotary tool spindle for the 12-station SAUTER bolt-tightened turret specification. BMT (Built-In Motor Turret) is installed with the milling specification, and the cooling jacket suppresses heat generation to implement excellent machining accuracy. Rotary tool machining ability: drill Ø 26 mm (dia.1.02 inch), tap M20 Rotary tool spindle output: 5.5/4.9/4.2 kW (7.5/6.5/5.6 HP) (25/30/100%ED) Rotary tool spindle torque: 40.5/36/16 Nm (29.87/26.55/11.8 ft·lbf) (25/30/100% ED)

* further description see attachment

Turret

I-016112 Turret Y-axis Specification
It moves the turret in the Y-axis direction. In combination with the rotary tool spindle and spindle 2, it implements process integration for workpieces with complicated shapes.
Please refer to the turret interference diagrams for the movable region.
Travel: ± 50 mm (± 1.97 inch.)
Rapid traverse rate: 10 m/min (393.7 ipm)
(required option)

I-016108 12-Station Bolt-Tightened Turret (Standard Specification) (SY) (Sauter)
12 station turret manufactured by Sauter.
Please see axis travel diagrams and turret interference diagrams about movable region.
Number of tool stations: 12
Shank height of square tool: 25 mm [0.984 inch]
Shank diameter for boring bar: 50 mm [1.968 inch] (spindle2 side 32 mm [1.259 inch])
Turret indexing time: 0.27 seconds
Max rotary tool spindle speed: 10,000 min-1
Rotary tool machining ability: drill Ø26 mm [1.023 inch], tap M20
Turret tool mounting method: Bolt tightening

I-002560 Overhang of O.D. Cutting Rotary Tool: 100 mm (3.94-inch) (Y-axis Travel Restriction)
The specification to increase the overhang of O.D. cutting rotary tool from 50 mm (1.95 inch) to 100 mm (3.94 inch). The machining chamber rear cover is partially modified to prevent interference of the rotary tool.
*The Y-axis stroke is restricted for the use in combination with the Y-axis specification. (See Turret Interference Diagrams)
*Please consult DMG MORI when using this specification with the 20 station turret, as the interference with the spindle 2 chuck may occur.
(recommended option)

* further description see attachment

Tailstock

I-003188 Spindle 2 Tailstock Specification
The specification to push a workpiece by the center mounted in the spindle 2 chuck. This allows you to machine the tip of the workpiece. When using spindle 2 as a tailstock, the motor equipped with a brake is installed as the spindle may be pushed back.
*The center is not included. Please purchase it separately.
(recommended option)

Coolant supply / Chip removal

I-003290 Chip Conveyor (Right Discharge, Hinge Type) (/500) (/700)
Chips are conveyed on the hinged plates and discharged to the right side of the machine. The hinged plate is effective in discharging long chips. Not suitable for minute powdery chips generated in machining castings and gun metals, etc. as their chips may flow into coolant tank.
Suitable for conveying chips such as steels (long, short), aluminum (long), SUS (long, short), brass (long), copper (long), etc..
(For 2-Axis Turning)
Chip conveying capacity: 310 L/h (81.84 gph), Max coolant throughput: 100 L/min (26.4 gpm).
(For Milling)
Chip conveying capacity: 390 L/h (102.96 gph), Max coolant throughput: 240 L/min (63.36 gpm).
(recommended option)

I-002147 High-Pressure Coolant System (800/1,100 W)
It improves the chip removing performance in cutting and the tool/workpiece cooling capability. The pump for supplying coolant to the turret is changed to the high-pressure specification (output: 800/1,100 W (50/60 Hz)).
Max pump pressure: 0.8 MPa (116 psi)
(recommended option)

* further description see attachment

Measuring / Monitoring

I-017110 Manual In-machine Tool Presetter (Pivoting Type) (Standard)
It simplifies the complicated setup work at the tool change. The position of the tool nose is measured precisely by just bringing the tool nose into contact with the sensor, and the measured value is fed back to NC. The tool presetter can be tilted to the chuck cover side when not used.
(Arm specification)
Repeatability: 0.005 mm (2σ value)
Protection level: IP67
Manufacturer: Marposs
(Probe specification)
Repeatability: 0.001 mm (2 σvalue, when the stylus length is 25 mm (0.98 inch.))
Protection level: IP67
Measuring force: 3.15 N to 6.7 N (0.7 to 1.5 lbf)
Manufacturer: Marposs

I-003331 Full-Closed Loop Control for X-Axis
The magnetic scale is used for the X-axis position sensing, instead of the axis servomotor pulse encoder. It is not susceptible to ball screw precision error or thermal displacement. The magnetic scale is mounted parallel to the X-axis, and the coordinates of the turret position are directly fed back to the NC unit.
This enables the higher precision positioning.
Output signal: Absolute Serial Bidirectional Signal, Compliant with EIA-485
Resolution: 0.01 µm

I-017114 Manual in-machine tool presetter (removable type) (Spindle 2)

* further description see attachment

Automation

I-004166 Signal Light 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 (Standard)>
- Red: Various alarms
- Yellow: The cycle start prohibited
- Green: Automatic mode operation
- Blue: During Operation mode 2/3 being selected
<Type 2>
- Red: Various alarms
- Yellow: Program end (M02/M30)
- Green: Automatic mode operation
*Buzzer function is not included. Please select the "Signal Light Buzzer" specification separately.
(recommended option)

I-020288 Standard Workpiece Unloader (Built-In Type)
This device automatically receives the completed workpiece and carries it outside the machine.
Unmanned consecutive operation is possible by combining it with a bar feeder (separate option).
Can be operated in conjunction with the workpiece conveyor (separate option).
Max workpiece diameter: 80 mm (3.15 in)
Max workpiece length: 200 mm (7.87in)
Max workpiece mass: 3.0 kg (6.6 lb)
Manual mode operation method): by soft key.
Automatic mode operation method: by M-code.
- Can only be operated with door closed.
- With workpiece length 20 mm (0.79 in) or less, the workpiece may not unload properly. For such workpieces, consult with DMG MORI in advance.
(recommended option)

* further description see attachment

I-003353	Automatic Door (/500) (/700) The front door is opened and closed by the air cylinder. Even when the operator is caught by the front door, the tape switch installed in the door is immediately activated to stop the door. Automatic door opening width: For 2 axis turning (/700): 684 mm (26.93 inch.) For MC, Y, S, SMC, SY (/700): 831 mm (32.72 inch.) Door opening/closing time: 4 seconds
I-015384	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.
I-015385	Robot I/F (EtherNet/IP), Separate EtherNet/IP I/F Required The interface signals for mounting robots are made available. The signals are exchanged with the robots using the EtherNet/IP communication protocol. The use of the robots allows the automatic loading/unloading of workpieces, implementing the long time unattended operation. * The robot and the power source of the robot (including cables) are not included. * EtherNet/IP I/F is required separately. * The automatic door is not included.

* further description see attachment

I-003356 Safety Fence I/F (Electric I/F)
Signal for indicating the status of the safety fence door to the machine. When the machine receives the signal indicating that the safety fence door is closed, power is supplied even if the machine front door is open. When the safety fence I/F is used with the robot I/F, the command from the robot allows execution of the spindle orientation even with the door opened.
* The safety fence and a cable between the safety fence and machine are not included.

I-020316 Bar Feeder Interface (LNS) (Multiple)
The Bar feeder interface (I/F) is used for connection to the bar feeder which achieves higher productivity by the automatic bar stock feed. To install any bar feeder other than the LNS-made, the I/F needs to be changed. Please consult DMG MORI Service Department.
(recommended option)

General Options

I-015367 10 External M-Codes
10 M-codes are added for general purpose use by customers. The terminal blocks are provided for output/completion of the added M-codes. When the M-code is specified, the signal is output to the terminal block relayed to the relay circuit (A-contact) in the electrical cabinet. At completion of the M-code, the signal is input to the completion terminal block with dry contact. It is available for the ON/OFF control of external equipment set up by customers.
* Specifications of relay contact: AC250V, Max 5A

I-EU0003 Transformer 45 kVA
three phase autotransformer in cabinet
ELCA type AT3 345

Technology Cycle

I-015571 Alternating Speed
It can suppress regenerative chattering by fluctuating spindle speed. The cycle is automatically calculated only by setting the fluctuation width in the guidance screen.
* Regenerative chatter is created by excitation resulting from the fluctuation in chip thickness. In general, the spindle speed needs to be adjusted as a countermeasure for keeping the chip thickness constant.

* further description see attachment

Options for Control

I-007791 Islands, Open Pockets
Islands
- The island shape can be defined in a pocket shape. Even complex tools path can be converted in shorter time.
- Number of island shape definitions: 127
Open pocket
- The island shape can be defined in an open pocket shape. Definition of the open part allows generation of optimum tool paths by eliminating paths of the parts with no cutting allowance.
- The air cutting is reduced significantly, so that the cycle time can be reduced by approximately 30%.
* It is available only with the milling specification.

I-008290 Multi-Counter Display
It can display 20 work counters and 1 total counter. The multi-counter allows setting of current values, setting values and predict values and input of comments.
- Since the multiple counter functions are made available in the software, the space for installing the hardware parts is not required on the operation panel.
- Any comment can be set for each counter.
- The cost is lower than the hardware counters.
(recommended option)

I-008657 High-Speed Canned Cycle
Inputting the canned cycle arguments by following the screen guidance allows complex machining, including helical thread cutting and trochoid shape, to be specified in one program line. It significantly reduces the programming time and creates optimum tool paths for the high-speed machining.

* further description see attachment

I-008201 Addition of Optional Block Skip (Soft Key Type 2-9)
8 optional block skip functions are added. The switches for enabling/disabling them is added on the operation panel.
(How to Use)
By programming a slash "/" and the number (/n (n=2 to 9)) following it at the beginning of a block and turning on the optional block skip switch with the same number as programmed on the screen or machine operation panel, the information of the block is ignored in the DNC or memory operation. Turning off the optional block skip switch n enables the information of the block with n. Namely, the block including /n can be skipped by the operator's selection.
(recommended option)

Toolholder

I-EU2001 EU Rotary Tool Holder Package BMT60 (2 x T32260, 2 x T32262)
2 x T32260 for collet DIN 6499 ER40 (OD cutting, max 10.000 min-1, max 60 Nm, coolant supply outside, ALGRA RAPPH 40 121UNL)
2 x T32262 for collet DIN 6499 ER40 (Face cutting, max 10.000 min-1, max 60 Nm, coolant supply outside, ALGRA RRPPH 40 121UNL)
Collet mounting wrench is included
(recommended option)

Options for MAPPS / CELOS Control

I-004769 DMG MORI Messenger
It monitors the machine operation status in real time regardless of the place or time. It keeps track of the machine status to maintain the high productivity and reduce the machine idle time significantly. Also, it provides analysis results of the machine productivity and rate of operation by specifying an arbitrary period and shift. The analysis results for each machine allows correct calculation of production volume estimate.

* further description see attachment

Sales company services

1	Transportation of machine and accessories, CIP customer's site (INCOTERMS 2010) Excl. unloading and transport to installation point
2	Installation of all quoted equipment at customer's site Incl. travel and accommodation costs
3	Training at customer's site, 4 days Incl. travel and accommodation costs To be performed at one single occasion and within six months from delivery

* further description see attachment

Attachment

Technical Description

I-A01439

Basic machine NLX 2500 | 700 - Milling Specification

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.

Capacity

Swing over bed	mm (in.)	920 (36.2) <Interfere with front cover: 589 (23.2)>
Swing over cross slide	mm (in.)	742 (29.2)
Maximum turning diameter:		
- For 35mm(1.4in.) overhang of O.D. cutting tool	mm (in.)	366 (14.4)
- For 40mm(1.5in.) overhang of O.D. cutting tool	mm (in.)	356 (14.0)
- 16-station turret	mm (in.)	[348 (13.7)]
- 20-station turret	mm (in.)	[278 (10.9)]
Standard turning diameter:		
- For 35mm(1.4 in.) overhang of O.D. cutting tool	mm (in.)	330 (12.9)
- For 40mm(1.5in.) overhang of O.D. cutting tool	mm (in.)	335 (13.1)
- 12-station turret <For 35mm(1.4 in.) overhang of O.D. cutting tool>	mm (in.)	[271 (10.7)]
- 12-station turret <For 40mm(1.5in.) overhang of O.D. cutting tool>	mm (in.)	[275 (10.8)]
- 16-station turret	mm (in.)	[206 (8.1)]
- 20-station turret	mm (in.)	[192 (7.6)]
Maximum turning length	mm (in.)	705 (27.7)
Bar work capacity:		
- Standard	mm (in.)	80 (3.1)
- Through-spindle hole diameter 111 mm (4.3 in.)	mm (in.)	[90 (3.5)] [102 (4.0)]

Travel

X-axis	mm (in.)	260 (10.2)
Z-axis	mm (in.)	795 (31.3)
Y-axis	mm (in.)	[±50 (±2.0)]
Spindle 2 <B-axis>	mm (in.)	[734 (28.9)]

Spindle 1

Maximum spindle speed		
- Standard	min^{-1}	4,000
- High output	min^{-1}	[4,000]
- Through-spindle hole diameter 111 mm (4.3 in.)	min^{-1}	[2,500]
Type of spindle nose		JIS A_2-8
Through-spindle hole diameter	mm (in.)	91 (3.5) [111 (4.3)]
Spindle bearing inner diameter	mm (in.)	140 (5.5)
Minimum spindle indexing increment	deg.	0.001

Spindle 2 (Option)

Maximum spindle speed:		
- Standard	min^{-1}	[6,000]
- Through-spindle hole diameter 73 mm (2.8 in.)	min^{-1}	[5,000]
Type of spindle nose:		
- Standard		[JIS A_2-5]
- Through-spindle hole diameter 73 mm (2.8 in.)		[JIS A_2-6]
Through-spindle hole diameter:		
- Standard	mm (in.)	[43 (1.6)]
- Through-spindle hole diameter 73 mm (2.8 in.)	mm (in.)	[73 (2.8)]
Spindle bearing inner diameter:		
- Standard	mm (in.)	[85 (3.3)]
- Through-spindle hole diameter 73 mm (2.8 in.)	mm (in.)	[120 (4.7)]
Minimum spindle indexing increment	deg.	[0.001]

Turret

Number of tool stations	tools	10 [12] [16] [20]
Shank height for square tool:		
- Standard	mm (in.)	25 (1.0)
- 16, 20-station Turret	mm (in.)	[20 (0.8)]
Diameter of boring bar shank part:		
- Standard	mm (in.)	50 (2.0) <Headstock 2 side: 32 (1.3)>
- Double boring bar holder	mm (in.)	[32 (1.3)]
- 16-station Turret	mm (in.)	[25 (1.0)]
- 20-station Turret	mm (in.)	[32 (1.3)]
Turret Indexing time	sec	0.27
Maximum rotary tool spindle speed	min^{-1}	10,000

Feedrate

Rapid traverse rate:		
- X-axis	mm/min (ipm)	30,000 (1,181.1)
- Z-axis	mm/min (ipm)	30,000 (1,181.1)
- Tailstock	mm/min (ipm)	Retract: 20,000 (787.4) Extend: 7,000 (275.6)
- Y-axis	mm/min (ipm)	[10,000 (393.7)]
- B-axis	mm/min (ipm)	[30,000 (1,181.1)]

Tailstock

Tailstock travel	mm (in.)	734 (28.9)
Taper hole of tailstock spindle:		
- Live center		MT5
- Built-in center		[MT4]

Motors

Spindle 1 drive motor:		
- Standard <25%ED/50%ED/cont>	kW (HP)	18.5/18.5/15 (24.7/24.7/20)
- High output <10 min/30 min/cont>	kW (HP)	[26/26/22 (34.7/34.7/30)]
- Through-spindle hole diameter 111 mm (4.3 in.) <30 min/cont >	kW (HP)	[22/18.5 (30/24.7)]
Spindle 2 drive motor:		
- Standard <25%ED/cont>	kW (HP)	[11/7.5 (15/10)]
- Through-spindle hole diameter 73 mm (2.8 in.) <25%ED/cont>	kW (HP)	[11/7.5 (15/10)]
Rotary tool spindle drive motor:		
- 10-station bolt-tightened turret specification <3 min/5 min/cont>	kW (HP)	5.5/5.5/3.7 (7.5/7.5/5)
- 12-station bolt-tightened turret specification <25%ED/100%ED>	kW (HP)	[5.5/4.2 (7.5/5.6)]
- 10-station bolt-tightened turret, 16-station VDI turret, and 20-station bolt-tightened turret specifications <3 min/5 min/cont>	kW (HP)	[5.5/5.5/3.7 (7.5/7.5/5)]
- 12-station VDI quick-change turret (Sauter Trifix) specification <15%ED/100%ED>	kW (HP)	[10.7/6.1 (14.3/8.1)]
Feed motor:		
- X-axis	kW (HP)	2.0 (2.7)
- Z-axis	kW (HP)	3.0 (4.0)
- Tailstock	kW (HP)	2.0 (2.7)
- Y-axis	kW (HP)	[3.0 (4.0)]
- B-axis	kW (HP)	[2.0 (2.7)]

Power Sources

Electrical power supply <cont>		
- Milling specification	kVA	29.90
- Y-Axis specification	kVA	[33.53]
- Spindle 2 specification	kVA	[34.41]
- Y-Axis + Spindle 2 specification	kVA	[37.92]
Compressed air supply		
- Standard specifications	MPa (psi), L/min (gpm)	0.5 (72.5), 50 (13.2)
- Y-Axis specifications	MPa (psi), L/min (gpm)	[0.5 (72.5), 50 (13.2)]
- Spindle 2 , Y-Axis + Spindle 2 specifications	MPa (psi), L/min (gpm)	[0.5 (72.5), 150 (39.6)]

Tank Capacity

Coolant tank capacity	L (gal.)	366 (96.6)

Machine Size

Machine height	mm (in.)	2,200 (86.6)
Floor space <width x depth>:		
- Standard	mm (in.)	3,347 x 2,106 (131.8 x 82.9)
- Right disposal conveyor	mm (in.)	[3,981 x 2,106 (156.7 x 82.9)]
Mass of machine		
- Milling specification	kg (lb.)	5,820 (12,804)
- Y-Axis specification	kg (lb.)	[6,140 (13,508)]
- Spindle 2 specification	kg (lb.)	[6,040 (13,288)]
- Y-Axis + Spindle 2 specification	kg (lb.)	[6,360 (13,992)]

I-006140

NC Unit M730UM

Controlled axis

Controlled axis	X, Z, C, B, 5
Simultaneously controllable axes	X, Z, C
Least input increment	0.001 mm (0.0001 in.)
Least command increment	0.001 mm (0.0001 in.)
Max commandable value	±99,999.999 mm (±9,999.9999 in.)
Inch/metric conversion	
Machine lock	
Chuck and tailstock barrier	Only works in automatic operation
Chamfering ON/OFF	
Backlash compensation	±9999 pulses
Rapid traverse/cutting feed backlash compensation	

Stored pitch error compensation	
Stored stroke check 3 <Prohibited area to enter: inside of set area>	

Operation

Dry run	
Single block	
Jog feed	0 - 5,000 mm/min (0 - 196.85 ipm) <20 steps>
Manual return to reference position	
Manual handle feed	x1, x10, x50, x100

Interpolation functions

Positioning	Linear interpolation type positioning is possible
Thread cutting/synchronous feed	
Multiple thread cutting	
Retract during thread cutting cycle	
Continuous thread cutting	
Variable lead thread cutting	
Return to reference position	
Reference position return check	
Return to second reference position	
3rd/4th reference position return	
Polar coordinate interpolation	
Cylindrical interpolation	
Helical interpolation	Circular interpolation + Linear interpolation <max. 2 axes>

Feed functions

Rapid traverse override	0 – 5,000 mm/min (0 – 197.0 ipm) <20 steps>
Feed per minute	
Feed per revolution	
Constant tangential feedrate control	Interpolation in cutting feed
Feedrate override	0-200% <10% increments>
Feedrate override cancel	

Program input

Optional block skip	1 block
Program display	32 arbitrary characters (specify 8 or less numerical characters for the subprograms)
Sequence number	5-digit N code
Decimal point programming/Electronic calculator type decimal point programming	Electrical calculator type decimal point programming is changeable using parameter.
Diameter specification <X-axis>	
Plane selection	
Rotary axis roll-over	
Work coordinate system	
Chamfering/Corner R	
Programmable data input	
Sub-program call	Up to 8 nestings
Custom macro common variables <in total>	200 sets <#100 - #199, #500 - #599>
Interruption type custom macro	
Single canned cycle	
Multiple repetitive cycle	
Multiple repetitive cycle II	Pocket profile, zigzag thread cutting
F15 format	
Absolute/incremental command	X(U), Z(W), C(H)

Miscellaneous function/spindle speed function

Miscellaneous function	M4-digit
Auxiliary function lock	
Multiple miscellaneous function commands	3 commands <Standard Only for Limited M Codes>
Spindle speed function	S5-digit
Constant surface speed control	
Spindle override	50-150% <10% increments>
Load monitoring function	
Spindle orientation <Spindle 1>	Without lock
Multiple-spindle control	
Synchronous tapping <Turning spindle>	
Synchronous tapping <for rotary tool spindle>	

Tool function/Tool offset function

Tool function	T4-digit
Number of tool offsets	80 sets
Tool nose radius compensation	
Automatic tool nose radius offset	
Tool geometry offset/Tool wear offset	
Tool life management	80 sets
Tool offset measurement direct input	
Tool offset measurement direct input B	In-machine presetter
Tool management system	

Editing function

Background editing	
Undo/Redo function <MAPPS>	
Line no. display <MAPPS>	

Setting and display

Status display	
Clock function	
Position read-out, position display	
Parameter setting display	
Self-diagnosis function	
Message list display	
Message history display	
Trouble shooting	
Running time display/No. of parts display	
Actual cutting feedrate display	
Display of actual spindle speed and T code	
Operation panel: Display section	21.5-inch + 15.6-inch TFT color LCD
Regular interval maintenance screen	

Data input/output

I/O interface	USB, Network drive
6GB Program storage area	Files up to 10 MB in size can be edited

Standard Equipment M730UM

Spindle specification

- Spindle drive motor is 18.5/18.5/15 kW (24.7/24.7/20 HP) <25% ED/ 50% ED/ cont.> and max. spindle speed is 4,000 min^{-1}.
- Spindle cooling specifications - Fan cooler

Tailstock

- Tailstock spindle - Live center specifications: MT5 <without center>

Turret

- Turret tool attachment method is 10-station bolt-tightened type and turret indexing time is 0.27 sec a station.
  This time is measured when the number of tools attached to the turret is half the number of tool stations. The turret indexing time may be longer depending on the number and arrangement of tools.
- Rotary tool spindle drive motor is 5.5/5.5/3.7 kW (7.5/7.5/5 HP) <3 min/5 min/cont.> and max. rotary tool spindle speed is 10,000 min^{-1}.
- Overhang of O.D. cutting rotary tool is 50 mm (2.0 in.).
- Attachment holder <Except when other tool holder is selected as an option>:

<< Milling Specification >>
<10-station turret head <standard>>

O.D. cutting tool holder	:T00186 [25 X 25] (T00202 [1"X 1"])	x1
O.D. cutting tool holder(Extension)	:T00385 [25 X 25] (T00386 [1"X 1"])	x2
Boring bar holder	:T10097 [dia.40] (T10101 [dia.1 1/2"])	x2
Boring bar sleeve	:T20098 [dia.32] (T20099 [dia.1 1/4"])	x1
Boring bar sleeve	:T20096 [dia.25] (T20097 [dia.1"])	x1
Boring bar sleeve	:T20094 [dia.20] (T20095 [dia.3/4"])	x1

<12-station turret head <option>>

O.D. cutting tool holder	:T00186 [25 X 25] (T00202 [1"X 1"])	x1
O.D. cutting tool holder(Extension)	:T00385 [25 X 25] (T00386 [1"X 1"])	x2
Boring bar holder	:T10097 [dia.40] (T10101 [dia.1 1/2"])	x3
Boring bar sleeve	:T20098 [dia.32] (T20099 [dia.1 1/4"])	x1
Boring bar sleeve	:T20096 [dia.25] (T20097 [dia.1"])	x1
Boring bar sleeve	:T20094 [dia.20] (T20095 [dia.3/4"])	x1

( ) inch specification

<< Y-Axis Specification (Option) >>
< 12-station turret head <standard> >

O.D. cutting tool holder	:T00186 [25 X 25] (T00202 [1"X 1"])	x1
O.D. cutting tool holder(Extension)	:T00385 [25 X 25] (T00386 [1"X 1"])	x2
Boring bar holder	:T10097 [dia.40] (T10101 [dia.1 1/2"])	x3
Boring bar sleeve	:T20098 [dia.32] (T20099 [dia.1 1/4"])	x1
Boring bar sleeve	:T20096 [dia.25] (T20097 [dia.1"])	x1
Boring bar sleeve	:T20094 [dia.20] (T20095 [dia.3/4"])	x1

<10-station turret head <option>>

O.D. cutting tool holder	:T00186 [25 X 25] (T00202 [1"X 1"])	x1
O.D. cutting tool holder(Extension)	:T00385 [25 X 25] (T00386 [1"X 1"])	x2
Boring bar holder	:T10097 [dia.40] (T10101 [dia.1 1/2"])	x2
Boring bar sleeve	:T20098 [dia.32] (T20099 [dia.1 1/4"])	x1
Boring bar sleeve	:T20096 [dia.25] (T20097 [dia.1"])	x1
Boring bar sleeve	:T20094 [dia.20] (T20095 [dia.3/4"])	x1

<20-station turret head <option>>

O.D. cutting tool holder	:T00224 [20 X 20] (T00234 [3/4" X 3/4"])	x3
Boring bar holder	:T10115 [dia.32] (T10119 [dia.1 1/4"])	x2
Boring bar sleeve	:T20122 [dia.25] (T20123 [dia.1"])	x1
Boring bar sleeve	:T20120 [dia.20] (T20121 [dia.3/4"])	x1
Boring bar sleeve	:T20118 [dia.16] (T20119 [dia.5/8"])	x1
Lid for turret	:F75054	x20

( ) inch specification

<< Spindle 2, Spindle 2 + Y-Axis specification (Option) >>
< 12-station turret head <standard> >

O.D. cutting tool holder	:T00186 [25 X 25] (T00202[1"X 1"])	x1
O.D. cutting tool holder(Extension)	:T00385 [25 X 25] (T00386[1"X 1"])	x2
O.D. cutting dual-tool holder	:T00184 [25 X 25] (T00199[1"X 1"])	x1
Cut-off tool holder	:T00197 [25 X 25] (T00198[1"X 1"])	x1
Boring bar holder	:T10096 [dia.32] (T10100[dia.1 1/4"])	x1
Boring bar holder	:T10097 [dia.40] (T10101[dia.1 1/2"])	x3
Boring bar sleeve	:T20098 [dia.32] (T20099[dia.1 1/4"])	x1
Boring bar sleeve	:T20096 [dia.25] (T20097[dia.1"])	x1
Boring bar sleeve	:T20094 [dia.20] (T20095[dia.3/4"])	x1
Boring bar sleeve	:T20122 [dia.25] (T20123[dia.1"])	x1

<10-station turret head <option>>

O.D. cutting tool holder	:T00186 [25 X 25] (T00202[1"X 1"])	x1
O.D. cutting tool holder(Extension)	:T00385 [25 X 25] (T00386[1"X 1"])	x1
O.D. cutting dual-tool holder	:T00184 [25 X 25] (T00199[1"X 1"])	x1
Cut-off tool holder	:T00197 [25 X 25] (T00198[1"X 1"])	x1
Boring bar holder	:T10096 [dia.32] (T10100[dia.1 1/4"])	x1
Boring bar holder	:T10097 [dia.40] (T10101[dia.1 1/2"])	x2
Boring bar sleeve	:T20098 [dia.32] (T20099[dia.1 1/4"])	x1
Boring bar sleeve	:T20096 [dia.25] (T20097[dia.1"])	x1
Boring bar sleeve	:T20094 [dia.20] (T20095[dia.3/4"])	x1
Boring bar sleeve	:T20122 [dia.25] (T20123[dia.1"])	x1

<20-station turret head <option>>

O.D. cutting tool holder	:T00224 [20 X 20] (T00234 [3/4" X 3/4"])	x3
O.D. cutting dual-tool holder	:T00228 [20 X 20] (T00250 [3/4" X 3/4"])	x1
Cut-off tool holder	:T00356 [20 X 20] (T00357 [3/4" X 3/4"])	x1
Boring bar holder	:T10115 [dia.32] (T10119 [dia.1 1/4"])	x2
Double boring bar holder	:T10117 [dia.25] (T10139 [dia.1"])	x1
Boring bar sleeve	:T20122 [dia.25] (T20123 [dia.1"])	x1
Boring bar sleeve	:T20120 [dia.20] (T20121 [dia.3/4"])	x1
Boring bar sleeve	:T20118 [dia.16] (T20119 [dia.5/8"])	x1
Boring bar sleeve	:T20188 [dia.20] (T20187 [dia.3/4"])	x1
Boring bar sleeve	:T20186 [dia.16] (T20185 [dia.5/8"])	x1
Lid for turret	:F75054	x20

( ) inch specification

Coolant

– Coolant system <325 W, 50 Hz/520 W, 60 Hz>

Measurement

– Manual in-machine tool presetter <spindle 1>, Pivoting type

Safety features

– Full cover
– Impact resistant viewing window
– Door interlock system <incl. mechanical lock>
– Footswitch with lock device
– Low hydraulic pressure detecting switch

Others

– Automatic power-off system
– Chuck foot switch <single> <controlled by pedal>
  Double foot switch is obliged to use with EN regulation compliance machine for security reason.
– LED worklight
– Air purge <spindle>
– Hand tools
– One set of operation and programming manuals

I-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

GENERAL CONDITIONS
For this quotation concerning conditions under NL 09 and NLT 09, with the following exceptions;
If the buyer has the right to liquidated damages the calculation of the penalty amount shall start 14 calander days from the day delivery should have taken place.
Instead of, as stated in paragraph 13 of NL 09 and section 6 paragraph 3 of NLT 09 relating to maximization of liquidated damages due to the late delivery, the following shall apply; The liquidation damages shall be payable at a rate of 0.5% of the agreed price excluding installation for each commenced week of delay. The liquidation damages shall not exceed 5%.

WARRANTY
18 months on machine and control system, starting from date of completed installation.

PAYMENT TERMS
40% down payment at order, 10 days
50% by delivery, 10 days
10% after installation, 10 days
After the due date, penalty interest on arrears and official discount +8% is charged.

VALIDITY OF THE QUOTATION
This stock machine quotation is valid one month from quotation date with reservation for in between sales.

DELIVERY TERMS
CIP according to INCOTERMS 2010, incl. packing, excl. unloading and transportation to installation point.

DELIVERY TIME
Delivery immediately after return of signed order confirmation and down payment invoice has been issued.
If the order is to be financed by a leasing company, the delivery occurs after the written order from the leasing company is received.

INSTALLATION
Installation of all quoted equipment is included.
Switching in the master power is not included.
Planning and transportation documentation will be sent before hand, at the latest one month before machine delivery occurs. Please note the sections regarding floor and foundation requirements as well as anchoring and connection to water and electrical supply.