NLX2000SY/500_M730BM

写真はNLX2000SY/500
The photo shows NLX2000SY/500.

Highlights

_ Slideways are used for all axes
_ Mori Seiki's original thermal displacement control
_ BMT (Built-in Motor Turret) is used
_ Y-axis travel: ±50 mm (Y specification)
_ Improved spindle durability and reliability with sophisticated labyrinth structure and air purge
_ Digital tailstock as standard equipment improves ease of setup
_ Various automation systems including bar feeders and gantry loaders are available

Investment summary

Basic Machine
J-A00145   NLX2000SY/500_M730BM

Control
J-003285   Control M730BM

Chuck
J-002763   KITAGAWA 8" Hollow Chuck Package (SMC,SY) <J-002763>, consisting of:
J-009913   (Spindle 1) KITAGAWA 8" Hollow Chuck Unit BB208A621 + SS1666K21
J-010136   (Spindle 2) KITAGAWA 6" Hollow Chuck Unit B206A521F + Solid Cylinder C1SB115M4774
J-000781   Chuck foot switch (double) for spindle 1, 2

Turret
J-000872   20-station bolt-tightened turret (with milling)

Tailstock
J-000219   Spindle 2 tailstock specifications

Coolant
J-000924   High-pressure coolant system (635/ 1,040 W)

Chip disposal
J-000899   Air blow for chuck (spindle 1)
J-000948   Chip conveyor (right discharge, hinge type)

Automation
J-000977   Bar feeder I/F (LNS) (multiple)

Other (Machine Option)
J-000927   Signal tower 3 layers (Red, yellow, green) LED type
J-000970   Total counter
J-000759   Workpiece counter

NC Option
J-004359   (Only for Europe) Islands, open pockets
J-008657   High-speed canned cycle

Holder
J-EU2011   EU Rotary Tool Holder Package SAUTER BMT40 20 Station Turret (T32451, T32452, T32458, T32459)

Transformer
J-EU0003   Transformer 45 kVA

Packing and transport
J-015994   NL series (no larger than NL2500/700) Case packing

MORI SEIKI
NLX2000SY/500_M730BM

Basic Machine

J-A00145*   NLX2000SY/500_M730BM
             Universal lathe
             Distance between centers: 500 mm (19.7 in.)
             Spindle 1: 5,000 min-1, 15/15/11 kW (20/20/15 HP)
             <15%ED/30 min/cont>
             Bar work capacity: dia. 65 mm (2.5 in.)
             Spindle 2: 6,000 min-1, 11/7.5 kW (15/10 HP)
             <25%ED/cont>
             Turret: 12-station bolt-tightened turret for NL holders
             Rotary tool spindle: 10,000 min-1, 5.5/5.5/3.7 kW
             (7.5/7.5/5 HP) <3 min/5 min/cont>
             Travel of Y-axis: ±50 mm (±2 in.)

Control

J-003285*   Control M730BM

Chuck

J-002763   KITAGAWA 8" Hollow Chuck Package (SMC,SY)
             <J-002763>, consisting of:
J-009913   (Spindle 1) KITAGAWA 8" Hollow Chuck Unit
             BB208A621 + SS1666K21
             Bar work capacity: Φ65 mm
             Maximum allowable spindle speed: 5,000 min-1
             Jaw stroke (diameter): Φ7.4 mm

J-010136   (Spindle 2) KITAGAWA 6" Hollow Chuck Unit
             B206A521F + Solid Cylinder C1SB115M4774
             This is a combination of hollow chuck and solid
             cylinder.
             The workpiece ejector is not provided for the
             specification that the chuck is not necessary.
             Maximum allowable spindle speed: 6,000 min-1
             Jaw stroke (diameter): Φ5.5 mm

J-000781   Chuck foot switch (double) for spindle 1, 2

Turret

J-000872   20-station bolt-tightened turret (with milling)

Tailstock

J-000219   Spindle 2 tailstock specifications

Coolant

J-000924   High-pressure coolant system (635/ 1,040 W)
With this specification, abilities to remove the chips
and to cool the tool or workpiece during cutting are
higher compared.
A pump which supply coolant to the turret is changed
to the high-pressure specification (output: 635/ 1040
W (50/60 Hz)).
* 635/1,040 W (50/60 Hz)
* 0.45/0.65 MPa(*)
(*)When the discharge rate is 30 L/min. The value
may differ depending on the tool shape.
MTH2-60/6 (Grundfos)

Chip disposal

J-000899   Air blow for chuck (spindle 1)

J-000948   Chip conveyor (right discharge, hinge type)

Automation

J-000977   Bar feeder I/F (LNS) (multiple)

Other (Machine Option)

J-000927   Signal tower 3 layers (Red, yellow, green) LED type

J-000970   Total counter
Total counter counts the number of machined
workpieces.
The counter is electronic and stores the data using a
built-in lithium battery.
The battery life is approximately seven years.
There is no cover on the counter.
8-digit display
0731 301 (NIHON HENCSTRA)

J-000759   Workpiece counter
Workpiece counter counts the number of machined
workpieces and executes "Start interlock" or "Block
delete" when the pre-set value is reached.
The counter maintains its memory for about ten
years (non-volatile memory).
There is no cover on the counter.
6-digit display
0732 002 (NIHON HENCSTRA)

NC Option

J-004359   Islands, open pockets
            Islands
            ・Programming process can be greatly simplified
            because minimum input operation is required even
            for the complex machining.
            Open pockets
            Definition of open pockets eliminates tool paths with
            no machining allowance, making it possible to create
            optimum paths.
            ・Air cutting has been greatly reduced, making it
            possible to shorten machining time.
            ・Machining time can be reduced by 30%.
            Available only when milling specification is selected.
            【Islands】
            Number of island shape definitions: 127

J-008657   High-speed canned cycle
            The screen guidance guide to input the stable cycle
            argument. One line program can command high-
            speed cutting.
            High-speed machining cuts the machining time.
            The cycle whose high speed machining complicated
            programming can be done easily are newly added.
            Shorten the programming time.
            Automatically create optimal tool path for high-speed
            machining.
            Support the form which requires perplexing program.
            Screen guidance method which requires no manual.
            The number of pattern: 21 patterns
            The number of pattern when programmed from
            interactive machining menu: 15 patterns

Holder

J-EU2011   EU Rotary Tool Holder Package SAUTER BMT40 20
            Station Turret (T32451, T32452, T32458, T32459)
            1x T32451 for collet DIN 6499 ER20 (OD cutting,
            max. 6000 min^{-1}, max. 32Nm, coolant supply
            outside)
            1x T32452 for collet DIN 6499 ER20 (Face cutting,
            max. 6000 min^{-1}, max. 32Nm, coolant supply
            outside)
            1x T32458 for collet DIN 6499 ER25 (OD cutting,
            max. 6000 min^{-1}, max. 32Nm, coolant supply
            outside)
            1x T32459 for collet DIN 6499 ER25 (Face cutting,
            max. 6000 min^{-1}, max. 32Nm, coolant supply
            outside) Collet mounting wrench is included.

Transformer

J-EU0003   Transformer 45 kVA
             three phase autotransformer in cabinet CLPB 26F-
             0727T04001

Packing and transport

J-015994   NL series (no larger than NL2500/700) Case packing

Attachment

Technical Description

J-A00145

Basic machine   NLX2000SY/500_M730BM

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.)	923.8 (36.4) <Interference with front cover: 560.6 (22.1)>
Swing over cross slide	mm (in.)	755 (29.7)
Maximum turning diameter:		
- (For 35mm(1.37in.) overhang of O.D. cutting tool)	mm (in.)	366 (14.4)
- (For 40mm(1.57in.) overhang of O.D. cutting tool)	mm (in.)	356 (14.0)
- 20-station type turret	mm (in.)	[278 (10.9)]
Standard turning diameter:		
- (For 35mm(1.37in.) overhang of O.D. cutting tool)	mm (in.)	271 (10.7)
- (For 40mm(1.57in.) overhang of O.D. cutting tool)	mm (in.)	275 (10.8)
- 20-station type turret	mm (in.)	[192 (7.6)]
Maximum turning length	mm (in.)	510 (20.1)
Bar work capacity:	mm (in.)	65 (2.6)

Travel

X-axis travel	mm (in.)	260 (10.2)
Y-axis travel	mm (in.)	100 <±50>(3.9<±2.0>)
Z-axis travel:		
- Standard	mm (in.)	590 (23.2)
- 20-station type turret	mm (in.)	[580 (22.8)]

Spindle1

Maximum spindle speed:		
- Standard	min^{-1}	5,000
- High output	min^{-1}	[5,000]
Type of spindle nose		JIS A$_2$-6
Through-spindle hole diameter:	mm (in.)	73 (2.9)
Minimum spindle indexing increment	deg	0.001
Spindle bearing inner diameter:	mm (in.)	120 (4.7)

Spindle2

Maximum spindle speed:		
- Standard	min^{-1}	6,000
- Type of spindle nose [through hole 73mm(2.87in.)]	min^{-1}	[5,000]
Type of spindle nose		
- Standard		JIS A_2-5
- Type of spindle nose [through hole 73mm(2.87in.)]		[JIS A_2-6]
Through-spindle hole diameter:	mm (in.)	43[73] (1.7[2.9])
Minimum spindle indexing increment	deg	0.001
Spindle bearing inner diameter:		
- Standard	mm (in.)	85 (3.3)
- Type of spindle nose [through hole 73mm(2.87in.)]	mm (in.)	[120 (4.7)]

Turret1

Number of tool stations		12[10] [20]
Shank height for square tool		
- Standard	mm (in.)	25 (1.0)
- 20-station type turret	mm (in.)	[20 (0.8)]
Diameter of boring bar shank part:		
- Standard	mm (in.)	50 (2.0)
- Double boring bar holder	mm (in.)	[32 (1.3)]
- Standard	mm (in.)	32 (1.3)
- 20-station type turret	mm (in.)	[25 (1.0)]
Shank diameter for rotary tool	mm (in.)	26 (1.0)
Turret Indexing time	sec	0.25
Maximum rotary tool spindle speed:		
- Standard	min^{-1}	10,000
- High torque	min^{-1}	[10,000]

Feedrate

Rapid traverse rate:		
- X-axis	mm/min (ipm)	30,000 (1,181.1)
- Y-axis	mm/min (ipm)	10,000 (393.7)
- Z-axis	mm/min (ipm)	30,000 (1,181.1)
- B-axis	mm/min (ipm)	30,000 (1,181.1)
- C-axis	min^{-1}	400

Motor

Spindle 1 drive motor:
- <50%ED/30 min/cont>	kW (HP)	15/15/11 (20/20/14.7)
- <25%ED/50%ED/30 min/cont>	kW (HP)	[18.5/18.5/18.5/15 (24.7/24.7/24.7/20.0)]
Spindle 2 drive motor <25%ED/cont>	kW (HP)	11/7.5
Rotary tool spindle drive motor <3 min/5 min/cont>	kW (HP)	5.5/5.5/3.7 (7.3/7.3/4.9)

Feed motor:
- X-axis	kW (HP)	3.0 (4.0)
- Y-axis	kW (HP)	3.0 (4.0)
- Z-axis	kW (HP)	3.0 (4.0)
- B-axis	kW (HP)	2.0 (2.7)

Power Source

Electrical power supply <cont>	kVA	33.0
Compressed air supply	MPa (psi), L/min (gpm)	0.5 (72.5), 250 (66)

Machine Size

Machine height <from floor>	mm (in.)	2,120 (83.5)
Floor space <width x depth>	mm (in.)	2,805 x 1,991 (110.4 x 78.4)
Mass of machine	kg (lb.)	5,800 (12,760)

Standard Equipment NLX2000SY/500_M730BM

Control unit

- Operating system <operation panel>: MAPPS IV

Spindle specification

- Spindle drive motor is 15/15/11 kW (20/20/15HP) <15% ED/30 min/ cont.> and max. spindle speed is 5,000 min^{-1}. <spindle 1>
- Spindle drive motor is 11/7.5 kW (15/10 HP) <25% ED/ cont.> and max. spindle speed is 6,000 min^{-1}. <spindle 2>
- Spindle cooling specifications - Oil cooler

Turret

- Turret tool attachment method is 12-station bolt-tightened type and turret indexing time is 0.25 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>:

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	:T20122 [dia.25] (T20123 [dia.1"])	x1
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"])	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	:T20122 [dia.25] (T20123 [dia.1"])	x1
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

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<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
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Coolant

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

Chip disposal

- Air purge <spindle>

Measurement

- Manual in-machine tool presetter <spindle 1>, Pivoting type
- Manual in-machine tool presetter <spindle 2>, Removable type

Safety features

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

Others

- Air blow for chuck <spindle 2>
- Automatic power-off system
- Workpiece unloader <built-in type>
- Spindle 2 workpiece ejector
- Chuck foot switch <single> <controlled by pedal>
  Double foot switch is obliged to use with EN regulation compliance machine for security reason.
- LED worklight
- Hand tools
- One set of operation and programming manuals

NC Unit M730BM

CNC Unit M730BM

Controlled axis

Controlled axis	X, Z, C, B, 5[*1*3]
	X, Z, C, Y, B, 6[*2*4]
Simultaneously controllable axes	X, Z, C[*1*3]
	X, Z, C, Y[*2*4]
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
Chamfering ON/OFF

Backlash compensation	±9999 pulses

Rapid traverse/cutting feed backlash compensation
Stored pitch error compensation
Inclined angle offset
Inclined axis control for arbitrary axis <Y-axis>[*2*4]

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	1 unit per control system:
	x1, x10, x100

Interpolation functions

Positioning
Polar coordinate interpolation
Cylindrical interpolation

Helical interpolation	Circular interpolation + Linear
	interpolation <max. 2 axes>

Thread cutting/synchronous feed
Multiple thread cutting
Retract during thread cutting cycle
Continuous thread cutting
Variable lead thread cutting
High-speed skip
Return to reference position
Reference position return check
Return to second reference position

3rd/4th reference position return

Feed functions

Rapid traverse override	F0/1/10/25/100% <5 steps>
Feed per minute	
Feed per revolution	
Constant tangential feedrate control	
Cutting feedrate clamp	
Automatic acceleration and deceleration	Liner type <rapid traverse>/ Differential type <cutting feed>
Feedrate override	0-200% <10% increments>
Feedrate override cancel	

Program input

Optional block skip	1 block
Max commandable value	±8 digits
Program number	4-digit O code
Sequence number	5-digit N code
Decimal point programming	Electrical calculator type decimal point programming is changeable using parameter.
Diameter specification <X-axis>	
Plane selection	
Rotary axis designation	
Rotary axis roll-over	
Work coordinate system	
Chamfering/Corner R	
Programmable data input	
Sub-program call	Up to 8 nestings
Custom macro	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)[*1] X(U), Z(W), Y(V), C(H)[*2] X(U), Z(W), C(H), B[*3] X(U), Z(W), Y(V), C(H), B[*4]

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>
Spindle orientation <spindle 1>	Without lock
Spindle orientation <spindle 2>[*3*4]	Without lock
Load monitoring function A	
Spindle synchronized control[*3*4]	
Multiple-spindle control	
Synchronous tapping <for rotary tool spindle>	
Synchronous tapping <for turning 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
Y-axis offset[*2*4]	

Editing function

Part program storage	320 m (1,049.92 ft)/128 KB
Number of stored programs	200 programs
Background editing	
Expanded tape editing	
Undo/Redo function <MAPPS>	
Line no. display <MAPPS>	

<u>Setting and display</u>

Status display
Clock function
Position read-out, position display
Program display   Program name 48 characters
Parameter setting display
Self-diagnosis function
Alarm display
Alarm history display
Operator's message history display
Operation history display
Help function
Running time display/No. of parts display
Actual feedrate display
Display of actual spindle speed and T code
Operation panel: Display section   10.4" color TFT
Regular interval maintenance screen
Screen clear   It is possible to set on the screen of
                                                        saving electricity power.

<u>Data input/output</u>

I/O interface   USB
50 MB Program storage area, updatable <for card DNC   Files up to 10 MB in size can be
operation function, for data backup> <MAPPS>   edited

*1: MC-Type
*2: Y-Type
*3: SMC-Type
*4: SY-Type