Rigid and Precise Turning Center

NLX 4000
The NLX 4000 is a totally new large turning center that meets the needs of the times when multiple characteristics are demanded. The model is capable of performing various types of machining from heavy-duty cutting with its high-torque power to high-precision machining of elaborate parts that requires super-high precision. The model able to perform integrated machining of turning and milling as well as turning, the basic function of turning centers, is suited to parts machining in a broad range of industries.
Industrial machinery

1. Flange
2. Pulley
3. Ball screw

Automobiles

4. Axle shaft

Oil well

5. Coupling

*Figures in inches were converted from metric measurements.*
The main feature of the NLX 4000 is the combination of powerful machining of large-diameter workpieces with the largest through-spindle hole diameter in its class and high-precision machining realized by a highly rigid structure with controlled thermal displacement. The ergonomically designed new cover minimizes operators’ work load. The NLX 4000 is also environmentally friendly with improved energy-saving performance enabled by the cutting-edge operation system CELOS application.
High rigidity
- Slideway area ratio (compared with conventional machine): 50% UP <X-axis> / 90% UP <Z-axis>
- Large-diameter ball screws adopted
- The largest through-spindle hole diameter in its class: 145 mm (5.7 in.) / 185 mm (7.3 in.)

Improved milling power
- High torque - maximum torque 100 N·m (73.8 ft·lbf) / 100 / 68 N·m (73.8 / 50.2 ft·lbf) <4 min / cont>
- BMT (Built-in Motor Turret) installed in the turret
- Superb tapping capability: M30 × P3.5

High precision
- Thoroughly controlled thermal displacement: Coolant circulation inside the castings <750 type>
- Positioning accuracy <C-axis>: 6.8 sec

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

Power-saving
- Energy-saving setting and visualization of energy-saving effect

BMT: Built-in Motor Turret
CELOS: Control Efficiency Lead Operation System
NLX 4000

Best Solutions for Your Shop Floor

The NLX 4000 provides solutions for higher machining accuracy, higher production efficiency by automation, better chip disposal, maintainability and setup performance.

With various cutting-edge solutions, the NLX 4000 demonstrates its capabilities to the full extent and achieves a higher level of machining. DMG MORI offers the best solutions that solve your shop issues.

1. Long workpieces
   Chatter control

2. Turret
   For various types of machining
   12-station (for milling)
   100 Nm (73.8 ft-lbf) torque

3. Bar work capacity
   Enough for large-diameter pipes
   Bar work capacity ø 164 mm (6.4 in)

4. Workpiece support
   Workpiece support suitable for your workpiece and machining
   Chuck
   Air chuck (front)
   Air chuck (rear)
   Thread cutting on a pipe

5. Maintenance
   Improved production efficiency by preventive maintenance
   DMG MORI Messenger
   Air dryer
   Oil skimmer
   Mist collector
**Spindle torque**

For heavy-duty cutting

37 / 30 kW (50 / 40 HP)
3,225 / 2,616 N\(\cdot\)m
(2,378.6 / 1,929.5 ft\(\cdot\)lbf)
<30 min / cont>

---

**Machining accuracy**

Meeting high accuracy requirements

In-machine measuring system
Full closed loop control
Coolant chiller

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**Better setup performance**

Drastically shortened setup time

---

**Cutting technology**

Improving machining efficiency with Technology
Cycles all at once

Excentric machining
Multi-threading

---

**Mass production, automation**

Versatility, labor saving, quick setup changes

Robot interface
Bar feeder interface

---

**Chip disposal**

Higher cutting performance

External chip conveyor
Super-high-pressure coolant system
Coolant gun

Through-spindle coolant system
Druck top coolant
Air blow for tool tip

---

*The photo shows the machine equipped with options.*
The NLX 4000 offers two variations of distances between centers of 750 mm (29.5 in.) and 1,500 mm (590.1 in.), three variations of turrets including the milling specification and the Y-axis specification with the Y-axis travel of 120 mm (4.7 in.), and two spindle types with different sizes of through-spindle holes.

### NLX 4000 | 750
Through-spindle holes of ø 145 mm (ø 5.7 in.) <standard> and ø 185 mm (ø 7.3 in.) <option> are available for a 15-inch chuck and an 18-inch chuck, respectively.

### NLX 4000 | 750 / NLX 4000 | 1500

<table>
<thead>
<tr>
<th>Through-spindle hole diameter</th>
<th>mm (in.)</th>
<th>ø 145 (ø 5.7)</th>
<th>ø 185 (ø 7.3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance between centers</td>
<td></td>
<td>750 type / 1500 type</td>
<td></td>
</tr>
<tr>
<td>Standard chuck size*1</td>
<td></td>
<td>15 inches</td>
<td>18 inches</td>
</tr>
<tr>
<td>Bar work capacity mm (in.)</td>
<td></td>
<td>ø 117 (ø 4.6)**</td>
<td>ø 117 (ø 4.6)**, ø 164 (ø 6.4)</td>
</tr>
<tr>
<td>Number of tool stations</td>
<td>10, 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel</td>
<td></td>
<td>365 (14.4)</td>
<td>315 (12.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>315 (12.4) &lt;Y-axis specification&gt;</td>
<td>315 (12.4) &lt;Y-axis specification&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120 &lt;±0.6&gt; (4.7 &lt;±2.4&gt;)</td>
<td>120 &lt;±0.6&gt; &lt;Y-axis specification&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>875 (34.4) &lt;750 type&gt; / 1,685 (66.3)</td>
<td>1,685 (66.3) &lt;1500 type&gt;</td>
</tr>
</tbody>
</table>

*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.
The basic model is equipped with T and TS.

T: Turret
TS: Tailstock
MC: Milling (option)
Y: Y-axis (option)

Distance between centers of 1,500 mm (59.1 in.) for long and large-diameter shaft workpieces. Through-spindle holes of ø 145 mm (ø 5.7 in.) <standard> and ø 185 mm (ø 7.3 in.) <option> are available for a 15-inch chuck and an 18-inch chuck, respectively.
NLX 4000

Incomparably Rigid Structure Supporting Heavy-duty Cutting

We carry out simulations for torsional rigidity by the FEM analysis at the development stage to produce a robust machine body that reflects the DMG MORI technologies in every part of it. The NLX 4000 employs slideways on the X-, Y-, and Z-axis with an extended width twice as long as the conventional model. As a result, the model achieves high-rigidity and great damping performance that sufficiently supports cutting reaction force during machining of large workpieces.

Milling turret

+ BMT with high energy transmission efficiency controls heat generation and vibration.

BMT: Built-in Motor Turret

In-house manufactured high-rigidity spindles

+ Highly reliable spindles with controlled thermal displacement

Spacious work area

+ Travel:
  - X-axis: 365 <300 + 65> mm (14.4 <11.8 + 2.6> in.)
  - 315 <250 + 65> mm (12.4 <9.8 + 2.6> in.)
  - Y-axis: 120 <±60> mm (4.7 <±2.4> in.)
  - Z-axis: 875 mm (34.4 in.) <750 type>
  - 1,685 mm (66.3 in.) <1500 type>
  - Tailstock: 734 mm (28.9 in.) <750 type>
  - 1,540 mm (60.6 in.) <1500 type>

In-house manufactured high-rigidity spindles

+ Highly reliable spindles with controlled thermal displacement

Spacious work area
Wide slideways

+ Slideways on the X-, Y- and Z-axis.
+ Improved damping performance by the widest slideway width in the class.

Axis rigidity

+ High-rigidity bed with large-diameter ball screws for feed rigidity.
+ Rapid traverse rate: X-axis 30 m/min (1,181.1 ipm), Y-axis 10 m/min (393.7 ipm) <Y-axis specification>, Z-axis 30 m/min (1,181.1 ipm).
  Tailstock (forward / backward):
  7 / 20 m/min (275.6 / 787.4 ipm) <750 type>
  7.5 / 7.5 m/min (295.3 / 295.3 ipm) <1500 type>.

FEM analysis

+ Simulation of structural deformation at the time of load application.
+ Fine adjustment to every part, including the thickness of the bed, the shape and layout of the ribs, to achieve a high level of flexural rigidity.

FEM: Finite Element Method.
Thoroughly Controlled Thermal Displacement

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.

Milling turret designed to control thermal displacement (BMT)

+ Turret temperature increases (compared with conventional machine): 1/10 or less

BMT: Built-in Motor Turret

Coolant circulation for casting parts (NLX 4000 | 750)

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
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) <Magnescale> (option)

- Superior precision with 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-precision Machining of Large-diameter Workpieces

Spindles with two sizes of through-spindle holes of ø 145 mm (ø 5.7 in.) <standard> and ø 185 mm (ø 7.3 in.) <option> available.
The model can handle bar materials with a diameter of up to 117 mm (4.6 in.) <standard> and up to 164 mm (6.4 in.) as an option*.
Customers can select the model most suited to their machining needs.

* Through-spindle hole diameter 185 mm (7.3 in.) <consultation is required>.

- Spindle air purge offered as standard <Through-spindle hole diameter 145 mm (5.7 in.)>
- Standard chuck size*: 15 inches <Through-spindle hole diameter 145 mm (5.7 in.)/ 18 inches <Through-spindle hole diameter 185 mm (7.3 in.)>

* The chuck is optional.
Largest through-spindle hole diameter in its class

+ Through-spindle hole diameter: 145 mm (5.7 in.)

+ Through-spindle hole diameter: 185 mm (7.3 in.)

Max. spindle speed

+ Through-spindle hole diameter 145 mm (5.7 in.): 2,000 min⁻¹ <37 / 30 kW (50 / 40 HP)> (30 min / cont)

+ Through-spindle hole diameter 185 mm (7.3 in.): 1,500 min⁻¹ <37 / 30 kW (50 / 40 HP)> (30 min / cont)

Spindle torque

+ Through-spindle hole diameter 145 mm (5.7 in.): 1,910 / 1,401 N·m (1,408.7 / 1,033.3 ft·lbf) <30 min / cont>

+ Through-spindle hole diameter 185 mm (7.3 in.): 3,225 / 2,616 N·m (2,378.6 / 1,929.5 ft·lbf) <30 min / cont>
NLX 4000

Overwhelming Milling Performance

The Milling specification is equipped with the BMT (Built-in Motor Turret) as standard. The further evolved BMT enables high-speed machining with a maximum rotation speed of 10,000 min⁻¹ (option), while achieving vibration amplitude of one third or less compared with conventional machines. The high-torque specification (option) with a maximum torque of 100 N•m (73.8 ft•lbf) delivers powerful milling performance equivalent to a machining center with a No. 40 taper spindle.

+ Max. rotary tool spindle speed: 10,000 min⁻¹ <5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP)> (3 min / 5 min / cont)
  High torque: 4,000 min⁻¹ <10.0 / 6.0 kW (13.3 / 8 HP)> (4 min / cont)
+ Rotary tool spindle torque: 40 / 30 / 14 N•m (29.5 / 22.1 / 10.3 ft•lbf) <3 min / 5 min / cont>
  High torque: 100 / 68 N•m (73.8 / 50.2 ft•lbf) <4 min / cont>
BMT: Built-in Motor Turret

- Improved milling power
- Improved milling accuracy
- Controls the turret’s heat and vibration
- Reduced energy loss

- Displacement amount: \(3.05 \text{ µm (previous model / 5,000 min}^{-1})\) \(\rightarrow 0.43 \text{ µm (NLX 2500 / 10,000 min}^{-1})\)
- Turret temperature increases: 1/10 or less (compared with conventional machine)
- Vibration amplitude: 1/3 or less (compared with conventional machine)

"Mature" and "Evolved" BMT Technology

10-station turret head

- Number of tool stations: 10 tools, 12 tools
- Turret indexing time (1-station): 0.5 sec.
- Overhang of O.D. cutting rotary tool: 120 mm (4.7 in.)

Rotary tool spindle / standard (option)

Ideal for high-speed cutting of aluminum and large-diameter workpieces.

- Max. rotary tool spindle speed: 10,000 min\(^{-1}\)
- Rotary tool spindle drive motor: 5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP)
  \(<3 \text{ min} / 5 \text{ min} / \text{cont}>\)
- Rotary tool spindle torque: 40 / 30 / 14 N·m (29.5 / 22.1 / 10.3 ft·lbf)
  \(<3 \text{ min} / 5 \text{ min} / \text{cont}>\)

12-station turret head (option)

Rotary tool spindle / high torque (option)

Suited to heavy-duty cutting applications like hard milling.

- Max. rotary tool spindle speed: 4,000 min\(^{-1}\)
- Rotary tool spindle drive motor: 10.0 / 6.0 kW (13.3 / 8 HP)
  \(<4 \text{ min} / \text{cont}>\)
- Rotary tool spindle torque: 100 / 68 N·m (73.8 / 50.2 ft·lbf)
  \(<4 \text{ min} / \text{cont}>\)

Tapping capacity

- M30 × P3.5
The NLX 4000 with the Y-axis + Milling specification enables high-efficiency, high-precision machining of complex-shaped workpieces. With the Y-axis control, unlike polar coordinate interpolation, machining surfaces are not affected by cutting condition changes led by reverse movements of the X-axis during grooving and contouring.

**Y-axis Specification Achieving High-precision Machining**

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 travel: ±60 mm (±2.4 in.)

With polar coordinate interpolation, the X-axis movement reverses at the intersections (a) between the workpiece center line and the profile to be machined, which changes cutting conditions and affects form accuracy.

- Y-axis control: High form accuracy is achieved as machining surfaces are not affected by cutting condition changes led by reverse movements of the X-axis during grooving and contouring.
The tailstock can be moved easily to any position, which shortens setup time between differing workpiece sizes.

**Digital tailstock <NLX 4000 | 750>**

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

+ 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

**Programmable tailstock <NLX 4000 | 1500>**

The tailstock is connected with the carriage and moved to any given position by a program command.

+ Tailstock travel: 1,540 mm (60.6 in.)
+ Tailstock spindle diameter: 150 mm (5.9 in.)

**Chip flushing coolant**

Coolant for the tailstock base is available as standard for better chip disposal.
Cutting-edge Chip Disposal Solution

Chips can be one of the main causes leading to machining failure and machine stop. DMG MORI 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.

Chip disposal solutions suited for various types of chips and coolant treatments (option)

Many types of chips can be processed regardless of their materials and lengths. Through a filter with a built-in maintenance-free automatic flushing device, the coolant can be processed at a high degree of filtration accuracy.

Chip conveyor (option)

Handles various types of chips and ejects them in a highly efficient way.

<table>
<thead>
<tr>
<th>Workpiece material</th>
<th>Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chip form</td>
<td></td>
</tr>
<tr>
<td>Chip size</td>
<td>Long</td>
</tr>
<tr>
<td>Right discharge, hinge type + drum filter type*1</td>
<td>○</td>
</tr>
<tr>
<td>Hinge type</td>
<td>○</td>
</tr>
<tr>
<td>Hinge type &lt;aluminum&gt;</td>
<td>-</td>
</tr>
<tr>
<td>Scraper type</td>
<td>-</td>
</tr>
<tr>
<td>Magnet scraper type</td>
<td>-</td>
</tr>
</tbody>
</table>

*1 Consultation is required
*2 Depending on chip size, chips may pass through the filter and the conveyor and accumulate in the coolant tank. Due to possible effect on machining accuracy, a second filtration device may need to be considered.

※ 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
- Powdery: minute particles
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.

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

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.

* Option

<table>
<thead>
<tr>
<th>Cast iron</th>
<th>Aluminum / non-ferrous metal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short</td>
<td>○</td>
</tr>
<tr>
<td>Powdery</td>
<td>△</td>
</tr>
<tr>
<td>Long</td>
<td>-</td>
</tr>
</tbody>
</table>

- ○: Suitable  △: Consideration required  -: Not suitable

- 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 that suits the shape of your chips.
- When using special or difficult-to-cut material (chip hardness HRC45 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.
Pursuit of Usability

The NLX 4000 is designed with features for ease of maintenance to increase the machine operating rate. The NLX 4000 achieves 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.

Interference prevention pocket

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

Lubricating oil (for sliding surfaces) tank / Chuck pressure gage

The supply hole for the lubricant tank for the slideway is located in the front of the machine for easy refilling. Chuck pressure can also be adjusted from the front side.
Wide door opening

+ The air equipment is located on the right side of the machine in order to facilitate maintenance.

Oil chiller / Hydraulic unit

+ The oil chiller and hydraulic unit are placed on the right and the rear of the machine to offer better accessibility for operators.

Wide door opening

+ A wide door opening improves efficiency of setups.

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NLX 4000 | 1500

+ Door opening: 900 mm [35.4 in.]

NLX 4000 | 750

+ Door opening: 900 mm [35.4 in.]

NLX 4000 | 1500

+ Door opening: 1,885<940 + 945> mm [74.2<37.0 + 37.2> in.]
DMG MORI has developed an all-new robot system MATRIS that requires no special knowledge for its operation based on the wealth of experience and expertise DMG MORI has cultivated over the years. With modularized peripherals, a robot and MAPPSconnected, a dedicated system to connect peripherals and machines, MATRIS eliminates complex program editing and achieves easy system setups on a simple operation screen.

Advantages of MATRIS

+ Typical systems available as pre-defined packages
+ Standardized peripherals ensure easy customization to meet your specific needs
+ Flexibly accommodate system changes even after installation
+ Simple and easy programming with MAPPSconnected

Structure of robot system

MAPPSconnected

+ A system controller that offers integrated control of the whole automation system, including a robot, each module and machine
+ Monitoring, schedule management and operation control of the whole automation system possible
MATRIS offers the two most popular packages. If the prepared packages are not suitable for your shop floor due to space restrictions, or if you wish to customize the package, it is possible to change system layout or add new peripherals to meet your needs.

01 Handling package

+ A 14-station rotary stocker compatible with flange workpieces is equipped as standard
+ Various stockers can also be used, including 20-station and 26-station stockers, tray changer, IN / OUT conveyor

02 Measuring package

+ High-accuracy measurement and acceptance / rejection judgment of workpieces with an external measuring system
+ Measuring results to be fed back to a machine
+ Set multiple measuring points at different levels on a cylindrical workpiece
+ It enables various measurements such as outer and inner diameter measurement and three-dimensional measurement

- Custom design is available according to workpiece shapes. For details, please consult our sales representative.
- For details, please refer to the MATRIS catalog.
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.

- Offer peripheral equipment optimal for each customer at one stop
- Provide support including connection and setup of machines and peripheral equipment
- Achieve efficient connections with optimal interfaces

### Four DMQP categories

#### Handling
- Robot system
- Bar feeder

#### Shaping
- Oil skimmer
- Rotary window
- Super-high-pressure coolant system
- Hydraulic steady rest
- Mist collector

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

#### Monitoring
- Electrical cabinet chiller
- Coolant chiller
- Coolant float switch
- Signal lamp

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

DMQP: DMG MORI Qualified Products
Technology Cycles [optional] are complete solutions that achieve complex machining easily in a short time. They enable every operator to easily perform high-quality machining, setups and measurements with general-purpose machine tools and standard tools / fixtures, which used to require specialized machines, programs and tools.
Respond to Various Technology Cycles

Shaping

Gear hobbing

Optimal programming achieves hobbing with a general-purpose machine

Issue (before introduction)

+ A gear machine is needed. After blank machining with a turning machine, gear machining needs to be performed with a gear machine after setup changes
+ Want to extend the tool life of expensive hob cutter

Results (after introduction)

+ Hobbing program can be easily created by conversational input
+ Hob cutter’s machining position can be changed, maximizing the tool life
+ Consolidation of machining operations into the general-purpose machine reduces setup time and enhances accuracy such as concentricity due to no setup change

**Monitoring**

**Easy tool monitoring**

**Monitoring load of spindle and traveling axes**

<table>
<thead>
<tr>
<th>Issue (before introduction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Abundant experience is needed to set cutting conditions</td>
</tr>
<tr>
<td>+ Want to prevent tool breakage and machine failure</td>
</tr>
<tr>
<td>+ Difficult to monitor load to the spindle and tools at all times</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results (after introduction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Conditions can be set in advance, enabling digital cutting management not dependent on experience or expertise</td>
</tr>
<tr>
<td>+ Can reduce tool breakage and maintenance cost by maximizing the capacities of the tools and machine</td>
</tr>
<tr>
<td>+ Load to the traveling axis and spindle during machining is monitored at all times, and the machine stops when abnormal values are detected</td>
</tr>
</tbody>
</table>

**Handling**

**Multi-tool**

**Maximizing number of tools & minimizing non-cutting time**

<table>
<thead>
<tr>
<th>Issue (before introduction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Models with the Y axis or Spindle 2 specification require tools for various cutting operations</td>
</tr>
<tr>
<td>+ More than one tool is mounted to one station in some cases, making their management complex</td>
</tr>
<tr>
<td>+ Including spare tools, it is necessary to prepare more tools than the number of turret stations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results (after introduction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Tool compensation setting and life management can be easily performed for multiple tools of each station</td>
</tr>
<tr>
<td>+ Operator can set optimum tool information for each tool and maximize the number of tools</td>
</tr>
<tr>
<td>+ Prevent tool breakage and enhance production efficiency by switching to spare tools according to the operating time of the set tool</td>
</tr>
</tbody>
</table>
Handling

Alternating speed

Stable machining in which chatter hardly occurs

Issue (before introduction)
- Chatter occurs when using tools under its recommended conditions
- Vibration in deep hole drilling using a long drill should be suppressed

Results (after introduction)
- Cutting resistance is changed by periodically changing the rotation speed of the spindle. This helps suppress chatter and enhance cutting conditions, which lead to shorter machining time
- Surface quality is improved

Shaping

Multi-threading

Cutting special thread

Issue (before introduction)
- Hope to cut special thread shapes
- Hope to simplify complicated programming

Results (after introduction)
- Easily create various thread shapes by conversational programming
- Create a machining program of a special shape thread on the machine without CAD / CAM

Shapes:
- Triangle
- Square
- Trapezoidal
- Round
- Buttress

/three.lf/one.lf
**Shaping**

### Excentric machining

**Easy programming of excentric machining**

<table>
<thead>
<tr>
<th>Issue (before introduction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Hope to perform excentric machining processes on one machine</td>
</tr>
<tr>
<td>+ Expensive jigs for excentric machining are necessary</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results (after introduction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Reduce setup time by consolidating machining operations performed with a special machine into a general-purpose machine</td>
</tr>
<tr>
<td>+ Complicated program for excentric machining can be created using the conversational programming style</td>
</tr>
<tr>
<td>+ Compatible with both turning and milling to achieve efficient machining</td>
</tr>
<tr>
<td>+ Require no eccentric machining jigs</td>
</tr>
</tbody>
</table>

**Shaping**

### gearSKIVING

**High-speed gear cutting including internal teeth**

<table>
<thead>
<tr>
<th>Issue (before introduction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Not sure how to create a program because it involves a special machining technique</td>
</tr>
<tr>
<td>+ Require multiple processes with a gear machine and a cutting machine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results (after introduction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Can easily program a machining technique called gear skiving</td>
</tr>
<tr>
<td>+ Internal teeth that cannot be machined by hobbing can be cut</td>
</tr>
<tr>
<td>+ Consolidation of processing operations into the general-purpose machine reduces setup time and enhances accuracy such as concentricity due to no setup change</td>
</tr>
</tbody>
</table>
Shaping

Efficient Production Package (High-speed canned cycle)

### Easy inputting of various machining patterns

| Efficient | Safe | High-precision |

#### Issue (before introduction)

- Taking much time to create programs for complicated shapes and many holes
- Mistakes resulting from large quantity of calculation

#### Results (after introduction)

- A program will be automatically created just by entering a complex shape in a conversational style
- Safe cutting is ensured by confirming cutting details using the simulation function
- Optimal tool path and cutting conditions enhance cutting quality

### Handling

Retraction cycle

| Efficient | Safe |

Automation allows for easy return to the zero return position without errors

- Operational efficiency is enhanced, as one button push will enable return to the zero return position in the preset order
- Can customize the order of axes to be moved according to the condition
- Enhance efficiency of setup operation
- Reduce the risk of accident

### DMG MORI gearMILL

Integrating gear cutting into turning / milling

| Efficient | High-precision |

- PC software for gear cutting
- All processes of turning, milling, and gear cutting are done on one machine
- Investment cost can be reduced by use of commercially available tools and general-purpose machines
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
AI-based thermal displacement compensation (Ultra Thermal Precision)

Research is underway toward the practical use of thermal displacement compensation based on AI-based information analysis.

- In order to improve machining accuracy, AI estimates and compensates thermal displacement by learning the information received from the sensors mounted on the machine.
- The speed of learning is effectively improved by accumulating data from multiple machines in a single server for integrated data management.

Machine status monitoring

Various machine data generated by sensors can be easily checked on the CELOS.
**CELOS Machine** Extremely easy-to-use machine

- This machine is loaded with the cutting-edge operation system CELOS, offering various applications useful for your machining.
- By accumulating machining know-how on the CELOS, all operators are able to make products at the same level of quality.
- Productivity will be improved by streamlining time-consuming and burdensome setups to reduce the operator's workloads.
- Complex machining, which used to require dedicated machines and technical knowledge, is made simpler and faster with Technology Cycles.
- The use of AI prevents the occurrence of machine problems.

* The information needed to machine a workpiece (setups, tools, programs, etc.)

---

**CELOS Manufacturing** Connected production processes

- A CELOS application called "MESSENGER" connects machines in your plant, visualizing the status of machine operation.
- The causes of machine stops will be identified easily, contributing to improved machine operation rates.
- CELOS applications can be upgraded to their latest versions through CELOS Club, allowing for smooth IoT deployment.
- The machine’s operational status can be monitored through smartphones and tablets even from outside your plant.

---

**Digital Factory** Digitization accelerates connected plants

- Your plant can be connected to external business partners by the utilization of IoT, significantly streamlining the flow of your entire production system.
- CELOS Club can maximize the ability of CELOS.
- ADAMOS® offers an open platform for IoT.

* Please consult our sales representative for more detailed information, including the service start time in your country.

**CELOS Club**

- Continuously supporting your productivity improvements
  - Latest functions always available through version upgrades
  - Centralized machine management and streamlined programming

* Japan only.

---

**WERKBLiQ**

- Productivity improvements through cutting-edge machine maintenance services
  - Streamlined maintenance work based on digitized plant equipment information
  - Minimizing down time by promptly identifying the cause of machine stop
  - The integrated management of maintenance procedures and standards eliminates dependency on individual operator skills.

* Please consult our sales representative for more detailed information, including the release time in your country.

---
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.
Lower Touch Panel Screen Layout

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

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.
DMG MORI has developed the energy-saving function “GREENmode” to accomplish sustainable development goals (SDGs).

SDGs: Sustainable Development Goals

The machine’s power consumption is reduced by cutting unnecessary standby power and using efficient machining programs to shorten machining time.

+ Improve cutting conditions to reduce machining time by bringing the best out of machine tools and cutting 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
## Machine Size

### NLX 4000 | 750 Chip conveyor (right discharge)

#### Front view

![Front view diagram](image)

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Width</th>
<th>Depth</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLX 4000</td>
<td>750&lt;/br&gt;&lt;145 mm (5.7 in.)&gt;</td>
<td>A1 4,236 (164.8)</td>
<td>B1 4,914 (193.5)</td>
</tr>
<tr>
<td>NLX 4000</td>
<td>750&lt;/br&gt;&lt;185 mm (7.3 in.)&gt;</td>
<td>A1 4,567 (179.8)</td>
<td>B1 5,244 (206.5)</td>
</tr>
</tbody>
</table>

### NLX 4000 | 1500 Chip conveyor (right discharge)

#### Front view

![Front view diagram](image)

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Width</th>
<th>Depth</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLX 4000</td>
<td>1500</td>
<td>A 5,321 (209.5)</td>
<td>B1 6,172 (243.0)</td>
</tr>
</tbody>
</table>
## NLX 4000

### Machine Specifications

#### Through-spindle hole diameter (mm/in.)

<table>
<thead>
<tr>
<th>Standard</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>145 (5.7)</td>
<td>185 (7.3)</td>
</tr>
</tbody>
</table>

#### Capacity

<table>
<thead>
<tr>
<th>Swing over bed (mm)</th>
<th>1,000 (39.4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swing over cross slide (mm)</td>
<td>780 (30.7)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max. turning diameter (mm)</th>
<th>600 (23.6) / 590 (23.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. turning length (mm)</td>
<td>780 (27.5) / 746 (29.3)</td>
</tr>
<tr>
<td>Bar work capacity (mm)</td>
<td>ø 117 (ø 4.6)</td>
</tr>
</tbody>
</table>

#### Travel

<table>
<thead>
<tr>
<th>X-axis travel (mm)</th>
<th>365 &lt;300 + 65&gt; (14.4 &lt;11.8 + 2.6&gt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-axis travel (mm)</td>
<td>875 (34.4)</td>
</tr>
<tr>
<td>Y-axis travel (mm)</td>
<td>120 &lt; ±60&gt; (4.7 &lt; ±2.4&gt;)</td>
</tr>
</tbody>
</table>

#### Spindle

<table>
<thead>
<tr>
<th>Max. spindle speed (min⁻¹)</th>
<th>2,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of spindle nose</td>
<td>JIS A-11 / 15</td>
</tr>
</tbody>
</table>

#### Turret

<table>
<thead>
<tr>
<th>Number of tool stations</th>
<th>10, 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shank height for square tool (mm)</td>
<td>25 (1), 32 (1/4)</td>
</tr>
<tr>
<td>Max. rotary tool spindle speed (min⁻¹)</td>
<td>— / 10,000, 4,000*5</td>
</tr>
</tbody>
</table>

#### Feedrate

<table>
<thead>
<tr>
<th>Rapid traverse rate</th>
<th>300 min⁻¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>X, Z: 30,000 [1,181.1]</td>
<td>Tailstock &lt;forward / backward&gt;: 7,000 / 20,000 [275.6 / 787.4]</td>
</tr>
<tr>
<td>X, Z: 30,000 [1,181.1]</td>
<td>Tailstock &lt;forward / backward&gt;: 7,000 / 20,000 [275.6 / 787.4]</td>
</tr>
</tbody>
</table>

#### Tailstock

| Tailstock travel (mm) | 734 (28.9) |

#### Motor

<table>
<thead>
<tr>
<th>Spindle drive motor &lt;30 min / cont&gt; (kW/HP)</th>
<th>37 / 50 (50 / 40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotary tool spindle drive motor (kW/HP)</td>
<td>5.5 / 5.5 / 3.7</td>
</tr>
</tbody>
</table>

#### Machine size

<table>
<thead>
<tr>
<th>Machine height from floor (mm)</th>
<th>2,325 (91.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor space (width depth) (mm)</td>
<td>4,236 × 2,166 [166.8 × 85.3]</td>
</tr>
<tr>
<td>Mass of machine (kg/ib.)</td>
<td>8,700 [19.140]</td>
</tr>
</tbody>
</table>

#### Control unit

| Mitsubishi Electric | M730UM |

---

*1: For O.D. cutting tool with an overhang of 35 mm (1.37 in.)
*2: For O.D. cutting tool with an overhang of 40 mm (1.57 in.)
*3: When the turning tool holder (O.D.) T00186 / T00202 is used.
*4: Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
*5: High torque
*6: Including chip conveyor

For details, please check the Detailed Specifications. The information in this catalog is valid as of October 2018.
<table>
<thead>
<tr>
<th>Basic specification</th>
<th>Through-spindle hole diameter mm (in.)</th>
<th>145 (5.7)</th>
<th>&quot;standard&quot;&lt;option&gt;</th>
<th>185 (7.3)</th>
<th>&quot;option&quot;&lt;option&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capacity</strong></td>
<td>Swing over bed mm (in.)</td>
<td>1,000 (39.4)</td>
<td>&quot;interference with front cover 849 (33.4)&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Swing over cross slide mm (in.)</td>
<td>780 (30.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max. turning diameter mm (in.)</td>
<td>600 (23.6)</td>
<td>590 (23.2)</td>
<td>500 (19.6)</td>
<td>490 (19.2)</td>
</tr>
<tr>
<td></td>
<td>Max. turning length mm (in.)</td>
<td>1,538 (60.5)</td>
<td>1,584 (62.3)</td>
<td>1,506 (59.2)</td>
<td>1,552 (61.1)</td>
</tr>
<tr>
<td></td>
<td>Bar work capacity mm (in.)</td>
<td>ø 117 (ø 4.6)</td>
<td></td>
<td>ø 117 (ø 4.6)</td>
<td></td>
</tr>
<tr>
<td><strong>Travel</strong></td>
<td>X-axis travel mm (in.)</td>
<td>365 &lt;300 + 65&gt;</td>
<td>(14.4 &lt;11.8 + 2.6&gt;)</td>
<td>315 &lt;250 + 65&gt;</td>
<td>(12.4 &lt;9.8 + 2.6&gt;)</td>
</tr>
<tr>
<td></td>
<td>Z-axis travel mm (in.)</td>
<td>1,685 (66.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Y-axis travel mm (in.)</td>
<td>–</td>
<td>120 &lt; ±60&gt;</td>
<td>(4.7 &lt; ±2.4&gt;)</td>
<td></td>
</tr>
<tr>
<td><strong>Spindle</strong></td>
<td>Max. spindle speed min⁻¹</td>
<td>2,000</td>
<td>1st: 4–109–333–428 2nd: 15–395–1,202–1,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type of spindle nose</td>
<td>JIS A2–11</td>
<td>JIS A2–15</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motor</strong></td>
<td>Spindle drive motor &lt;30 min / cont&gt;</td>
<td>kW (HP)</td>
<td>37 / 30 (50 / 40)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rotary tool spindle drive motor</td>
<td>kW (HP)</td>
<td>5.5 / 5.5 / 3.7 / 7.5 / 7.5 / 5</td>
<td>&lt;3 min / 5 min / cont&gt;</td>
<td>10.0 / 6.0 (13.3 / 8)</td>
</tr>
<tr>
<td><strong>Machine size</strong></td>
<td>Machine height &lt;from floor&gt; mm (in.)</td>
<td>2,534 [99.8]</td>
<td>2,539 [100.0]</td>
<td>2,534 [99.8]</td>
<td>2,539 [100.0]</td>
</tr>
<tr>
<td></td>
<td>Floor space &lt;width X depth&gt; mm (in.)</td>
<td>5,321 × 2,490 [209.5 × 98.0]</td>
<td>6,172 × 2,490 [243.0 × 98.0]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Control unit</strong></td>
<td>Mitsubishi Electric</td>
<td>M730UM</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 For O.D. cutting tool with an overhang of 35 mm (1.37 in.)
2 For O.D. cutting tool with an overhang of 40 mm (1.57 in.)
3 When the turning tool holder 10 D.1 T00186 / T00202 is used.
4 Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
5 High torque
6 Including chip conveyor
7 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.
8 For details, please check the Detailed Specifications.
9 The information in this catalog is valid as of October 2018.
# Standard & Optional Features

<table>
<thead>
<tr>
<th>Basic specification</th>
<th>NLX 4000</th>
<th>750</th>
<th>NLX 4000</th>
<th>1500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional specifications</td>
<td>●</td>
<td>○</td>
<td>●</td>
<td>○</td>
</tr>
</tbody>
</table>

## Spindle
- 2,000 min⁻¹: 37 / 30 kW (50 / 40 HP)  
  <30 min / cont> Through-spindle hole diameter 145 mm (5.7 in.)  
  ● ● ● ● ● ●  
- 1,500 min⁻¹: 37 / 30 kW (50 / 40 HP)  
  <30 min / cont> Through-spindle hole diameter 185 mm (7.3 in.)  
  ○ ○ ○ ○ ○ ○

## Turret
- 10-station bolt-tightened turret for NL holders  
  ● ● ● ● ● ●  
- 12-station bolt-tightened turret for NL holders  
  ○ ○ ○ ○ ○ ○  
- 10-station VDI quick-change turret  
  ○ ○ ○ ○ ○ ○

## Workpiece pusher
- ø 53 mm (ø 2.1 in.)  
  ● ● ● ● ● ●

## 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> (standard)  
  ● ● ● ● ● ●  
- 4,000 min⁻¹: 10.0 / 6.0 kW (13.3 / 8 HP)  
  <4 min / cont> (high torque)  
  ○ ○ ○ ○ ○ ○

## Tailstock
- Tailstock spindle live center*: MT5  
  ● ● ● ● ● ●  
- Tailstock spindle built-in center*: MT4  
  ○ ○ ○ ○ ○ ○  
- Tailstock spindle built-in center*: MT5  
  ○ ○ ○ ○ ○ ○

## Fixture / Steady rest
- Fixed steady rest: ø 20—ø 240 mm (ø 0.8—ø 9.4 in.)  
  ○ ○ ○ ○ ○ ○  
- Fixed steady rest: ø 180—ø 350 mm (ø 7.1—ø 13.8 in.)  
  ○ ○ ○ ○ ○ ○  
- Hydraulic steady rest (bolt-tightened)**: Interface**  
  ○ ○ ○ ○ ○ ○  
- Hydraulic steady rest (carriage direct-coupled)**: Interface**  
  ○ ○ ○ ○ ○ ○

## Coolant
- Coolant system: 0.20 / 0.30 MPa (29 / 43.5 psi)**,  
  350 / 550 W <50 / 60 Hz>  
  ● ● ● ● ● ●  
- High-pressure coolant system: 0.45 / 0.65 MPa (65.3 / 94.3 psi)**,  
  800 / 1,100 W <50 / 60 Hz>  
  ○ ○ ○ ○ ○ ○  
- High-pressure coolant system: 1 / 1.5 MPa (145 / 217.5 psi),  
  1.1 / 2.2 kW (1.5 / 3 HP) <50 / 60 Hz>  
  ○ ○ ○ ○ ○ ○  
- Super-high-pressure coolant system (separate type)**:  
  Interface <7.0 MPa (1,015 psi)>  
  ○ ○ ○ ○ ○ ○

## Chip disposal
- Right discharge, hinge type  
  ○ ○ ○ ○ ○ ○  
- Right discharge, scraper type  
  ○ ○ ○ ○ ○ ○  
- Right discharge, magnet scraper type  
  ○ ○ ○ ○ ○ ○

## Chip conveyor
- Right discharge, hinge type  
  ○ ○ ○ ○ ○ ○  
- Right discharge, hinge type + drum filter type  
  ○ ○ ○ ○ ○ ○  
- Right discharge, hinge type [aluminum]  
  ○ ○ ○ ○ ○ ○  
- Rear discharge, hinge type  
  ○ ○ ○ ○ ○ ○  
- Rear discharge, scraper type  
  ○ ○ ○ ○ ○ ○  
- Rear discharge, magnet scraper type  
  ○ ○ ○ ○ ○ ○
The basic model is equipped with T and TS.

<table>
<thead>
<tr>
<th>Basic specification</th>
<th>NLX 4000</th>
<th>750</th>
<th>NLX 4000</th>
<th>1500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional specifications</td>
<td>Pivoting type</td>
<td>Removable type</td>
<td>Pivoting type</td>
<td>Touch sensor [optical signal transmission type]</td>
</tr>
<tr>
<td>Measurement</td>
<td>Manual in-machine tool presetter</td>
<td>Y-axis</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td></td>
<td>Automatic in-machine tool presetter</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td></td>
<td>In-machine workpiece measuring system</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>Improved accuracy</td>
<td>Full closed loop control</td>
<td>X-axis</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>(Scale feedback)</td>
<td>Y-axis</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z-axis</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>Automation</td>
<td>Auto power off</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>Other</td>
<td>Signal lamp</td>
<td>4 colors [LED type: red, yellow, green, blue]</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td></td>
<td>Signal lamp buzzer</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td></td>
<td>Foot switch for tailstock</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td></td>
<td>Built-in worklight [LED]</td>
<td>(2 pieces for the model with a distance between centers of 1,500 mm [59.1 in.] &lt;standard&gt;)</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td></td>
<td>Additional in-machine light [at right]</td>
<td>LED type</td>
<td>−</td>
<td>−</td>
</tr>
</tbody>
</table>

- Standard features
- Options
- Select one
- Consultation is required
- Not applicable

- DMQP: Please see Page 26 for details.
- For details, please check the Detailed Specifications.
- The information in this catalog is valid as of October 2018.
- 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. Customer shall comply with the laws and regulations of the exporting country governing the exportation or re-exportation of the Equipment, including but not limited to the Export Administration Regulations. 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 or provide spare parts for 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 October 2018. 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.