NLX 1500 / NLX 2000

Rigid and Precise Turning Center
NLX 1500 / NLX 2000

Ultimate Performance for Parts Machining

The NLX 1500 and NLX 2000 are high-rigidity, high-precision turning centers capable of handling varieties of workpieces with superior turning capability ensured by the robust bed and outstanding milling performance achieved by the BMT (Built-in Motor Turret). The space-saving design allows for easy establishment of automation systems. Both models demonstrate outstanding performance in a wide range of machining from mass production of automotive parts for the automotive industry to highly-elaborate and high-quality machining for the aircraft industry.
Figures in inches were converted from metric measurements.

**Industrial machinery**
1. Rod
2. Connector

**Automobiles**
3. Disk brake

**Construction machinery**
4. Spool

**Hydraulic & Pneumatic equipment**
5. Joint
The NLX 1500 and NLX 2000 have been upgraded in the fundamental performance of turning centers such as reliability, accuracy, rigidity and operability, while inheriting the proven features of the previous models including high-rigidity slideways. The ergonomically designed new cover minimizes operators’ work load. The models are also environmentally friendly, mitigating environmental burden with improved energy saving effect.
**Improved milling power**
- BMT (Built-in Motor Turret) installed in the turret
- High-speed rotary tool spindle: 10,000 min⁻¹
- Max. rotary tool spindle torque: 29 N·m (21.4 ft·lbf) <3 min>

**High rigidity**
- Slideways on X-, Z-, and Y-axis for higher vibration damping performance and dynamic rigidity

**High precision**
- Thoroughly controlled thermal displacement: Coolant circulation in machine body as standard
- Machining precision improved by heat-controlling structure
- High-precision, quick-change turret (option)

**CELOS**
- Consistent administration, documentation and visualization of order, process and machine data
- Extension of functions possible by adding applications, and high compatibility with existing information infrastructure and software

**Operability**
- Digital tailstock driven by a servo motor

BMT: Built-in Motor Turret
CELOS: Control Efficiency Lead Operation System
## Wide Range of Lineup for Your Best Choice

The Spindle 2 specification and the digital tailstock specification are available for the NLX 1500 with a 6-inch chuck and the NLX 2000 with an 8-inch chuck. Milling is possible for any specifications. The models offer eight specifications including the Y-axis specification and various spindles to meet the customers’ various machining needs.

### NLX 1500 / NLX 2000

**Wide Range of Lineup for Your Best Choice**

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<table>
<thead>
<tr>
<th>Standard chuck size &lt;spindle 1 / spindle 2&gt;</th>
<th>NLX 1500</th>
<th>500</th>
<th>NLX 2000</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar work capacity</td>
<td>6 / 6 inches</td>
<td>8 / 6 inches</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>52 (2.0) [34 (1.3) &lt;8,000 min⁻¹]</td>
<td>65 (2.5) [4]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of tool stations</td>
<td>12 [16] [20]</td>
<td>12 [10] [16] [20]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel &lt;X- / Z-axis&gt;</td>
<td>260 / 590 (10.2 / 23.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel &lt;Y-axis&gt;</td>
<td>100 &lt;±50&gt; (3.9 &lt;±2.0)&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[1] Option

* 1 The chuck is optional.
* 2 Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
NLX 2000
8-inch chuck compatible
Max. rotary tool spindle speed 10,000 min⁻¹
Compatible with automation systems

Variations

Milling + Tailstock
Milling + Y-axis + Tailstock
Milling + Spindle 2
Milling + Y-axis + Spindle 2

* The Spindle 2 specification is not equipped with a tailstock.
NLX 1500 / NLX 2000

Outstanding Rigidity

A robust machine construction is essential for a machine to demonstrate its best cutting performance. We carry out simulations for torsional rigidity by the FEM analysis at the development stage to produce a robust machine structure that reflects the DMG MORI technologies in every part of it. The slideways are employed on the X-, Z-, and Y-axis for higher vibration damping performance and dynamic rigidity, which realizes outstanding cutting capabilities.

1. FEM analysis
   + High-rigidity machine body designed by FEM analysis (Finite Element Method)

2. High-rigidity bed
   + High-rigidity bed with slideways on the X-, Z- and Y-axis for heavy-duty cutting
   + High-quality surfaces realized in machining of difficult-to-cut materials and intermittent machining
   + Rapid traverse rate:
     X-axis 30 m/min (1,181.1 ipm)
     Z-axis 30 m/min (1,181.1 ipm)
     Y-axis 10 m/min (393.7 ipm) <Y-axis specification>
     B-axis (tailstock) 7 / 20 m/min (275.6 / 787.4 ipm) <forward / retract> <Tailstock specification>
     Spindle 2 30 m/min (1,181.1 ipm) <Spindle 2 specification>

3. Spacious work area
   + Travel:
     X-axis 260 mm (10.2 in.)
     Z-axis 590 mm (23.2 in.)
     Y-axis 100 <±50> mm (3.9 <±2.0> in.) <Y-axis specification>
     B-axis (tailstock) 564 mm (22.2 in.) <Tailstock specification>
     Spindle 2 624 mm (24.6 in.) <Spindle 2 specification>
Milling + Y-axis + Spindle 2
There are varieties of factors leading to thermal displacement that has a major influence on machining accuracy, including heat generation during machine operation, changes in room temperature and increase in coolant temperature. 

DMG MORI tackles the factors one by one with the original method for thoroughly controlling thermal displacement from every aspect. For the spindle, which is the prime heat source, we spirally arrange the oil jacket around the spindle unit to regulate the temperature increase.

DMG MORI has developed a new technology to circulate coolant through the casting parts as a measure against thermal displacement that directly affects machining accuracy. Thermal displacement is caused by various factors including non-uniform expansion and contraction due to difference in thickness of the casting; uneven heat generation in the slideways; operating environment; and changes in ambient temperature due to season and time of day. The coolant circulation maintains a uniform temperature inside the casting parts, and minimizes deformation in the machine.

+ Uniform thermal displacement
+ Resistance to changes in ambient temperature
+ High-accuracy long-term machining
Coolant chiller <separate type> (option)

Increased coolant temperature causes thermal displacement in the fixtures and workpiece, affecting the machining accuracy of the workpiece. Use this unit to prevent the cutting coolant from heating up. When using oil-based coolant, the coolant temperature can become extremely high even with the standard coolant pump, so please be sure to select this unit.

When using oil-based coolant or a super-high-pressure coolant system, please be sure to consult our sales representative.

* We cannot guarantee that this unit will completely control the coolant temperature. It is designed to help prevent oil temperature increases.

Full closed loop control <Scale feedback> (option)

+ Superior precision with the Magnescale full closed loop control (Scale feedback)
+ Magnetic measuring system with a high resolution of 0.01 µm
+ Resistance to oil and condensation due to a magnetic detection principle
+ Impact resistance of 450 m/s² (17,716.5 in./s²)
+ Vibration resistance of 250 m/s² (9,842.5 in./s²)
+ High-accuracy machining is ensured by a scale with the same thermal expansion rate as the cast iron machine structure
High-performance Spindle with Excellent Reliability

The NLX 1500 and the NLX 2000 offer a 6-inch chuck and an 8-inch chuck for the Spindle 1, respectively. The models employ highly reliable spindle that keeps thermal displacement to the minimum. We provide varieties of spindles so that customers can choose the one most suitable for their cutting needs. The cartridge type spindle unit can be easily replaced and maintained.
Sophisticated spindle labyrinth + Air purge for spindle
+ The labyrinth structure has been enhanced, taking into account frequent use of high-pressure coolant
+ Spindle air purge offered as standard
+ Prevent coolant entry and improve spindle durability

Max. spindle speed (spindle 1)
+ NLX 1500: 6,000 min\(^{-1}\)
  [6,000 min\(^{-1}\) (high output)]
  [8,000 min\(^{-1}\) (high speed)]
+ NLX 2000: 5,000 min\(^{-1}\)
  [5,000 min\(^{-1}\) (high output)]

Output (spindle 1)
+ NLX 1500:
  11 / 11 / 7.5 kW (15 / 15 / 10 HP) <50\%ED / 30 min / cont>
  [15 / 15 / 11 kW (20 / 20 / 15 HP) <50\%ED / 30 min / cont> (high output)]
  [11 / 7.5 kW (15 / 10 HP) <25\%ED / cont> (high speed)]
+ NLX 2000:
  15 / 15 / 11 kW (20 / 20 / 15 HP) <15\%ED / 30 min / cont>
  [22 / 22 / 15 kW (30 / 30 / 20 HP) <15\%ED / 30 min / cont> (high output)]

Standard chuck size (spindle 1)*
+ NLX 1500: 6 inches
+ NLX 2000: 8 inches

* Option
* The chuck is optional.
Continuous machining of both surfaces is possible with the Spindle 2. 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. We also offer the digital tailstock, which directly controls thrust force of the tailstock spindle and improves machining precision with an accurate workpiece pressing force.

**Spindle 2 specification**
- "Milling + Y-axis specification" for advanced multi-axis machining as well as "Milling specification" available

**Max. spindle speed (spindle 2)**
- NLX 1500: [6,000 min⁻¹, 8,000 min⁻¹ (high speed)]
- NLX 2000: [6,000 min⁻¹, 5,000 min⁻¹ (through-spindle hole diameter 73 mm (2.9 in.) specifications)]

**Output (spindle 2)**
- NLX 1500: [11 / 7.5 kW (15 / 10 HP) <25%ED / cont>]
- NLX 2000: [11 / 7.5 kW (15 / 10 HP) <25%ED / cont>] (high speed)
- NLX 2000: [11 / 7.5 kW (15 / 10 HP) <25%ED / cont>] (through-spindle hole diameter 73 mm (2.9 in.) specifications)

**Standard chuck size (spindle 2)**
- NLX 1500: 6 inches
- NLX 2000: 6 inches

*Option
* The chuck is optional.
Chip flushing coolant
Chip flushing coolant is featured as standard at the base of the digital tailstock, improving chip processing capability.

Tailstock specification
The high-rigidity digital tailstock driven by a servo motor significantly reduces setup time.

Digital tailstock
+ Fewer steps requiring operation of the tailstock
+ Setup time: Reduced by over 50%
+ Tailstock spindle operating time: Reduced by over 20%
+ Variable pressure control using program instructions
+ Simple operation using MAPPS

MAPPS: Mori Advanced Programming Production System
NLX 1500 / NLX 2000

BMT (Built-in Motor Turret) Equipped as Standard

All types are equipped with the BMT with a max. rotary tool spindle speed of 10,000 min⁻¹ as standard. Outstanding machining precision is achieved by heat control with the cooling jacket. In addition to the standard number of tool stations of 12, the models offer 10 (NLX 2000 only), 16 and 20 stations as options.
The turret with an optimum center of gravity location offers significantly improved tool tip rigidity
+ Turret indexing time (1-station): 0.25 sec.
+ Overhang of O.D. cutting rotary tool: 50 mm (2.0 in.) (100 mm (3.9 in.))

Number of tool stations
+ NLX 1500: 12 [16] [20] tools
+ NLX 2000: 12 [10] [16] [20] tools

High-speed rotary tool spindle
A DDS motor that has no gear belt is used for the rotary tool spindle, delivering high-speed, high-efficiency machining.

+ Max. rotary tool spindle speed:
  10,000 min⁻¹ <29 / 26 / 14 N•m (21.3 / 19.1 / 10.3 ft•lbf)>
  [10,000 min⁻¹ <40 / 30 / 14 N•m (29.5 / 22.1 / 10.3 ft•lbf)]
  [high torque]
  [10,000 min⁻¹ <24 / 20 / 14 N•m (17.7 / 14.7 / 10.3 ft•lbf)>
  (20-station turret head!)]

“Mature” and “Evolved” BMT Technology
+ Improved milling power
+ Improved milling accuracy
+ Controls the turret’s heat and vibration
+ Reduced energy loss

+ Displacement amount: 3.05 µm
  (previous model / 5,000 min⁻¹)
  →0.43 µm (NLX 2500 / 10,000 min⁻¹)
+ Turret temperature increases: 1/10 or less
  (compared with conventional machine)
+ Vibration amplitude: 1/3 or less
  (compared with conventional machine)
Y-axis Specification Achieving High-precision Machining

The NLX 1500 and NLX 2000 with the Y-axis specification enables high-efficiency, high-precision machining of complex-shaped workpieces. The 20-station turret is also available as an option. With varieties of tools available, customers can facilitate automation for multiple process-requiring workpieces.

We also independently developed a powerful platform for maximizing performance in the Y-axis specification. This has achieved rigidity between the spindle and the tool tip that exceeds that of conventional two-axis turning centers.

+ Y-axis control: High form accuracy is achieved as machining surfaces are not affected by cutting condition changes.
Support for 20-station turret (option)
The 20-station turret is offered as an option for long-hour operation at night and machining of complex-shaped workpieces.

+ Able to handle multi-process-requiring workpieces which had been considered not applicable for automation
+ Comes with the high-rigidity, compact tooling system

High-precision, quick-change turret (option)
This is a turret with the high-rigidity, high-accuracy quick-change specifications conforming to the VDI tooling system. It reduces setup time by substantially shortening tool mounting time.

+ Mounting repeatability: 6 µm / 200 mm (7.9 in.)

Multi-axis holder (Consultation is required)
As multiple tools can be attached to one station, the number of tools can be flexibly increased. Tools can be replaced without turret indexing, which reduces cycle times.

Hob cutting (option)
With the rotary tool spindle and the C-axis movement synchronized, gear cutting or spline machining is performed by a hob cutter attached to the turret.

Universal holder (Consultation is required)
This holder is suitable for inclined hole machining as it can adjust and set a tool to any required angle in advance. In the automatic operation mode machining can be performed right after turret indexing.

Capto-compatible holder (option)
The Coromant Capto modular tooling system, with much faster tool-changing time than conventional machines.
NLX 1500 / NLX 2000

Best Chip Disposal Solution in the Industry

Chips can be one of the main causes leading to machining failure and machine stop. DMG MORI group conducted an in-depth study on them by carrying out various experiments and analyses, and achieved outstanding chip disposal performance. We offer optimal chip disposal solutions according to a machining condition of each customer.

<table>
<thead>
<tr>
<th>Chip conveyor (option)</th>
<th>Steel</th>
<th>Cast iron</th>
<th>Aluminum / non-ferrous metal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long</td>
<td>Short</td>
<td>Powdery</td>
</tr>
<tr>
<td>Hinge type</td>
<td>○</td>
<td>○</td>
<td>−</td>
</tr>
<tr>
<td>Hinge type &lt;Aluminum&gt;</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>Scraper type</td>
<td>−</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Magnet scraper type</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
</tbody>
</table>

[chip size guidelines] Short: chips 50 mm (2.0 in.) or less in length, bundles of chips ø 40 mm (ø 1.6 in.) or less
Long: bigger than the above

The options table shows the general options when using coolant. Changes may be necessary if you are not using coolant, or depending on the amount of coolant, compatibility with machines, or the specifications required.

Please select a chip conveyor to suit the shape of your chips. When using special or difficult-to-cut material (chip hardness HRC 45 or higher), please consult our sales representative.

Chip conveyors are available in various types for handling chips of different shape and material. For details, please consult our sales representative.
**Through-spindle coolant system**

- Coolant supplied through the center of the chuck removes chips generated during I.D. machining.

**Chuck top coolant**

- Coolant supplied from above the chuck removes chips and minimizes heat generation in the workpiece.

**Air blow for tool tip**

- Air is blown toward the tool tip to blow away chips adhering to the tool.

**Chip conveyor (hinge type)**

- The hinge plate carries and discharges chips to the outside of the machine. Particularly effective for long chips.

**Chip conveyor (scraper type)**

- Chips accumulated on the bottom of the chip conveyor are scraped up by a scraper and discharged to the outside. Suitable for short or powdery chips.

**Chip conveyor (magnet scraper type)**

- Chips are forcibly precipitated by the magnet plate at the bottom of the tank and are scraped up by a scraper and discharged to the outside. Suitable for fine magnetic chips such as casting chips.

**Coolant line filter**

- It removes foreign matter in the coolant coming from the coolant pump. The filter clogging detection function is available.

**Pull out the coolant tank in front**

- With the new design, the coolant tank can be pulled out in front without having to pull out the chip conveyor. It can be pulled out easily and does not take up extra space in the back.
Pursuit of Usability

The NLX 1500 and NLX 2000 are designed with features for ease of maintenance to increase the machine operating rate. The NLX 1500 and the NLX 2000 achieve shorter MTTR (Mean Time To Repair) by thorough analyses of customers’ demands such as a wider door opening for better work efficiency and maintainability. This ensures the machine is always in the best condition, thereby bringing greater productivity to the customer.
1 Improved operability
Working efficiency of setups improved with a wide door opening of 675 mm (26.6 in.).
Both models employ the touch screen operation panel with the rotating mechanism. The lower touch screen tilts up to 57 degrees, while the whole operation panel horizontally turns up to 90 degrees, which improves operability.

2 Interference prevention pocket
The chuck cover is provided with a pocket to accommodate tool overhang, preventing interference.

3 Lubricating oil (for sliding surfaces) tank
The supply hole for the lubricant tank for the box way is located in the front of the machine for easy refilling.

4 Oil chiller, Hydraulic unit
The oil chiller and hydraulic unit are placed together at the rear of the machine without a cover for easy access.

5 Layout of pneumatic equipment
The air equipment is located on the left side of the machine in order to facilitate maintenance.
Solutions Best Matched to Customers’ Needs

The NLX 1500 and the NLX 2000 with a compact body enable complete automation from provision of raw materials to ejection of completed workpieces. We provide various systems to reduce non-cutting times, such as the gantry loader system for high-speed mass production, the bar feeder for integrated machining of bar materials and the bar pooler system that automatically ejects machined workpieces from the Spindle 2 side.

<table>
<thead>
<tr>
<th>Loader type</th>
<th>Max. travel speed</th>
<th>X-axis &lt;hand up / down&gt; m/min (fpm)</th>
<th>Z-axis &lt;loader unit left / right&gt; m/min (fpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gantry-type loader</td>
<td>Model</td>
<td>180 (590.6)</td>
<td>200 (656.2)</td>
</tr>
<tr>
<td></td>
<td>Max. transfer weight</td>
<td>5 (11) × 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Applicable workpiece diameter</td>
<td>40—150 (1.6—5.9)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Applicable workpiece length</td>
<td>20—120 (0.8—4.7)</td>
<td></td>
</tr>
<tr>
<td>Loader hand</td>
<td>Number of pallet tables</td>
<td>14 &lt;20, 26&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max. workpiece weight</td>
<td>35 (77) / pallet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max. workpiece stacked height</td>
<td>470 (18.5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Applicable workpiece diameter</td>
<td>40—150 (1.6—5.9)</td>
<td></td>
</tr>
</tbody>
</table>

Depending on the shape of the workpiece, it may not be possible to machine with standard specifications. For details, please consult with our sales representative.

Please consult with our sales representative in the case that a workpiece diameter is less than 40 mm (1.6 in.), or a workpiece length is less than 20 mm (0.8 in.).
1 Workpiece unloader* <built-in type> (option)
   The evolved parts catcher enables easy adjustment by customers.
   Both spindles handle workpieces up to double the previous length.
   + Applicable workpiece diameter: 65 mm (2.5 in.)
   + Applicable workpiece length: 200 mm (7.8 in.)
   + Max. transfer weight: 3.0 kg (6.6 lb.)
   * Standard for the Spindle 2 specification. (Not including gantry loader specifications)
   • Not available when the steady rest is selected, because of interference. For standard machines, it is necessary to remove the workpiece unloader when the steady rest specifications are selected.

2 Bar feeder (option)
   The combination with the workpiece unloader enables automation of machining of bar materials.
   + Bar work capacity:
     NLX 1500 ø 52 mm (ø 2.0 in.)
     NLX 2000 ø 65 mm (ø 2.5 in.)
   * Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

3 In-machine traveling workpiece unloader system (option)
   Operate unmanned when equipped with the workpiece conveyor.
   The Spindle 2 specification is able to receive a workpiece with both Spindle 1 and Spindle 2.

4 Bar puller system (option) <Consultation is required>
   Automatically discharge the machined piece from the No. 2 spindle, making it easier to automate machining of bar workpieces and making this system ideal for long workpieces that cannot be handled by a workpiece unloader.

5 Workpiece rest (option)
   Fixed type
   This temporary workpiece rest helps reliably carry out workpiece chucking in a short period.

Withdrawal type <Consultation is required>
   Interference and accumulation of chips during machining is prevented by withdrawing the workpiece retainer.
The DMG MORI Qualified Products (DMQP) program is designed to certify peripherals that meet DMG MORI standards in quality, performance and maintainability. DMG MORI collaborates with our partners in the world and provides customers with peripherals required for their machining. We take care of the arrangement from selection to installation to support best-quality machining. DMG MORI helps customers improve productivity by offering the total solutions including quality peripherals as well as machine tools.

Meet various customer needs

- **Handling**
  - Robot system
  - Bar feeder

- **Measuring**
  - In-machine tool presetter
  - External tool measurement
  - In-machine measuring system (workpiece)
  - Surface roughness measuring system

- **Shaping**
  - Oil skimmer
  - Coolant chiller
  - High-pressure coolant system
  - Hydraulic steady rest
  - Mist collector

- **Monitoring**
  - Electrical cabinet chiller
  - Rotary window
  - Coolant float switch
  - Signal light

*The options above are examples. For details, please consult our sales representative.*

DMQP: DMG MORI Qualified Products
Bar feeder
Hydraulic steady rest
Signal light
Mist collector

Through-spindle coolant system
External chip conveyor
In-machine tool presetter
Oil chiller

In-machine measuring system (workpiece)
Tool presetter
Coolant chiller
Air dryer

Air compressor
Coolant gun
Tool cabinet
Tool

Robot system
Coolant flow switch
Oil skimmer
Coolant float switch
DMG MORI Technology Cycles

Technology Cycles (option) are total solutions that achieve complex machining easily in a short time. They enable every operator to easily perform high-quality machining, setups and measurement with general-purpose machine tools and standard tools/fixed tools, which used to be done with specialized machines, programs and tools.

- The availability of the functions differ depending on the machine. For details, please consult our sales representative.
- The above is an image picture.
gearSKIVING
High-speed gear cutting including internal teeth

Multi-threading
Cutting special thread

Excentric machining
Easy programming of excentric machining

Alternating speed
Stable machining in which chatter hardly occurs

Gear hobbing
Integrating process of gear cutting machines

Efficient Production Package
Easy inputting of various machining patterns
(High-speed canned cycle)
From the Idea to the Finished Product

DMG MORI’s cutting-edge operation system, CELOS, enables consistent management, documentation and visualization of orders, processes and machine data. CELOS can be extended with apps and is also compatible with your company’s existing infrastructures and programs.

CELOS APPs facilitate quick and easy operation: three examples »»

**JOB MANAGER**
Systematic planning, administration and preparation of work orders

- Machine related creation and configuration of new work orders
- Structured storage of all production related data and documents
- Easy visualization of job information on drawings, models, tools, fixtures, etc.

**JOB ASSISTANT**
Process-defined orders

- Menu guided set-up of the machine and conversational processing of production orders
- Reliable error prevention thanks to windows-based assistance instructions with a mandatory acknowledgement function

**CAD-CAM VIEW**
Visualize workpieces and improve program data

- Direct remote access to external CAD / CAM workstations
- Central master data as basis for component viewing
- Immediate change options for machining steps, NC programs and CAM strategies, directly in the CNC system
APP menu:
Central access to all available applications

ERGoline operation panel with 21.5-inch multi-touch screen and NC unit from Mitsubishi Electric

STANDARD
Standard user interfaces for all new high technology machines from DMG MORI

CONSISTENT
Consistent administration, documentation and visualization of order, process and machine data

COMPATIBLE
Compatible with PPS and ERP systems
Can be networked with CAD / CAM products
Open to trendsetting CELOS APP extensions

PPS: Production Planning and Scheduling System
ERP: Enterprise Resource Planning
High-Performance Operation System MAPPS V

MAPPS V is a high-performance, smart operation system mounted on CELOS. It enables operators to easily control machine operation with touch operation.

The 6-window display provides access to a variety of information at the same time »»
The screen combinations can be freely customized »»

MAPPS: Mori Advanced Programming Production System
CELOS: Control Efficiency Lead Operation System

Lower Touch Panel Screen Layout

1. Individual function operation area: Displays function buttons at all times regardless of the operation mode.
2. Operation mode selection area: Displays mode selection buttons at all times.
3. Status display area: Displays the override status.
5. Mode-by-mode operation area: Displays buttons related to axis feed, zero return or automatic operation over multiple pages. The available buttons will change depending on the mode selected.
6. In-machine display area: Displays the machine model view.
NLX 1500 / NLX 2000

DMG MORI’s Connected Industries for Manufacturing Innovations

The CELOS plays a central role in promoting IoT technologies at shop floor. For example, the CELOS application visualizes machining status of machines connected online and operating conditions of a whole shop floor, and clarifies production issues to contribute to drastically improving productivity.

- Visualize operating conditions of the machines connected online and contribute to improving production processes
- Operators can check the status on smartphones or tablets anytime anywhere
- Record various machine data with various sensors attached to a machine, and detect machine and machining problems at an early stage
- Handle problems using sensor information to minimize machine downtime at the time of trouble

DMG MORI Messenger (option)
+ Visualize operating conditions of the machines connected online and contribute to improving production processes
+ Operators can check the status on smartphones or tablets anytime anywhere

Condition Analyzer (option)
+ Record various machine data with various sensors attached to a machine, and detect machine and machining problems at an early stage
+ Handle problems using sensor information to minimize machine downtime at the time of trouble

1 To check operating status via the Internet, it is required to use a VPN or the like to ensure a secure connection to the LAN.
2 Consultation is required

Machine status monitoring

Various machine data generated by sensors can be easily checked on the CELOS.

- Inlet temp.
- Outlet temp.
- Machine temp.
- Room temp.
- Actual pressure
- Whole machine

* Option (for details, please consult our sales representative)
DMG MORI’s Unique Energy-saving Function GREENmode

DMG MORI developed the new energy-saving function GREENmode to achieve sustainable development.

The function reduces power consumption by approximately 40%* compared to the conventional machine by using efficient machining programs to minimize unnecessary stand-by power.

* The effect indicated above may not be achieved depending on the machines, cutting conditions, environmental conditions at measurement.

+ Improve cutting conditions to reduce machining time by bringing the best out of machine tools and tools
+ Reduce unnecessary power consumption during stand-by time by shutting off power of the spindle, chip conveyor and coolant pump at a time of machine stop
+ Visualize power consumption and CO₂ emission amount

GREENmode

GREEN monitoring
+ Visualize power consumption and CO₂ emission amount on the CELOS operation screen

GREEN device
+ High-brightness LED light
+ Inverter-equipped hydraulic pump

GREEN idle reduction
+ Shut off the power of the servo motor, spindle and coolant pump at a time of machine stop
+ Turn off the operation panel screen when a machine is not in operation for a certain time

GREEN control
+ Quicken standard M codes
+ Inverter-controlled coolant supply

CELOS: Control Efficiency Lead Operation System
### NLX 1500 / NLX 2000

#### Machine Size

**NLX 1500 / NLX 2000 Chip conveyor (right discharge)**

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Width</th>
<th>Depth</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLX 1500 / NLX 2000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine only</td>
<td>2,820 (111.0) mm</td>
<td>3,062 (120.2) mm</td>
<td>3,794 (149.4) mm</td>
</tr>
<tr>
<td>Including chip conveyor</td>
<td>3,562 (140.2) mm</td>
<td>3,794 (149.4) mm</td>
<td>2,082 (82.0) mm</td>
</tr>
</tbody>
</table>

**EN: European Norm (European Standards)**

**NLX 1500 / NLX 2000 Chip conveyor (rear discharge)**

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Width</th>
<th>Depth</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLX 1500 / NLX 2000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine only</td>
<td>2,591 (102.0) mm</td>
<td>2,082 (82.0) mm</td>
<td>2,964 (116.7) mm</td>
</tr>
<tr>
<td>Including chip conveyor</td>
<td>2,408 (94.8) mm</td>
<td>2,964 (116.7) mm</td>
<td>4,497 (177.0) mm</td>
</tr>
<tr>
<td>Including space to remove coolant tank</td>
<td></td>
<td></td>
<td>2,145 (84.4) mm</td>
</tr>
</tbody>
</table>

---

**Q56251A01**

**Q56252A01**
### Machine Specifications

#### Basic Specification

<table>
<thead>
<tr>
<th>Optional specifications</th>
<th>—</th>
<th>S1</th>
<th>S1*</th>
<th>Y</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swing over bed mm (in.)</td>
</tr>
<tr>
<td>Swing over cross slide mm (in.)</td>
</tr>
<tr>
<td>Max. turning diameter mm (in.)</td>
</tr>
<tr>
<td>Max. turning length mm (in.)</td>
</tr>
<tr>
<td>Bar work capacity mm (in.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Travel</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-axis travel mm (in.)</td>
</tr>
<tr>
<td>Z-axis travel mm (in.)</td>
</tr>
<tr>
<td>Y-axis travel mm (in.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spindle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. spindle speed min⁻¹</td>
</tr>
<tr>
<td>Type of spindle nose</td>
</tr>
<tr>
<td>Turret</td>
</tr>
<tr>
<td>Number of tool stations</td>
</tr>
<tr>
<td>Shank height for square tool mm (in.)</td>
</tr>
<tr>
<td>Max. rotary tool spindle speed min⁻¹</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Feedrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid traverse rate mm/min (ipm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tailstock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tailstock travel mm (in.)</td>
</tr>
<tr>
<td>Taper hole of tailstock spindle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spindle drive motor kW (HP)</td>
</tr>
<tr>
<td>Rotary tool spindle drive motor kW (HP)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machine size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine height (from floor) mm (in.)</td>
</tr>
<tr>
<td>Floor space (width x depth) mm (in.)</td>
</tr>
<tr>
<td>Mass of machine kg (lb.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitsubishi Electric</td>
</tr>
</tbody>
</table>

---

1. Option: JIS, Japanese Industrial Standard
2. The Spindle 2 specification S2 is not equipped with a tailstock TS.
3. When the shank height for a square tool is 20 mm (7/8 in.) and the tool overhang is 30 mm (1.2 in.).
4. When the shank height for a square tool is 25 mm (1 in.) and the tool overhang is 35 mm (1.4 in.).
5. Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
6. Max. spindle speed: depending on restrictions imposed by the workpiece clamping device, fixture and tool used, it may not be possible to rotate at the maximum spindle speed.
7. For details, please check the Detailed Specifications.
8. The information in this catalog is valid as of September 2017.
## NLX 2000 | 500

### Basic Specification

#### Optional specifications

<table>
<thead>
<tr>
<th>Capacity</th>
<th>—</th>
<th>S1</th>
<th>Y</th>
<th>S2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swing over bed mm (in.)</td>
<td></td>
<td></td>
<td>923.8 (36.4)</td>
<td>755 (29.7)</td>
</tr>
<tr>
<td>Swing over cross slide mm (in.)</td>
<td></td>
<td></td>
<td>366 (14.4) / 356 (14.0)</td>
<td>(278 (10.9) - 20-station turret head)</td>
</tr>
<tr>
<td>Max. turning diameter mm (in.)</td>
<td></td>
<td></td>
<td>510 (20.0)</td>
<td>65 (2.5)</td>
</tr>
<tr>
<td>Max. turning length mm (in.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar work capacity mm (in.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Travel

| X-axis travel mm (in.) | 260 (10.2) |
| Z-axis travel mm (in.) |   |
| Y-axis travel mm (in.) |   |

### Spindle

<table>
<thead>
<tr>
<th>Max. spindle speed min⁻¹</th>
<th>5,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of spindle nose</td>
<td>JIS A-6</td>
</tr>
</tbody>
</table>

### Turret

| Number of tool stations | 12 (10) / 16 (20) |
| Shank height for square tool mm (in.) | 25 (12) (9)/20-station turret head |
| Max. rotary tool spindle speed min⁻¹ | 10,000 (10,000 - high torque) |

### Feedrate

<table>
<thead>
<tr>
<th>Rapid traverse rate mm/min (ipm)</th>
<th>X, Z: 30,000 (1,181.1) Tailstock &lt;forward / retract&gt;: 7,000 / 20,000 (275.6 / 787.4) C: 400 min⁻¹</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) Tailstock &lt;forward / retract&gt;: 7,000 / 20,000 (275.6 / 787.4) C: 400 min⁻¹</td>
</tr>
<tr>
<td></td>
<td>X, Z, B: 30,000 (1,181.1) C: 400 min⁻¹</td>
</tr>
<tr>
<td></td>
<td>X, Z, B: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min⁻¹</td>
</tr>
</tbody>
</table>

### Tailstock

| Tailstock travel mm (in.) | 564 (22.2) |
| Taper hole of tailstock spindle | Live center <MT4> [Built-in center <MT3>] |

### Motor

<table>
<thead>
<tr>
<th>Spindle drive motor &lt;15%ED / 30 min / cont&gt; kW (HP)</th>
<th>15 / 15 / 11 (20 / 20 / 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(22 / 22 / 15 (30 / 30 / 20))</td>
</tr>
<tr>
<td></td>
<td>Spindle 2: (6,000)</td>
</tr>
<tr>
<td></td>
<td>(5,000 - through-spindle hole diameter: 73 mm (2.9 in.))</td>
</tr>
<tr>
<td>Rotary tool spindle drive motor &lt;3 min / 5 min / cont&gt; kW (HP)</td>
<td>5.5 / 5.5 / 3.7 (7.5 / 7.5 / 5)</td>
</tr>
</tbody>
</table>

### Machine size

| Machine height <from floor> mm (in.) | 2,145 (84.4) |
| Floor space <width X depth> mm (in.) | 2,820 × 2,082 (111.0 × 82.0) / 2,362 × 2,082 (93.2 × 82.0) / 2,591 × 2,082 (100.0 × 82.0) / 2,591 × 2,964 (100.0 × 116.7) (excluding chip conveyors) / right discharge |
| Floor space <width X depth> mm (in.) | 2,591 × 2,082 (100.0 × 82.0) / 2,591 × 2,964 (100.0 × 116.7) (excluding chip conveyors) / rear discharge |
| Mass of machine kg (lb.) | 5,000 (11,000) |

### Control unit

| Mitsubishi Electric M730UM | — |

---

1. Option: JIS: Japanese Industrial Standard
2. The Spindle 2 specification is not equipped with a tailstock.
3. For O.D. cutting tool with an overhang of 35 mm (1.4 in.).
4. Depending on the chuck/cylinder used and its restrictions, it may not be possible to rotate at the maximum spindle speed.
5. Max. spindle speed: depending on restrictions imposed by the workpiece clamping device, fixture and tool used, it may not be possible to rotate at the maximum spindle speed.
6. For details, please check the Detailed Specifications.
7. The information in this catalog is valid as of September 2017.
## Standard & Optional Features

### Spindle

<table>
<thead>
<tr>
<th>Spindle 1</th>
<th>NLX 1500</th>
<th>NLX 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,000 min(^{-1})</td>
<td>6,000 min(^{-1})</td>
<td>6,000 min(^{-1})</td>
</tr>
<tr>
<td>11/11/7.5 kW (15/15/10 HP)</td>
<td>15/15/11 kW (20/20/15 HP)</td>
<td>15/15/11 kW (20/20/15 HP)</td>
</tr>
<tr>
<td>&lt;50%ED / 30 min / cont (high output)</td>
<td>&lt;25%ED / 30 min / cont (high output)</td>
<td>&lt;25%ED / 30 min / cont (high output)</td>
</tr>
<tr>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spindle 2</th>
<th>NLX 1500</th>
<th>NLX 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,000 min(^{-1})</td>
<td>6,000 min(^{-1})</td>
<td>6,000 min(^{-1})</td>
</tr>
<tr>
<td>11/11/7.5 kW (15/15/10 HP)</td>
<td>11/7.5 kW (15/10 HP)</td>
<td>11/7.5 kW (15/10 HP)</td>
</tr>
<tr>
<td>&lt;25%ED / 30 min / cont (spindle 1 side is also 8,000 min(^{-1}))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

### Turret

<table>
<thead>
<tr>
<th>Turret 1</th>
<th>NLX 1500</th>
<th>NLX 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-station bolt-tightened turret for NL holders</td>
<td>12-station bolt-tightened turret for NL holders</td>
<td>12-station bolt-tightened turret for NL holders</td>
</tr>
<tr>
<td>(without milling / C-axis functions)</td>
<td>(without milling / C-axis functions)</td>
<td>(without milling / C-axis functions)</td>
</tr>
<tr>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turret 2</th>
<th>NLX 1500</th>
<th>NLX 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-station bolt-tightened turret for NL holders</td>
<td>10-station bolt-tightened turret for NL holders</td>
<td>10-station bolt-tightened turret for NL holders</td>
</tr>
<tr>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workpiece pusher</th>
<th>NLX 1500</th>
<th>NLX 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø 53 mm (ø 2.1 in.)</td>
<td>ø 53 mm (ø 2.1 in.)</td>
<td>ø 53 mm (ø 2.1 in.)</td>
</tr>
<tr>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

### Rotary Tool Spindle: 10,000 min\(^{-1}\)

<table>
<thead>
<tr>
<th>Rotary tool spindle</th>
<th>NLX 1500</th>
<th>NLX 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP)</td>
<td>5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP)</td>
<td>5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP)</td>
</tr>
<tr>
<td>&lt;3 min / 5 min / cont (29 N·m (21.4 ft·lb))</td>
<td>&lt;3 min / 5 min / cont (29 N·m (21.4 ft·lb))</td>
<td>&lt;3 min / 5 min / cont (29 N·m (21.4 ft·lb))</td>
</tr>
<tr>
<td>12-station bolt-tightened turret</td>
<td>12-station bolt-tightened turret</td>
<td>16-station VDI quick-change turret</td>
</tr>
<tr>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rotary tool spindle</th>
<th>NLX 1500</th>
<th>NLX 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP)</td>
<td>5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP)</td>
<td>5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP)</td>
</tr>
<tr>
<td>&lt;3 min / 5 min / cont (40 N·m (29.5 ft·lb))</td>
<td>&lt;3 min / 5 min / cont (40 N·m (29.5 ft·lb))</td>
<td>&lt;3 min / 5 min / cont (40 N·m (29.5 ft·lb))</td>
</tr>
<tr>
<td>10-station bolt-tightened turret</td>
<td>12-station bolt-tightened turret</td>
<td>12-station bolt-tightened turret</td>
</tr>
<tr>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rotary tool spindle</th>
<th>NLX 1500</th>
<th>NLX 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP)</td>
<td>5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP)</td>
<td>5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP)</td>
</tr>
<tr>
<td>&lt;3 min / 5 min / cont (40 N·m (29.5 ft·lb))</td>
<td>&lt;3 min / 5 min / cont (40 N·m (29.5 ft·lb))</td>
<td>&lt;3 min / 5 min / cont (40 N·m (29.5 ft·lb))</td>
</tr>
<tr>
<td>10-station bolt-tightened turret</td>
<td>12-station bolt-tightened turret</td>
<td>12-station bolt-tightened turret</td>
</tr>
<tr>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

### Applications and Parts

- **Highlights**
- **Machine and Technology**
- **Others**

### Machine Specifications

- Standard & Optional Features
  - Standard features
  - Options
  - Consultation is required
  - Select one
  - Not applicable

---

**Applications and Parts**

**Highlights**

**Machine and Technology**

**Others**

**Machine Specifications**

- Standard & Optional Features
<table>
<thead>
<tr>
<th>Basic specification</th>
<th>NLX 1500</th>
<th>500</th>
<th>NLX 2000</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optional specifications</strong></td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
<tr>
<td>Tailstock spindle live center</td>
<td>MT4</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
<tr>
<td>Without tailstock</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
<tr>
<td>Tailstock spindle built-in center</td>
<td>MT3</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
<tr>
<td>Tailstock with the hydraulic quill</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
<tr>
<td>Fixture / Steady rest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed steady rest</td>
<td>ø 20— ø 200 mm (ø 0.8— ø 7.9 in.)</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
<tr>
<td><strong>Coolant</strong></td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
<tr>
<td>Coolant system</td>
<td>0.20 / 0.30 MPa (29 / 43.5 psi)</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
<tr>
<td>High-pressure coolant system</td>
<td>0.45 / 0.65 MPa (65.3 / 94.3 psi)</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
<tr>
<td>Super-high-pressure coolant system (separate type)</td>
<td>3.5 MPa (507.5 psi)</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
<tr>
<td>Interface</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chip disposal</strong></td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
<tr>
<td>Chip conveyor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air purge</td>
<td>Spindle</td>
<td>📌</td>
<td>📌</td>
<td>📌</td>
</tr>
</tbody>
</table>

---

*1 The Spindle 2 specification is not equipped with a tailstock.
*2 The discharge rate is 30 L/min (7.9 gpm). The values may vary depending on the shape of a tool to be used.
*3 The center is optional.
*4 The center is standard.
*5 Not available when the workpiece unloader is selected.
*6 When super-high-pressure coolant system is used, a coolant chiller is recommended. For details, please consult our sales representative.

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*DMQP (DMG MORI Qualified Products)*: Please see Page 26 for details.
*Flammable coolant such as oil-based coolant has a high risk of ignition, and will cause fire or machine breakage if ignited.*

### Notes
- Consultation is required.
- Not applicable.
- Specifications, accessories, safety device and function are available upon request.
- Some options are not available in particular regions. For details, please consult our sales representative.
### Standard & Optional Features

<table>
<thead>
<tr>
<th>Basic specification</th>
<th>Optional specifications</th>
<th>NLX 1500</th>
<th>NLX 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measurement</strong></td>
<td></td>
<td>S1</td>
<td>S1</td>
</tr>
<tr>
<td>Manual in-machine tool presetter (spindle 1)</td>
<td>Pivoting type</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Removable type</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Automatic in-machine tool presetter (spindle 1)</td>
<td>Pivoting type</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Removable type</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Manual in-machine tool presetter (spindle 2)</td>
<td>Removable type</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>In-machine workpiece measuring system*1</td>
<td>Spindle 1, 2</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Touch sensor (optical signal transmission type)</td>
<td>Spindle 1</td>
<td>—</td>
</tr>
<tr>
<td><strong>Improved accuracy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil chiller</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Full closed loop control (Scale feedback)</td>
<td>X-axis</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Y-axis</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Z-axis</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Automation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto power off</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Workpiece unloader*10</td>
<td>Built-in type</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>In-machine traveling type</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Spindle 2 workpiece ejector</td>
<td>Cylinder type</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Loader</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gantry loader</td>
<td></td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Built-in worklight (LED)</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Signal light</td>
<td>4 layers (LED type: red, yellow, green, blue)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Signal light buzzer</td>
<td></td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Chuck foot switch</td>
<td>Single</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Foot switch for tailstock</td>
<td></td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Total counter display</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Workpiece counter display</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Manual pulse generator (separate type)</td>
<td></td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

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*1 The Spindle 2 specification S2 is not equipped with a tailstock TS.

*10 Certain workpiece shapes cannot be measured.

*11 Not available when the steady rest is selected. For standard machines, it is necessary to remove the workpiece unloader when the steady rest is selected.

*12 When a hollow cylinder is mounted or a chuck body is not required, the workpiece ejector, through-spindle air blow, and pneumatic units and piping for them are not provided with the machine.

For machines equipped with a hollow cylinder, the cylinder-type workpiece ejector is available. The NLX 1500 with the Spindle 2 (8,000 min⁻¹) cannot be equipped with a work ejector.

For details, please check the Detailed Specifications.

The information in this catalog is valid as of September 2017.

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

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

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

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

**EXPORTATION:**

All contracts are subject to export permit by the Government of Japan. The Equipment is subject to export restrictions imposed by Japan and other exporting countries and the Customer will not export or permit the export of the Equipment anywhere outside the exporting country without proper government authorization. To prevent the illegal diversion of the Equipment to individuals or nations that threaten international security, it may include a "Relocation Machine Security Function" that automatically disables the Equipment if it is moved following installation. If the Equipment is so disabled, it can only be re-enabled by contacting DMG MORI or its distributor representative. DMG MORI and its distributor representative may refuse to re-enable the Equipment if it determines that doing so would be an unauthorized export of technology or otherwise violates applicable export restrictions.

DMG MORI and its distributor representative shall have no obligation to re-enable such Equipment. DMG MORI and its distributor representative shall have no liability (including for lost profits or business interruption or under the limited service warranty included herein) as a result of the Equipment being disabled.

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*If you have any questions regarding the content, please consult our sales representative.*

*The information in this catalog is valid as of September 2017. Designs and specifications are subject to changes without notice.*

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

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