DMG MORI
MORI SEIKI Israel TC
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Att. Mr.

20/10/2015

Quotation No.

Dear

We refer to your recent discussion with our concerning your interest in our products.
Further to this discussion we now take pleasure in providing a quotation for the following machine:

Product Description: **Please refer to the following pages**
Payment Terms: **20% down payment with order, 80% advance payment before shipment**
Delivery Terms: **Approximately 5-6 months after receipt of your order pending on export license from METI**
Sales Condition: **FOB Japan**
Valid to: **24/10/2015**
Notes:

* Prices are subject to change without notice.
* Please issue your purchase order to DMG MORI Europe Israel / DMG MORI Co.,Ltd.
* Delivery of this product is subject to the authorization of the government of Japan.
* Warranty period of machine is 18 months for spare parts/service labor against any manufacturing defects.
* Orders from new customers or orders with special options from both new & existing customers are subject to a deposit of 10% of the purchase order price.
* Orders that are cancelled within one week of the date of the purchase order are subject to a cancellation fee equal to 10% of the purchase order price.
  Orders cancelled more than one week after the date of the purchase order and more than 90 days before the planned shipment date from the factory are subject to a cancellation fee of 30 % of the purchase order price.
  Orders cancelled from 90 to 61 days before the planned shipment date from the factory are subject to a cancellation fee of 50% of the purchase order price.
  Orders cancelled from 60 to 31 days before the planned shipment date from the factory are subject to a cancellation fee of 75% of the purchase order price.
  Any order cancelled within 30 days of planned shipment date from the factory will be subject to a cancellation fee equal to 100% of the purchase order price.
* All present and future contracts are subject to DMG MORI's Standard Terms & Conditions of Sale.

We trust this information meets with your requirements but should you have any queries regarding this quotation, or any other questions, then please contact us.

Yours Sincerely,
Alex Belzer,

For and on behalf of MORI SEIKI Israel TC

DMG MORI

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Quotation NTX2000SZ (sub spindle and lower turret)

Highlights

- Tool spindle output and torque increased to 30/11 kW (15%ED/cont.), 120/44 Nm (10%ED/cont.)
- Turning spindle torque of the high- torque specification increased to 247/223 Nm (30 min./cont.)
- Max. rotary tool spindle speed on Turret 2 increased to 10,000 min-1 from 6,000 min-1
- New DMG MORI standard—Premium Design
- Tool magazine with wider door opening
- Lighting in the magazine as standard

Investment summary

	Basic Machine		
J-A01654	NTX 2000 | 1500SZ_F31iB5 <Premium Design>	1	JPY
	Control		
J-004222	Control F31iB5 with CELOS	1	JPY
J-003261	CELOS - ERGOline Touch	1	JPY
	Spindle		
J-000206	Spindle 1 through-spindle hole dia. 91 mm (spindle speed 4,000 min-1, 26/ 22 kW)	1	JPY
	Chuck for Main spindle		
J-000207	(Spindle 1) KITAGAWA 10" Hollow Chuck BB210A821 + Kitagawa Hollow SR1781C21	1	JPY
	Chuck for Counter spindle		
J-011385	(Spindle 2) KITAGAWA 10" Hollow Chuck Unit B-210A621 + Kitagawa Hollow SR1566C21	1	JPY
	Tool Magazine		
J-004894	Tool storage capacity 76 tools (HSK-A63)	1	JPY
	Coolant supply / Chip removal		
J-004928	Chip conveyor (right discharge, hinge type) (/1500)	1	JPY
	Measuring / Monitoring		
J-004279	In-machine workpiece measuring system optical type touch sensor (RENISHAW, OMP60)	1	JPY
	Automation		
J-004166	Signal light 4 layers (Red, yellow, green, blue)	1	JPY
J-004290	Bar feeder I/F (LNS) (multiple)	1	JPY
	General Options		
J-015966	90KVA E30052 (Cable only)	1	JPY
	Options for Control		
J-008050	Part program storage length 1 MB (2,560 m) in total + Registerable programs 1,000 in total	1	JPY
J-002918	Chamfering/ corner R	1	JPY
J-007772	Coordinate system rotation	1	JPY
	Price machine and options		**JPY**
	Packing / Transport / Installation		
J-G01208	NTX2000 series Case Packing	1	JPY

* further description see attachment

DMG MORI SEIKI NTX 2000

			JPY	JPY
Basic Machine				
J-A01654*	NTX 2000 | 1500SZ			
Control				
J-004222*	Control F31iB5 with CELOS			
J-003261*	CELOS - ERGOline Touch to facilitate machine operation incl. 21.5 " ERGOline Touch ® control with multi touch screens Uniform management, documentation and visualization of order, process - and machine data Networkable with CAD / CAM User friendly and productive MAPPS system			
Spindle				
J-000206	Spindle 1 through-spindle hole dia. 91 mm (spindle speed 4,000 min-1, 26/ 22 kW) The bar machining capacity of standard specification spindle 1unit is modified from φ65 mm to φ80 mm. This specification does not include chucks and cylinders which support spindle 1. They need to be selected separately. Spindle 1 spindle through-hole diameter: φ91 mm Spindle 1 bar machining capacity: φ80 mm Spindle 1 maximum rotation speed: 4,000 min-1 Spindle 1 output (30 min./Continuous): 26/22 kW	1		
Chuck for Main spindle				
J-000207	(Spindle 1) KITAGAWA 10"" Hollow Chuck BB210A821 + Kitagawa Hollow SR1781C21	1		
Chuck for Counter spindle				
J-011385	(Spindle 2) KITAGAWA 10 "" Hollow Chuck Unit B-210A621 + Kitagawa Hollow SR1566C21	1		
Tool Magazine				
J-004894	Tool storage capacity 76 tools (HSK-A63)	1		
Coolant supply / Chip removal				
J-004928	Chip conveyor (right discharge, hinge type) (/1500)	1		

* further description see attachment

			JPY	JPY
Measuring / Monitoring				
J-004279	In-machine workpiece measuring system optical type touch sensor (RENISHAW, OMP60) Installation of the optical spindle touch sensor manufactured by Renishaw. Mounting the touch sensor on the spindle enables positioning of a workpiece, and measuring of a fixture and a workpiece. The touch sensor reads the workpiece coordinate value, and transmit it as infrared ray. The optical receiver installed inside the machine receives it, and transmits it to the NC unit.	1		
Automation				
J-004166	Signal light 4 layers (Red, yellow, green, blue)	1		
J-004290	Bar feeder I/F (LNS) (multiple) This is the interface for the bar feeder, which increases productivity by feeding bar material automatically.	1		
General Options				
J-015966	90KVA E30052 (Cable only)	1		
Options for Control				
J-008050	Part program storage length 1 MB (2,560 m) in total + Registerable programs 1,000 in total "Select this when program memory capacity total 320m(128KB)+ Registered program number total 250 and more is required. Control unit MSX-701(standard) Program memory capacity total:128KB/320m Registered program amount total: 250 (standard) Control unit MSX-711(standard) Program memory capacity total:256KB/640m Registered program amount total:500 (standard) " Control unit:MSX-701,MSX-711	1		
J-002918	Chamfering/ corner R	1		
J-007772	Coordinate system rotation Shapes specified by programs can rotate centering around a fixed point.	1		

Standard Equipment NTX 2000 | 1500SZ

NTX 2000 / Price status: 11/10/2015

* further description see attachment

Spindle

- Spindle drive motor is 22/18.5 kW (29.3/24.6 HP) <30 min/ cont.> and max. spindle speed is 5,000 min^{-1}. <spindle 1>
- Spindle drive motor is 22/18.5 kW (29.3/24.6 HP) <30 min/ cont.> and max. spindle speed is 5,000 min^{-1}. <spindle 2>
- Spindle cooling specifications

Tool spindle specification

- Tool spindle drive motor is 18.5/11 kW (24.7/15 HP) <10 min/cont.> and max. tool spindle speed is 12,000 min^{-1}.
- B-axis is 0.0001° indexing spec.
- Direct scale feedback for B-axis
- Spindle cooling specifications

Tool magazine

- Tool storage capacity is 38 tools. <Chain-type>

ATC, automatic tool changer

- Type of tool shank Capto C6

Turret 2

- Turret tool attachment method is 10-station bolt-tightened type and turret indexing time is 0.19 sec a station.
- Attachment holder <Except when other tool holder is selected as an option>:

O.D. cutting tool holder	:T00224 [20 X 20] (T00234 [3/4" X 3/4"])	x1
O.D. cutting dual-tool holder	:T00228[20 X 20](T00250[3/4" X 3/4"])	x1
I.D. boring bar holder	:T10115 [dia.32] (T10119 [dia.1 1/4"])	x2
Throw-away drill holder	:T13132 [dia.32] (T13135 [dia.1 1/4"])	x1
Boring bar sleeve	:T20118 [dia.16] (T20119 [dia.5/8"])	x1
Boring bar sleeve	:T20120 [dia.20] (T20121 [dia.3/4"])	x1
Boring bar sleeve	:T20122 [dia.25] (T20123 [dia.1"])	x1
Throw-away drill socket	:T22052 [dia.20] (T22053 [dia.3/4"])	x1

( ) inch specification

Coolant

- Coolant system <Tool spindle> <635 W, 50 Hz/1,040 W, 60 Hz>
- Through-spindle coolant system <Tool spindle> <635 W, 50 Hz/1,040 W, 60 Hz>

Chip disposal

- Air blow for chuck <spindle 2>

Measurement

* further description see attachment

– Manual type in-machine tool presetter Spindle 1 <removable>
– Manual type in-machine tool presetter Spindle 2 <removable>

Safety features

– Full cover
– Impact resistant viewing window
– Door interlock system
– Low hydraulic pressure detecting switch
– Low air 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
– Leveling block
– Hand tools
– One set of operation and programming manuals

* further description see attachment

Attachment

Technical Description

J-A01654

Basic machine NTX 2000 | 1500SZ

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

Maximum workpiece swing diameter	mm (in.)	∅660 (∅25.9)
Swing over cross slide:		
- Standard	mm (in.)	∅660 (∅25.9)
- Turret 2	mm (in.)	∅300 (∅11.8)
Maximum turning diameter:		
- Standard	mm (in.)	∅610 (∅24.0)
- B-axis 90°	mm (in.)	∅660 (∅25.9)
- Turret 2	mm (in.)	∅274 (∅10.7)
Maximum turning length	mm (in.)	1,540 (60.6)
Bar work capacity:		
- Standard	mm (in.)	∅65 (∅2.5)
- For ∅80 mm (∅3.1 in.) bar work capacity specifications	mm (in.)	[∅80 (∅3.1)]

Travel

X-axis <Tool spindle>	mm (in.)	495 <470+25> (19.5 <18.5+1.0>)
Y-axis <Tool spindle>	mm (in.)	±125 (±4.9)
Z-axis <Tool spindle>	mm (in.)	1,560 (61.4) +215 (8.5) <for ATC>
B-axis <Tool spindle>		±120°
X2-axis <Turret 2>	mm (in.)	160 (6.3)
Z2-axis <Turret 2>	mm (in.)	1,402 (55.2)

Spindle 1

Maximum spindle speed:		
- Standard	min^{-1}	5,000
- For ∅80 mm (∅3.1 in.) bar work capacity specifications	min^{-1}	[4,000]
Number of spindle speed ranges		1
Type of spindle nose:		
- Standard		A_2-6
- For ∅80 mm (∅3.1 in.) bar work capacity specifications		[A_2-8]
Through-spindle hole diameter:		
- Standard	mm (in.)	∅73 (∅2.9)
- For ∅80 mm (∅3.1 in.) bar work capacity specifications	mm (in.)	[∅91 (∅3.6)]
Minimum spindle indexing increment		0.0001°
Spindle bearing inner diameter:		
- Standard	mm (in.)	∅120 (∅4.7)

- For ∅80 mm (∅3.1 in.) bar work capacity specifications	mm (in.)	[∅140 (∅5.5)]
Spindle torque <15%ED/30 min/cont>:		
- Standard	N·m (ft·lbf)	230/178/159 (169.6/131.3/117.3)
- High-torque	N·m (ft·lbf)	[358/231/214 (264.0/170.4/157.8)]

Spindle 2

Maximum spindle speed	min^{-1}	5,000
Number of spindle speed ranges		1
Type of spindle nose		A_2-6
Through-spindle hole diameter	mm (in.)	∅73 (∅2.9)
Minimum spindle indexing increment		0.0001°
Spindle bearing inner diameter	mm (in.)	∅120 (∅4.7)
Spindle torque <15%ED/30 min/cont>	N·m (ft·lbf)	230/178/159 (169.6/131.3/117.3)

Tool spindle <Turret 1>

Number of tool stations		1
Minimum B-axis indexing increment		0.0001°
Maximum tool spindle speed	min^{-1}	12,000
Taper hole of rotary tool spindle		Capto C6 [BT40] [CAT40] [HSK-A63] [KM-63]
Type of retention knob <BT40, CAT40>		DMG MORI SEIKI 90° <Center through>
Inner diameter of rotary tool spindle bearing	mm (in.)	∅70 (∅2.7)
Tool storage capacity		38 [76]
Maximum tool diameter <with adjacent tools>	mm (in.)	∅70 (∅2.7)
Maximum tool diameter <without adjacent tools>	mm (in.)	∅125 (∅4.9)
Maximum tool length	mm (in.)	300 (11.8)
Maximum tool mass	kg (lb.)	8 (17.6) [10 (22)]
Tool changing time <tool-to-tool>	sec	1.25
Spindle torque <10%ED/cont>	N·m (ft·lbf)	120/44 (88.5/32.5)

Turret 2

Number of tool stations		10
Turret Indexing time <1-station>	sec	0.19
Shank height for square tool	mm (in.)	20 (0.8)
Diameter of boring bar shank part	mm (in.)	Max. ∅32 (∅1.2)

Feedrate

Rapid traverse rate:		
- X-axis <Tool spindle>	mm/min (ipm)	40,000 (1,574.8)
- Y-axis <Tool spindle>	mm/min (ipm)	40,000 (1,574.8)
- Z-axis <Tool spindle>	mm/min	40,000 (1,574.8)

	(ipm)	
- X2-axis <Turret 2>	mm/min (ipm)	30,000 (1,181.1)
- Z2-axis <Turret 2>	mm/min (ipm)	38,000 (1,496.1)
- A-axis <Spindle 2>	mm/min (ipm)	30,000 (1,181.1)

Motors

Spindle 1 drive motor <30 min/cont>	kW (HP)	22/18.5 (30/24.7)
Spindle 2 drive motor <30 min/cont>	kW (HP)	22/18.5 (30/24.7)
Tool spindle drive motor <10 min/cont>	kW (HP)	18.5/11 (24.7/15)

Power Sources

Electrical power supply <cont>	kVA	79.9
Compressed air supply	MPa (psi), L/min (gpm)	0.5 (72.5), 650 (171.6)

Tank Capacity

Coolant tank capacity	L (gal.)	675 (178.2)

Machine Size

Machine height	mm (in.)	2,621 (103.2)
Floor space <width x depth> <excluding chip conveyor>	mm (in.)	4,080 x 2,980 (160.6 x 117.3)
Mass of machine:		
- Tool storage capacity: 38 tools	kg (lb.)	15,270 (33,594)
- Tool storage capacity: 76 tools	kg (lb.)	[15,780 (34,716)]

J-004222

NC Unit F31iB5

CNC Unit F31iB5

Controlled axes

Controlled axes	H1: X, Z, C, Y, B, A H2: X, Z[*1] X, Z, C[*2]
Simultaneously controlled axes	H1: X, Z, C, Y, B H2: X, Z[*1] X, Z, C[*2]
Least input increment	X, Z, Y, A: 0.001 mm (0.0001 in.) B: 0.0001° (Full indexing) C: 0.0001°
Max. command value	±999,999.999 mm (±99,999.9999 in.)
Software damper	Abnormal load detection

Interpolation functions

Nano interpolation	
Helical interpolation	Circular interpolation + linear interpolation <max. 2 axes>
Threading, synchronous cutting	
Cylindrical interpolation	
Multiple thread cutting	
Thread cutting retract	
Continuous thread cutting	
Polar coordinate interpolation	

Feed functions

Tangential speed constant control	
Feedrate override	0 – 200% (10% increments)
Override cancel	
AI contour control I	

Program input

Program number	4 digits O code
Sequence number	5 digits N code
Decimal point input	Decimal point programming or electronic calculator type decimal point programming can be set using parameters
Diameter/radius programming (X-axis)	Radius programming is possible with parameters

Plane selection	
Rotary axis designation	
Rotary axis roll-over	
Local coordinate system setting	
Machine coordinate system selection	
Workpiece coordinate system selection	
Programmable data input	
Sub-program call	Up to 10 nestings
Hole machining canned cycle	
Hole machining canned cycle for NT	
Single canned cycle	
Multiple canned cycle	
Multiple canned cycle II	Pocket profile, zigzag thread cutting
F15 format	
Custom macro common variables <in total>:	#100 – #199, #500 – #999
600 Programs	
3-D coordinate conversion	
Dynamic diameter/radius switching	
Absolute/incremental programming	X(U), Z(W), C(H), Y(V), B, A

Miscellaneous functions/Spindle speed functions

Spindle speed override	50 –150% (10% increments)
Spindle 1 orientation	
Spindle 2 orientation	
Synchronous tapping	Tool spindle
Multiple M cords in single block (Multi M code function)	Available for specific M codes

Tool functions/Tool offset functions

Tool functions	4 digits T code
Number of tool offsets	H1: 240 sets H2: 64 sets
Tool geometry offset/Tool wear offset	
Tool nose radius offset	
Tool offset	
Y-axis offset	
Tool life management B	
Number of tool groups for tool life management B	240 sets
Corner circular interpolation	

Editing

Expanded program editing	Copy buffer: 10 KB
Background editing	
Undo/Redo function <MAPPS>	
Line number display <MAPPS>	

Setting and display

Status display	
Clock function	
Actual position display	
Program comment display	190 characters

Parameter setting display	
Alarm display	
Alarm history display	
Operator message history display	
Operation history display	
Running time/Parts count display	
Actual feedrate display	
Self-diagnosis	Includes alarm display, I/O signal diagnosis and ladder diagram
Operation panel: Display section	19-inch TFT color LCD

Data input/output

I/O interface	USB
6 GB Program storage area (for MAPPS-DNC operation function, for data backup) <MAPPS>	Files up to 10 MB in size can be edited

3D interference checking function

Machine model for interference checking	Standard internal cover, tool spindle, spindle, turret, workpiece discharge unit

Program storage length and registerable programs

Part program storage length <in total>	256 KB <640 m (2,100 ft.)>
Registerable programs <in total>	500

High-speed/High-precision/5-axis machining functions

Interpolation functions	
- Nano smoothing	
Feed functions	
- AI contour control II	
Program input	
- Tilted working plane command	
Tool functions/Tool offset functions	
- Tool center point control	
- 3-D cutter compensation	
- SVC function	
- Workpiece position error compensation	
Data input/output	
- Ethernet	10/100/1000BASE-T Access to user memory area by Ethernet function with MORI-SERVER Software
- Fast data server	
- Memory card for Data server	
- Fast data server + Memory card for Data server	

*1: TZ-, TZM-Type
*2: SZ-, SZM-Type

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:	MAPPSV 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