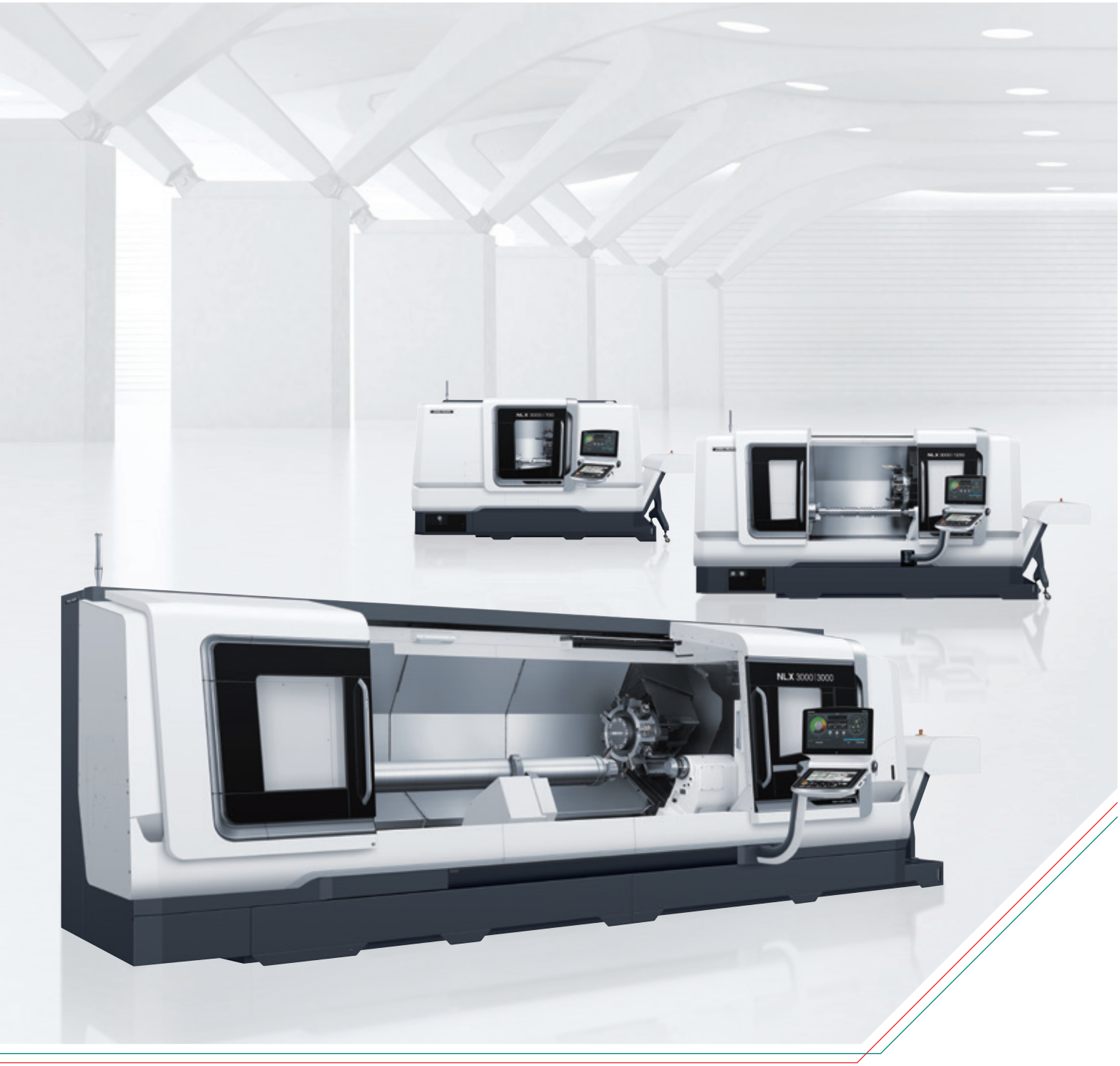
DMG MORI

- NLX 3000 | 700
- NLX 3000 | 1250
- NLX 3000 | 2000
- NLX 3000 | 3000

Rigid and Precise Turning Center

NLX 3000

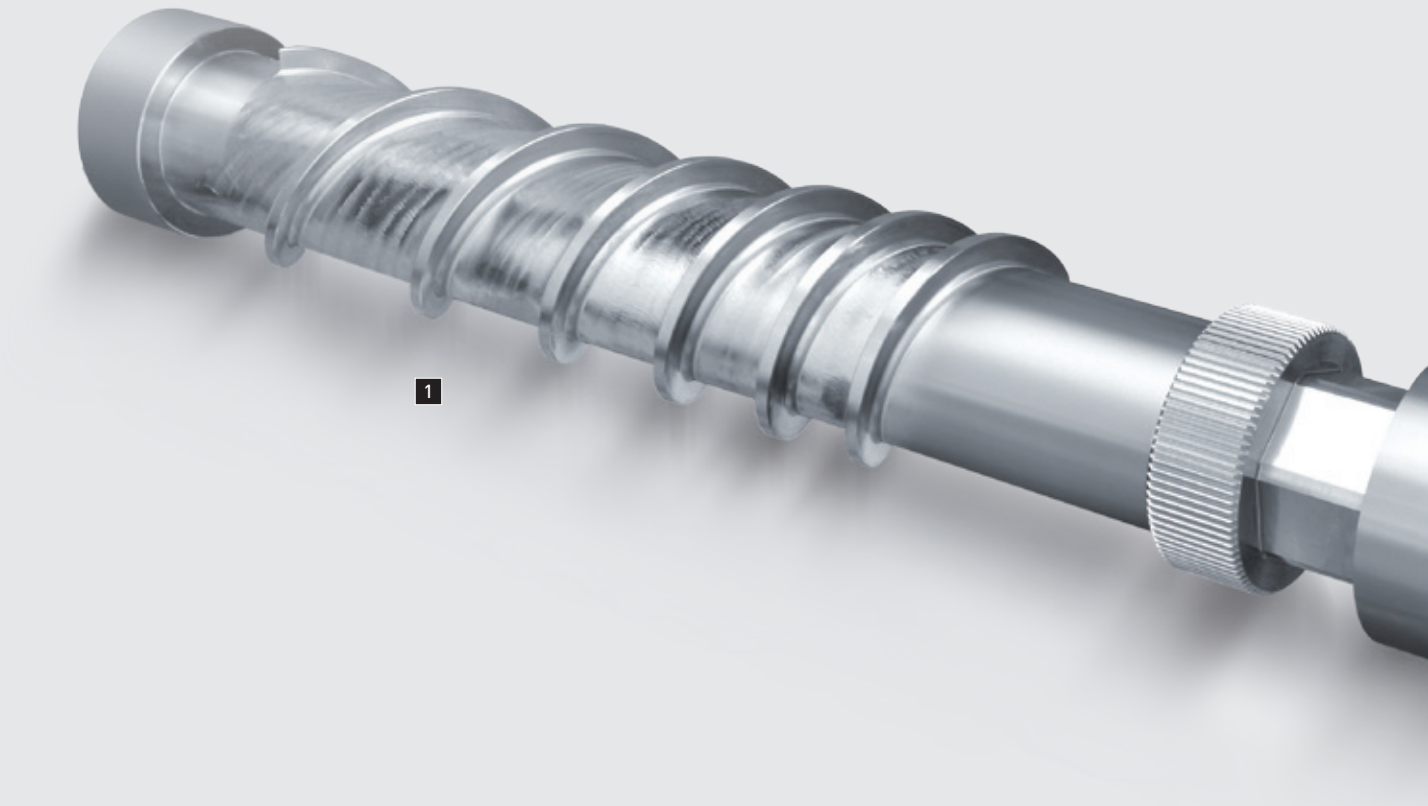


DMGMORI.COM

NLX 3000

Ultimate Performance for Parts Machining

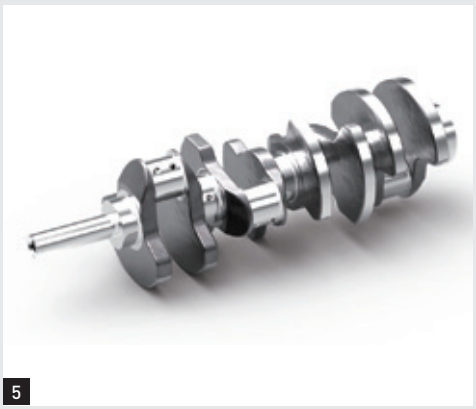
The NLX 3000 is high-rigidity, high-precision turning centers capable of handling varieties of workpieces with superior turning capability ensured by the robust bed and outstanding milling performance achieved by the BMT (Built-in Motor Turret). The model delivers superior performance for a wide range of areas including the automotive industry requiring high productivity and the construction machinery industry seeking high rigidity.



1

BMT: Built-in Motor Turret

2



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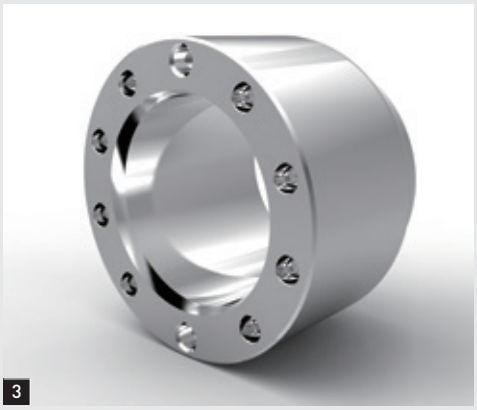
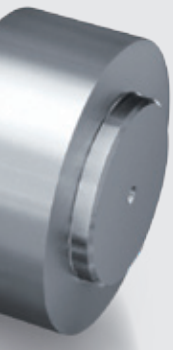


3

6

4

7



Industrial machinery

1 Screw shaft

Automobiles

2 Axle shaft

Construction machinery

3 Flange

4 Spindle

Boats & Ships

5 6 Crank shaft

7 Cam shaft

● Figures in inches were converted from metric measurements.

NLX 3000

High-performance Achieved by Uncompromising Development

The NLX 3000 has 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 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:
  40 N•m (29.5 ft•lbf) <3 min>
  100 N•m (73.8 ft•lbf) <4 min>
  <2000 type / 3000 type>

High precision

+ Thoroughly controlled thermal displacement:
  Coolant circulation in machine body as standard
  <700 type / 1250 type>
+ Machining precision improved by heat-controlling structure

High rigidity

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

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
  <700 type / 1250 type>
+ Programmable tailstock
  <2000 type / 3000 type>

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

NLX 3000

Best Solutions for Your Shop Floor

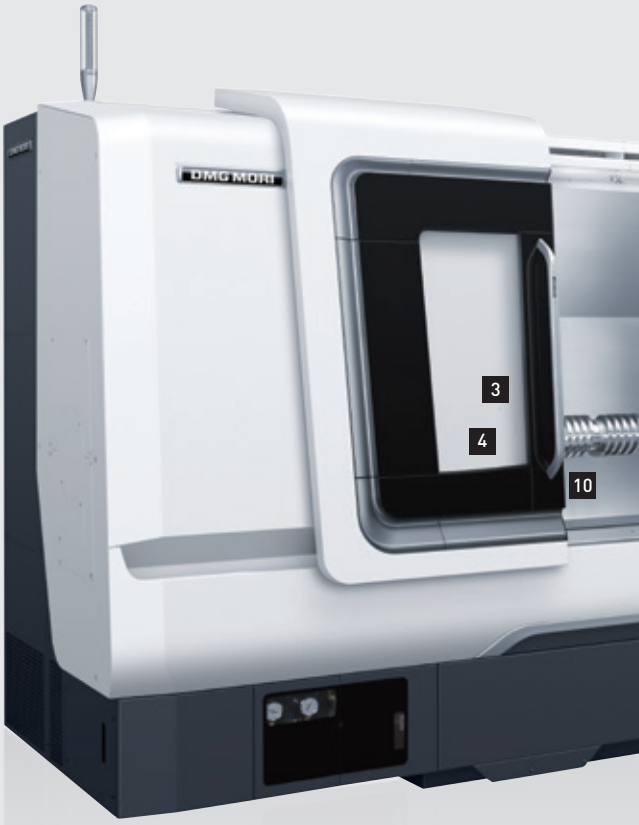
The NLX 3000 Series provides solutions for higher machining accuracy, higher production efficiency by automation, better chip disposal, maintainability and setup performance.
With various cutting-edge solutions, the series demonstrates its capabilities to the full extent and achieves a higher level of machining. DMG MORI offers the best solutions that solve your shop issues.

1

Turret

For various types of machining

12-station (for milling)



2

Long workpieces

Chatter control

Alternating speed

Hydraulic steady rest

3

Workpiece support

Workpiece support suitable for your workpiece and machining

Chuck

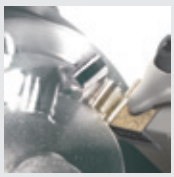
Compensating chuck

Index chuck

4

Spindle output

For heavy-duty cutting



30 / 25 kW (40 / 33 HP)
<30 min / cont>

5

Maintenance

Improved production efficiency by preventive maintenance

DMG MORI Messenger

Air dryer

Oil skimmer

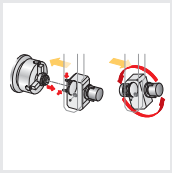
6 Mass production, automation

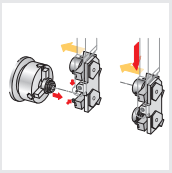
Versatility, labor saving, quick setup changes

Robot system

Bar feeder

Workpiece unloader

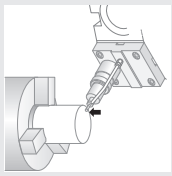




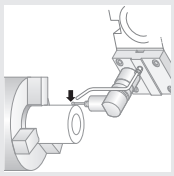
Gantry-type loader system
(back end hands, parallel hands)

7 Machining accuracy

Meeting high accuracy requirements



In-machine measuring system (when measuring a workpiece length)



In-machine measuring system (when measuring a workpiece diameter)

Full closed loop control
<Scale feedback>

Coolant chiller

● The photo shows the machine equipped with options.

8 Cutting technology

Improving machining efficiency with Technology Cycles all at once

Efficient Production Package
(High-speed canned cycle)

9 Tool holders

Improving efficiency with holders designed for each machining

Hob cutting holder

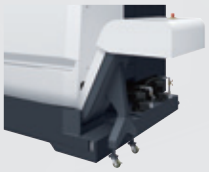
10 Better setup performance

Drastically shortened setup time

Automatic in-machine tool presetter

11 Chip disposal

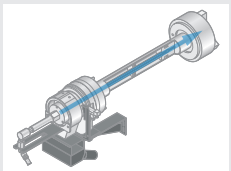
Higher cutting performance



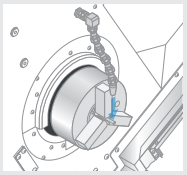
Chip conveyor

Super-high-pressure coolant system

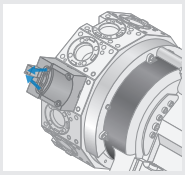
Coolant gun



Through-spindle coolant system



Chuck top coolant



Air blow for tool tip

NLX 3000

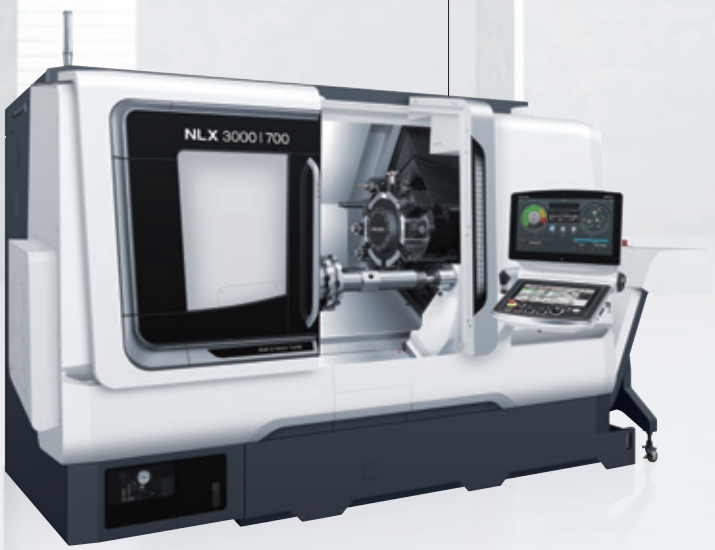
Select the One Most Suited to Your Needs

The NLX 3000 which can be equipped with a 12-inch chuck offers four variations of distances between centers: 700 mm (27.6 in.), 1,250 mm (49.2 in.), 2,000 mm (78.7 in.) and 3,000 mm (118.1 in.). The latter two types are suitable for machining long workpieces. The model handles a wide variety of workpieces with a maximum turning diameter of 430 mm (16.9 in.)*. Please select the best specification for you.

* For O.D. cutting tool with an overhang of 35 mm (1.4 in.).

NLX 3000 | 700

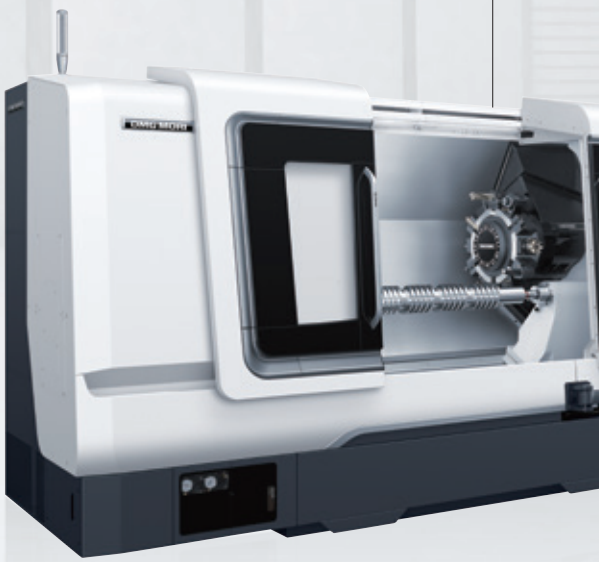
Between centers 700 type
Compact body and wide machining area



<Milling + Y-axis>

NLX 3000 | 1250

Between centers 1250 type
High-precision machining of long shafts

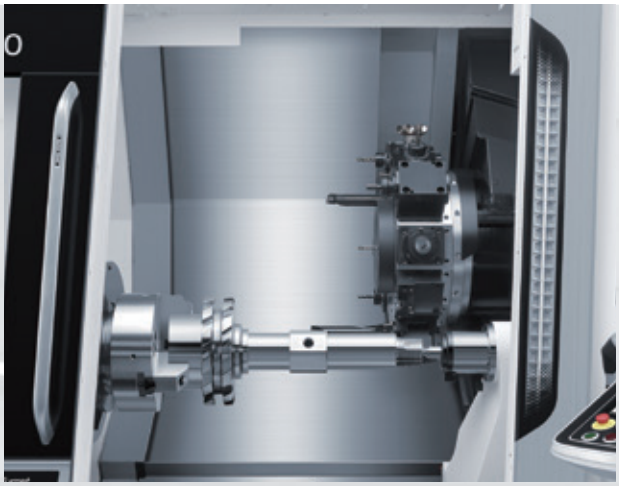


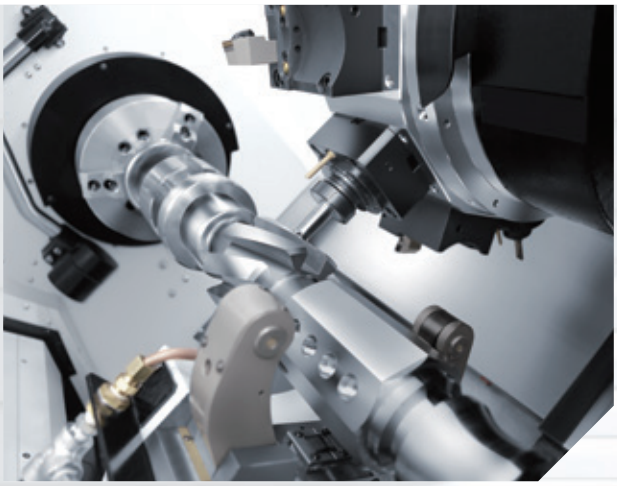
<Milling + Y-axis>

		NLX 3000 | 700	NLX 3000 | 1250	NLX 3000 | 2000	NLX 3000 | 3000
Distance between centers		700 type	1250 type	2000 type	3000 type
Standard chuck size*1		12 inches			
Bar work capacity	mm (in.)	ø 90 (ø 3.5)*2, ø 102 (ø 4.0)*2*3			
Number of tool stations		10, 12			
Travel <X- / Z-axis>	mm (in.)	280 / 820 (11.0 / 32.3)	280 / 1,370 (11.0 / 53.9)	280 / 2,170 (11.0 / 85.4)	280 / 3,170 (11.0 / 124.8)
Travel <Y-axis>	mm (in.)	120 <±60> (4.7 <±2.4>) <Y-axis specification>			

*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.
*3 With a specific chuck / cylinder selected.

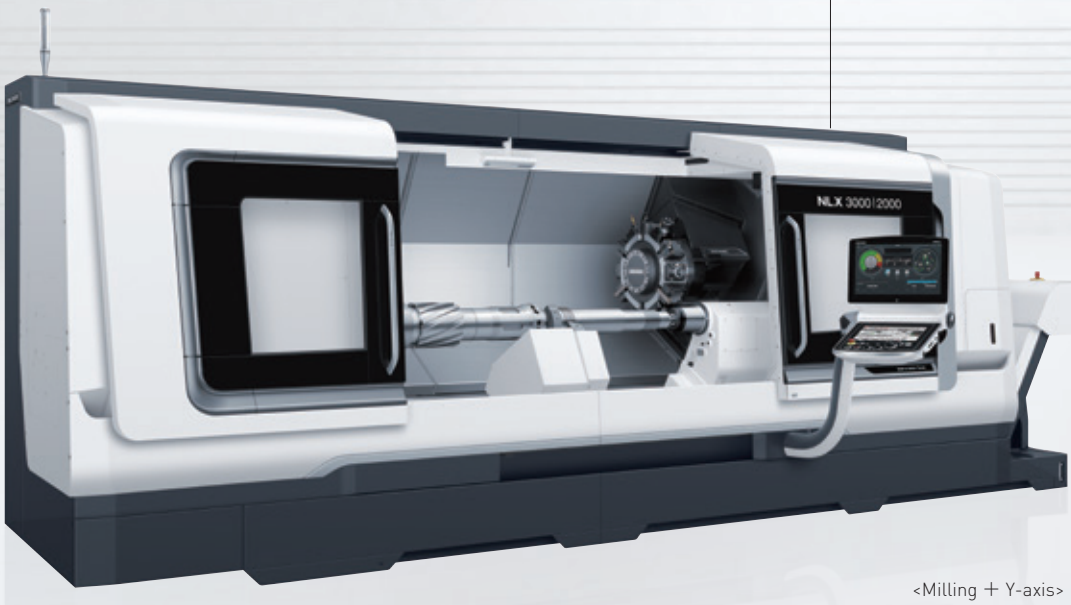
T : Turret
TS : Tailstock
MC : Milling (option)
Y : Y-axis (option)
The basic model is equipped with T and TS.





NLX 3000 | 2000

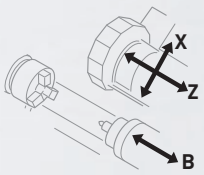
Between centers 2000 type
Max. turning length 2,123 mm (83.5 in.)



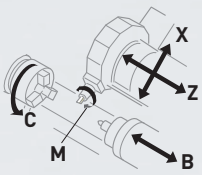
<Milling + Y-axis>

Variations

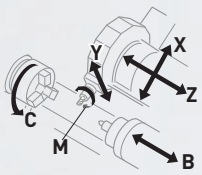
T TS Turret (turning) + Tailstock



T MC TS Milling + Tailstock



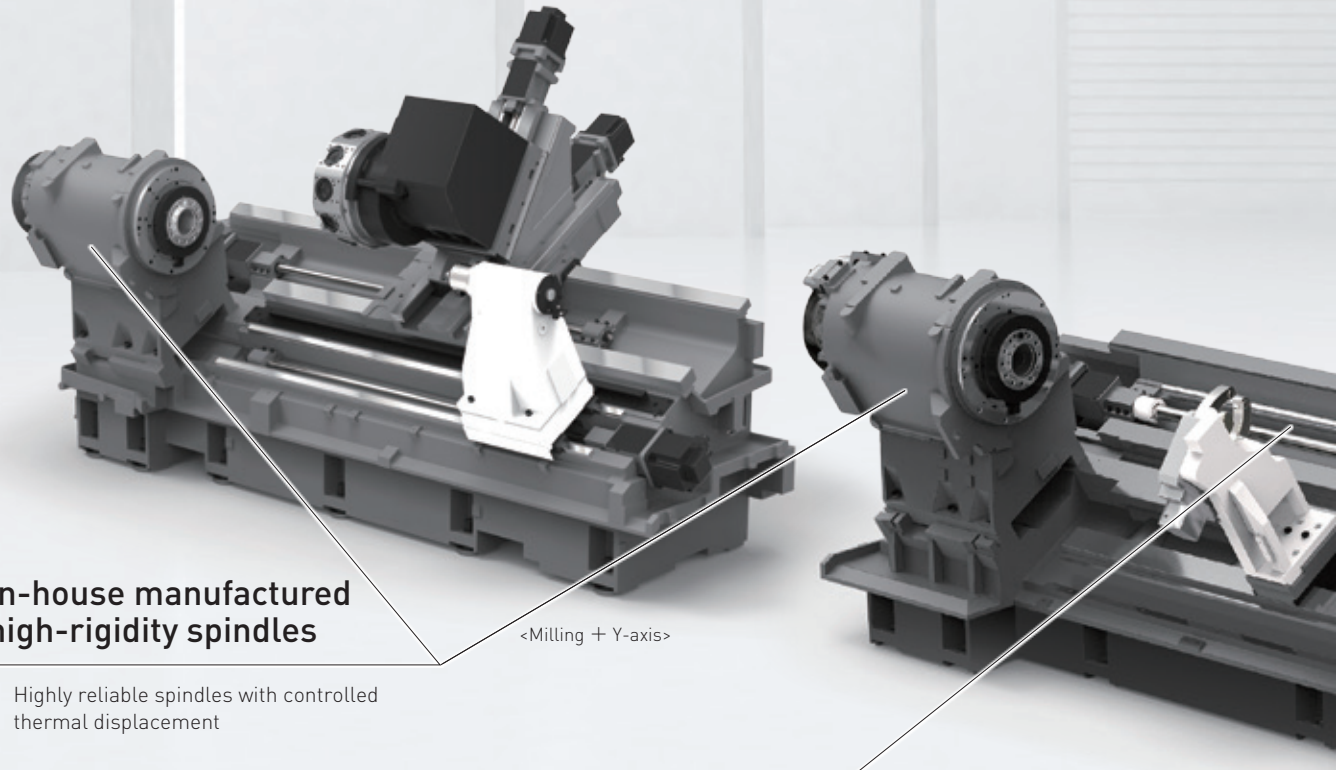
T MC Y TS Milling + Y-axis + Tailstock



NLX 3000

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-, Y-, and Z-axis for higher vibration damping performance and dynamic rigidity, which realizes outstanding cutting capabilities.



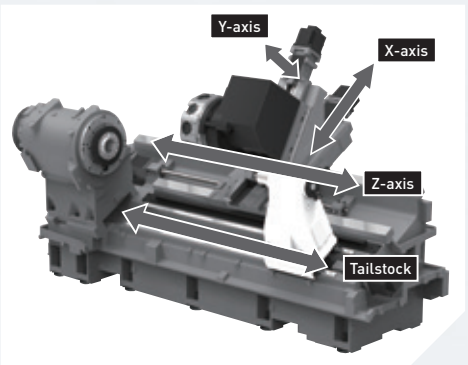
<Milling + Y-axis>

In-house manufactured high-rigidity spindles

+ Highly reliable spindles with controlled thermal displacement

Spacious work area

+ Travel: X-axis 280 mm (11.0 in.)
Y-axis 120 <±60> mm (4.7 <±2.4> in.) <Y-axis specification>
Z-axis 820 mm (32.3 in.) <700 type> /
1,370 mm (53.9 in.) <1250 type>
2,170 mm (85.4 in.) <2000 type> /
3,170 mm (124.8 in.) <3000 type>
Tailstock 734 mm (28.9 in.) <700 type> /
1,284 mm (50.6 in.) <1250 type>
2,164 mm (85.2 in.) <2000 type> /
3,164 mm (124.6 in.) <3000 type>



Milling turret

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

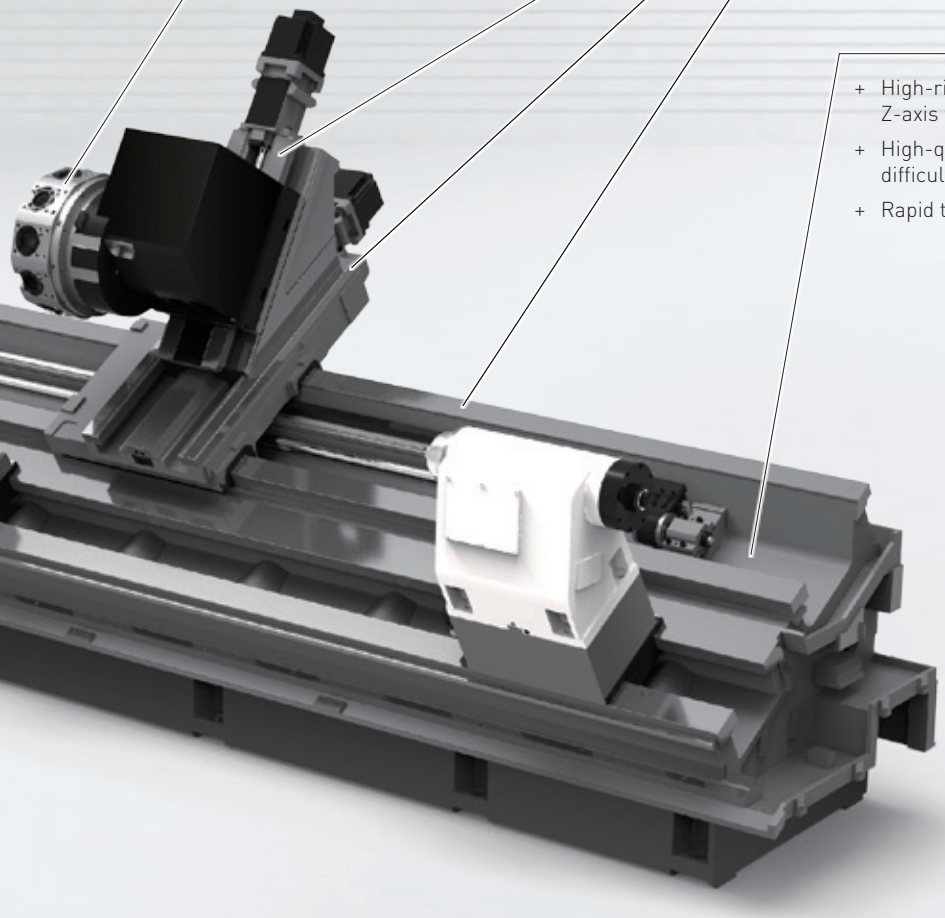
BMT: Built-in Motor Turret

Wide slideways

+ Improved vibration damping and dynamic rigidity
+ Consistent high-precision machining

High-rigidity bed

+ High-rigidity bed with slideways on the X-, Y- and Z-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)
  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)



<Milling + Y-axis>

FEM analysis

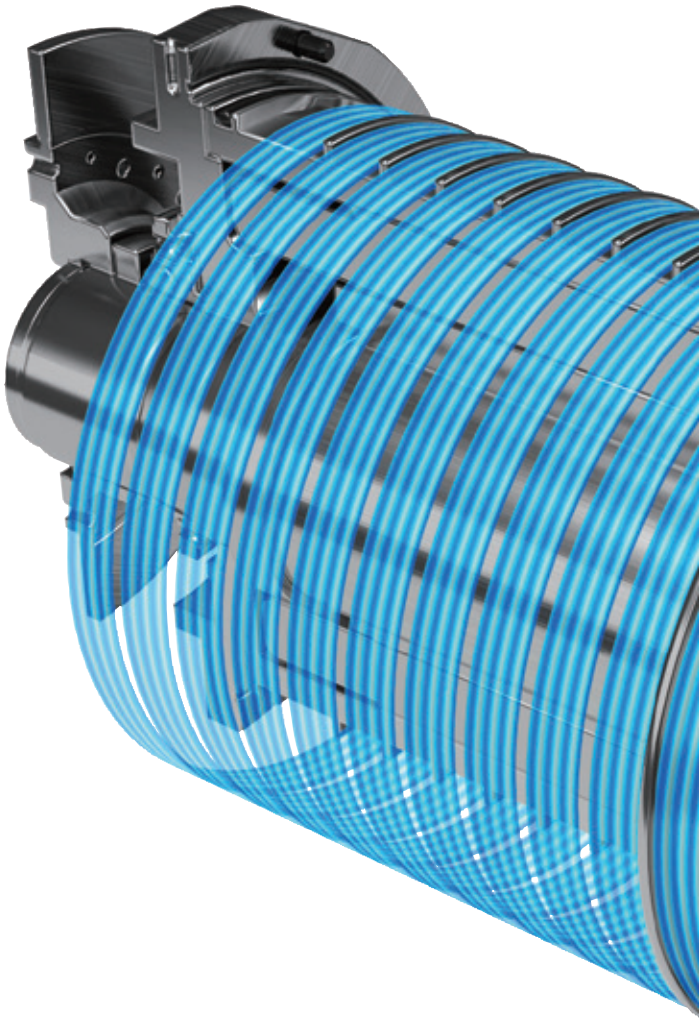
+ Simulation of structural deformation at the time of load application
+ Fine adjustment to every part, including the thickness of the bed, the shape and layout of the ribs, to achieve a high level of flexural rigidity

FEM: Finite Element Method

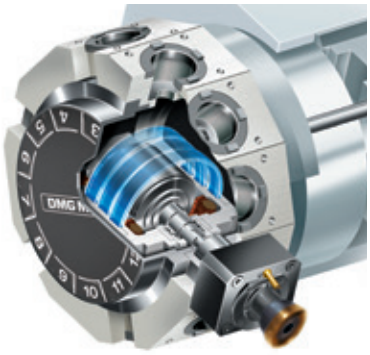
NLX 3000

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.



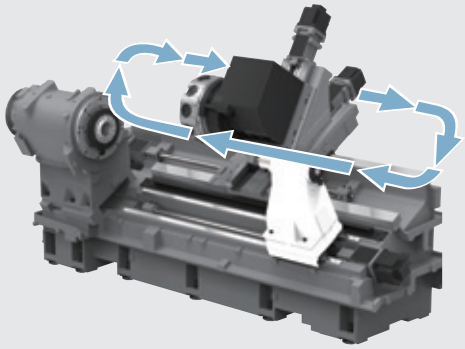
Milling turret designed to control thermal displacement (BMT)



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

BMT: Built-in Motor Turret

Coolant circulation for casting parts <700 type / 1250 type>



Coolant circulation pathway

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

(NLX 2500)

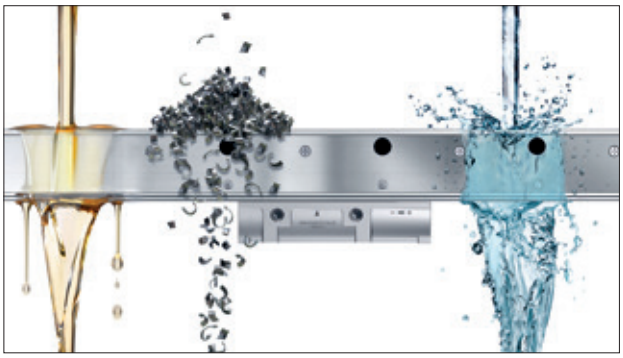
Coolant chiller <separate type> (option)

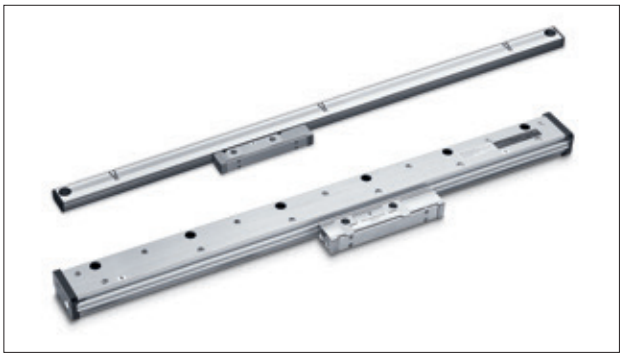
Increased coolant temperature causes thermal displacement in the fixtures and workpiece, affecting the machining accuracy of the workpiece. Use this unit to prevent the cutting coolant from heating up. When using oil-based coolant, the coolant temperature can become extremely high even with the standard 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) <Magnescale> (option)



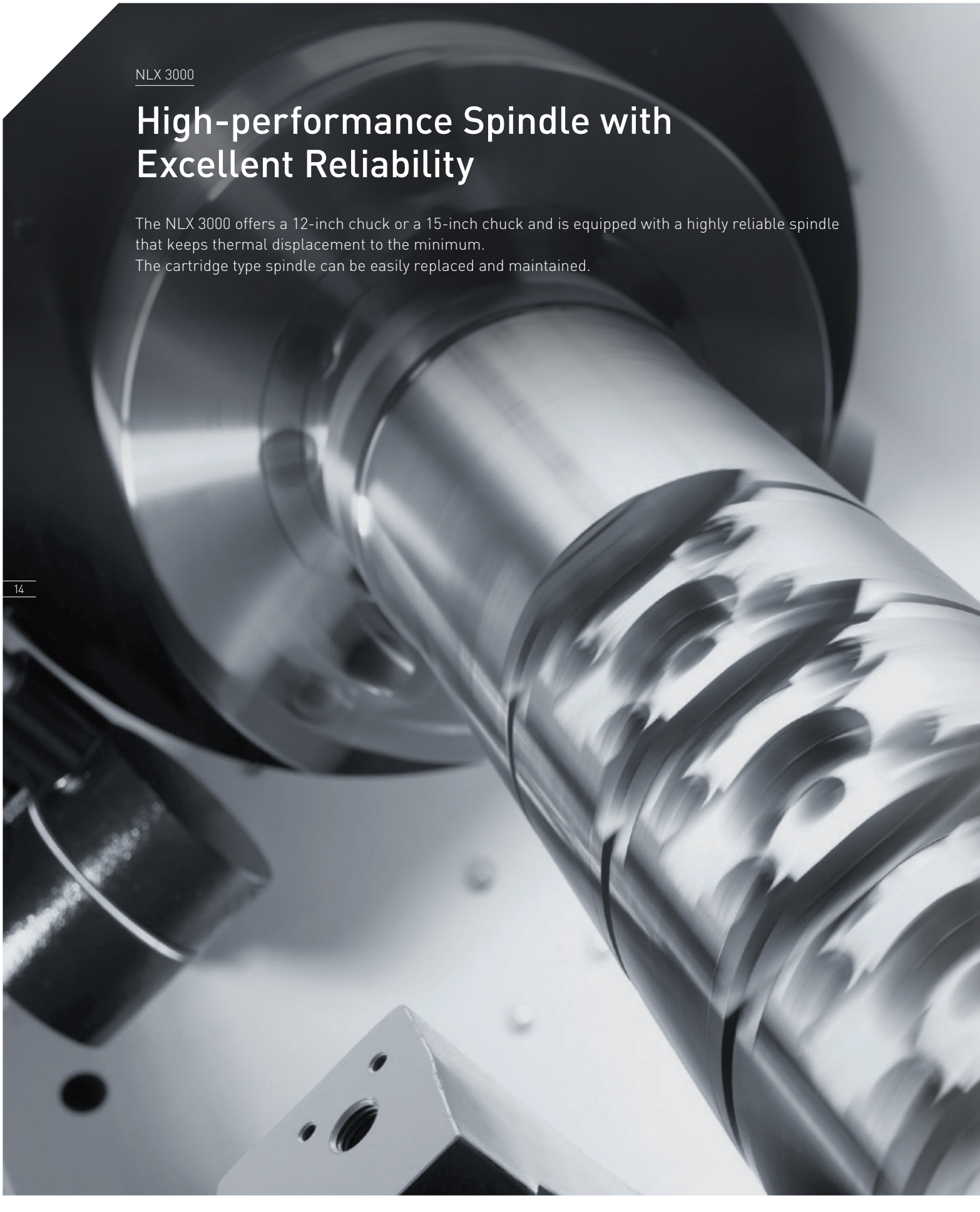


+ Superior precision with full closed loop control (Scale feedback)
+ Magnetic measuring system with a high resolution of 0.01 µm
+ Resistance to oil and condensation due to a magnetic detection principle
+ Impact resistance of 450 m/s² (17,716.5 in./s²)
+ Vibration resistance of 250 m/s² (9,842.5 in./s²)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

NLX 3000

High-performance Spindle with Excellent Reliability

The NLX 3000 offers a 12-inch chuck or a 15-inch chuck and is equipped with a highly reliable spindle that keeps thermal displacement to the minimum.
The cartridge type spindle 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

+ 3,000 min^{-1}
  3,000 min^{-1} <high output>

Output

+ 22 / 18.5 kW (30 / 24.7 HP) <30 min / cont>
  30 / 25 kW (40 / 33.3 HP) <30 min / cont> {high output}

Spindle torque

+ 1,025 / 862 N•m (756.0 / 635.8 ft•lbf) <30 min / cont>
  1,194 / 995 N•m (880.6 / 733.9 ft•lbf) <30 min / cont> {high output}

Standard chuck size*

+ 12 inches

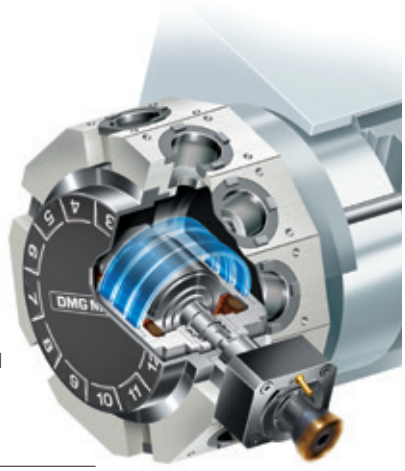
* The chuck is optional.

NLX 3000

BMT (Built-in Motor Turret) for Outstanding Milling

The Milling specification is equipped with the BMT 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.
It ensures excellent machining precision with the cooling jacket
that controls heat generation.

BMT
Built-in Motor Turret



"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)

The turret with an optimum center of gravity location offers significantly improved tool tip rigidity

+ Turret indexing time (1-station): 0.3 sec.
+ Overhang of O.D. cutting rotary tool: 50 mm (2.0 in.), 100 mm (3.9 in.)

Number of tool stations

+ 10 tools, 12 tools

Max. rotary tool spindle speed

+ 10,000 min^{-1} <standard>
  4,000 min^{-1} <high torgue>

Output (rotary tool spindle)

+ 5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP) <3 min / 5 min / cont> {standard}
  5.5 / 3.7 / 2.2 kW (7.5 / 5 / 3 HP) <10 min / 15 min / cont> {high torgue}
+ 2000 type / 3000 type: 10.0 / 6.0 kW (13.3 / 8 HP) <4 min / cont> {high torgue}

Rotary tool spindle torque

+ 40 / 30 / 14 N•m (29.5 / 22.1 / 10.3 ft•lbf) <3 min / 5 min / cont> {standard}
  54 / 54 / 32 N•m (39.8 / 39.8 / 23.6 ft•lbf) <10 min / 15 min / cont> {high torgue}
+ 2000 type / 3000 type: 100 / 68 N•m (73.8 / 50.2 ft•lbf) <4 min / cont> {high torgue}

Turret indexing

+ High-rigidity clamping with in-house made curvic couplings
+ High repeatability and indexing accuracy

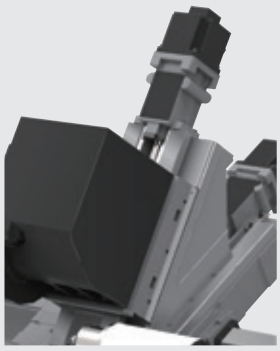
BMT: Built-in Motor Turret

NLX 3000

Y-axis Specification Achieving High-precision Machining

The NLX 3000 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

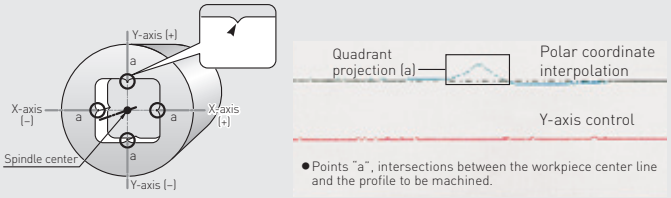


The Y-axis is created by linking the feed of the X-axis and the simulating axes. We have made the axis unit compact and restricted the height of the machine.

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.)

Comparison between polar coordinate interpolation and Y-axis control (contouring)



With polar coordinate interpolation, the X-axis movement reverses at the intersections (a) between the workpiece center line and the profile, 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

Tailstock

Digital tailstock <NLX 3000 | 700, NLX 3000 | 1250>

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

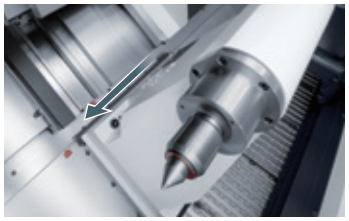
+ Fewer steps requiring operation of the tailstock
+ Setup time: Reduced by over 50%
+ Tailstock spindle operating time: Reduced by over 20%
+ Variable pressure control using program instructions
+ Simple operation using MAPPS

MAPPS: Mori Advanced Programming Production System

Programmable tailstock <NLX 3000 | 2000, NLX 3000 | 3000>

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

+ Tailstock travel: 2,164 mm (85.2 in.) <2000 type>
  3,164 mm (124.6 in.) <3000 type>



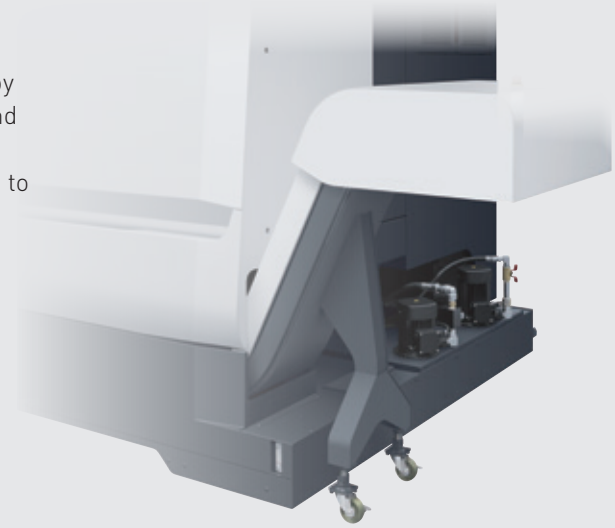
Chip flushing coolant

Chip flushing coolant is featured as standard at the base of the tailstock, improving chip processing capability.

NLX 3000

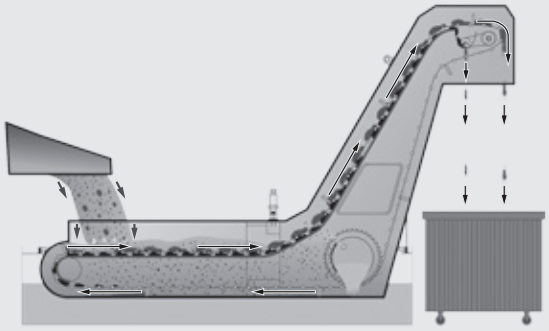
Cutting-edge Chip Disposal Solution

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.



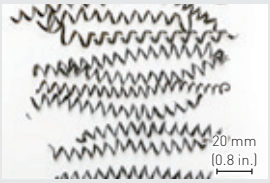
Chip disposal solutions suited for various types of chips and coolant treatments (option)

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.



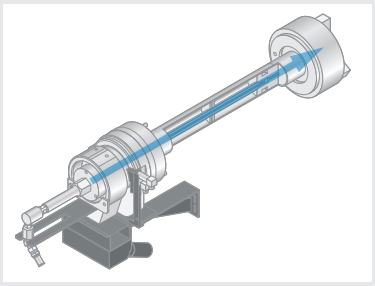
Chip conveyor (option)

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

Workpiece material	Steel		
Chip form			
Chip size	Long	Short	Powdery
Right discharge, hinge type + drum filter type*1	○	○	△*2
Hinge type	○	–	–
Hinge type <aluminum>	–	–	–
Scraper type	–	○	△*2
Magnet scraper type	–	○	△*2

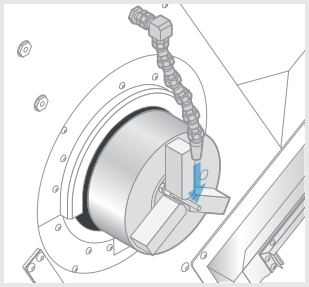
*1 Consultation is required.
*2 Depending on chip size, chips may pass through the filter and the conveyor and accumulate in the coolant tank. Due to possible effect on machining accuracy, a second filtration device may need to be considered.
● <Chip size guidelines> Short: chips 50 mm (2.0 in.) or less 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*



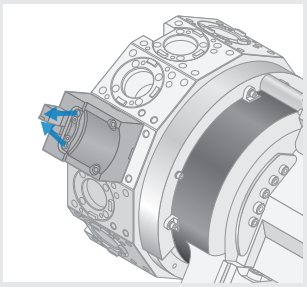
Coolant supplied through the center of the chuck removes chips generated during I.D. machining.

Chuck top coolant*



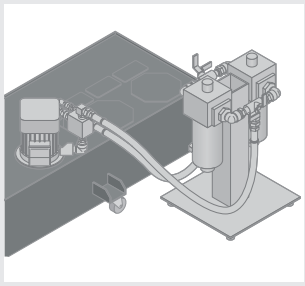
Coolant supplied from above the chuck removes chips and minimizes heat generation in the workpiece.

Air blow for tool tip*



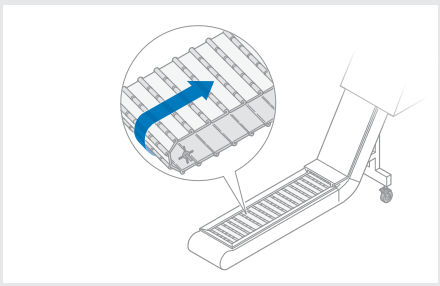
Air is blown toward the tool tip to blow away chips adhering to the tool.

Coolant line filter*



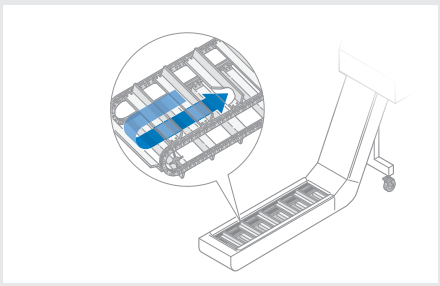
It removes foreign matter in the coolant coming from the coolant pump. The filter clogging detection function is available.

Chip conveyor (hinge type)*



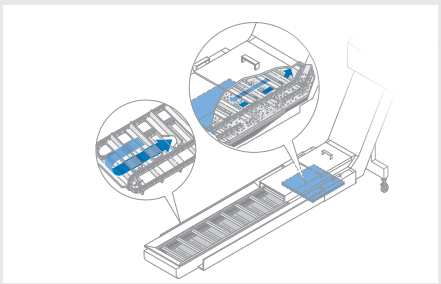
The hinge plate carries and discharges chips to the outside of the machine. Particularly effective for long chips.

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.

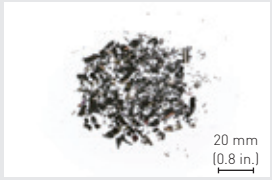
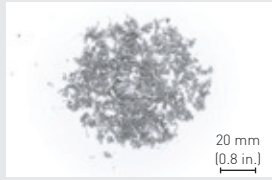
Chip conveyor (magnet scraper type)*



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

○: Suitable △: Consideration required —: Not suitable

Cast iron		Aluminum / non-ferrous metal		
				
Short	Powdery	Long	Short	Powdery
○	△*2	○	○	△*2
—	—	○	—	—
—	—	—	○	—
○	—	—	—	—
○	—	—	—	—

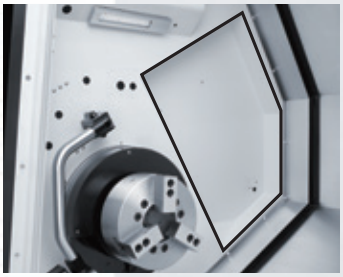
- The options table shows the general options when using coolant.
  Changes may be necessary if you are not using coolant, or depending on the amount of coolant, compatibility with machines, or the specifications required.
- Please select a chip conveyor that suits the shape of your chips.
  When using 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.

NLX 3000

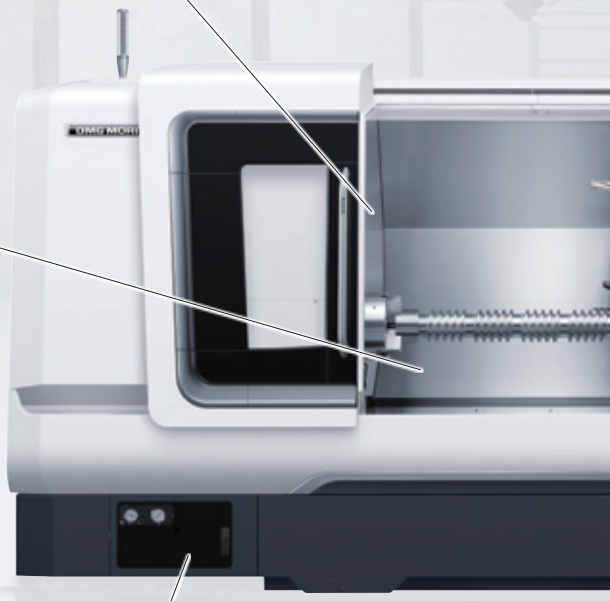
Pursuit of Usability

The NLX 3000 is designed with features for ease of maintenance to increase the machine operating rate.
The NLX 3000 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

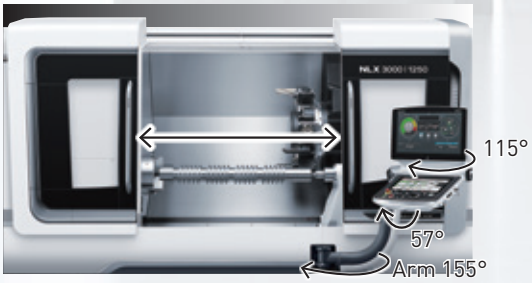


+ The chuck cover is provided with a pocket to accommodate tool overhang, preventing interference



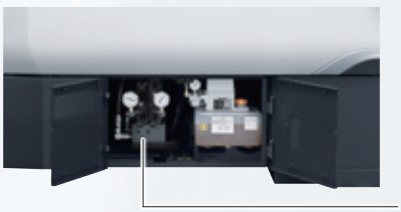
Wide door opening

+ A wide door opening improves efficiency of setups



+ Door opening: 900 mm (35.4 in.) <700 type>
1,442 mm (56.8 in.) <1250 type>
2,350 mm (92.5 in.) <2000 type>
3,338 mm (131.4 in.) <3000 type>

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

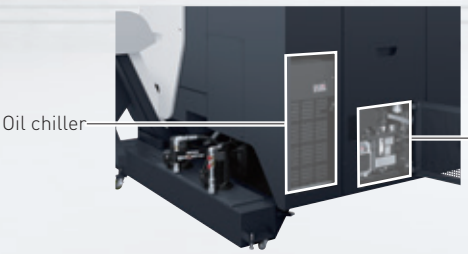
Pneumatic equipment

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

NLX 3000 | 1250 <Milling + Y-axis>

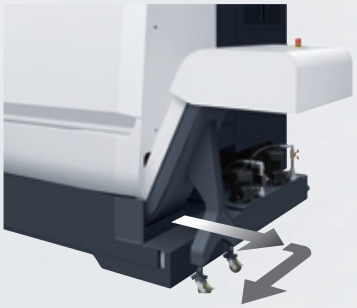
Oil chiller / Hydraulic unit

+ Both the oil chiller and the hydraulic unit are mounted on the back side of the machine for ease of access



Pull out the coolant tank to front

+ The coolant tank itself can be easily pulled out to the front side, so it does not take up extra space in the back
<700 type> <1250 type>



NLX 3000

Solutions Best Matched to Customers' Needs

The NLX 3000 offers various solutions to tackle customers' diversifying issues.
Here are examples of a new machining technique using the DMG MORI's original technology, and a highly efficient automation solution.

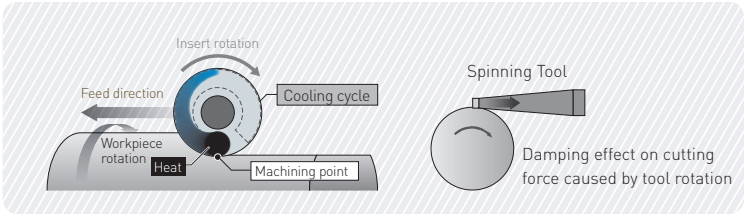
(the photo shows the NLX 2500)

Cutting-edge technology to achieve high-precision machining

The Spinning Tool is an axially-loaded cutting tool that revolutionizes turning operation. It dramatically improves productivity and tool life for turning operation. Compared with conventional methods, the Spinning Tool significantly reduces tool temperature increases and wear, achieving new standards in high-precision, high-efficiency turning.

+ Improves productivity by 5 times*
+ Extends tool life by 20 times*
+ Dissipation of heat allows dry machining
+ Synchronizes with the spindle, allowing elliptical machining
+ Effective for machining difficult-to-cut material such as nickel alloy or heat-resistant alloy

∗ It differs depending on conditions.
● Separate consultation is required. For details, please consult our sales representative.



Comparison of material removal rate

		Conventional tool	Spinning Tool
Material removal rate	mL/min (in³./min)	6.0 (0.36)	29.0 (1.76)
Cutting speed	m/min (fpm)	365 (1,197.6)	914 (2,998.8)

● Material <JIS>: S45C*(Carbon steel) JIS: Japanese Industrial Standard
∗ 1045, 1046 (ANSI), C45, C45E, C45R (BS, DIN), 45 (GB)

+ Material removal rate: Approx. 5 times greater

Workpiece unloading devices

1 Workpiece unloader <built-in type> (option)

The evolved parts catcher enables easy adjustment by customers.
It can handle workpieces up to double the previous length.

+ Applicable workpiece diameter: 80 mm (3.1 in.)
+ Applicable workpiece length: 200 mm (7.8 in.)
+ Max. transfer mass: 4.0 kg (8.8 lb.)

- 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.
- The photo shows the NLX 2500

2 Bar feeder (option)

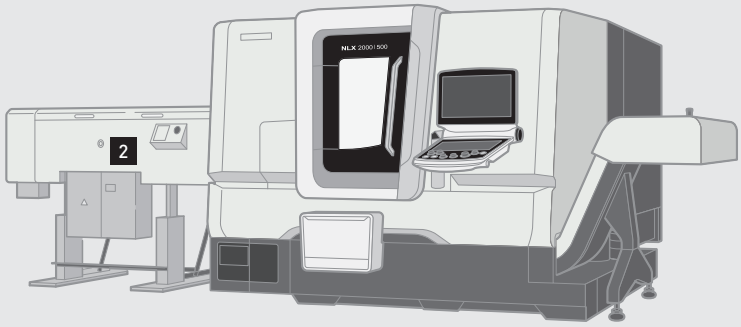
The combination with the workpiece unloader enables automation of machining of bar materials.

+ Bar work capacity:
  ø 90 mm (ø 3.5 in.)*

* Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

Recommended accessories for bar feeder specification

- Bar feeder
- Multiple counter
- Signal lamp
- Guide bush
- Work stopper

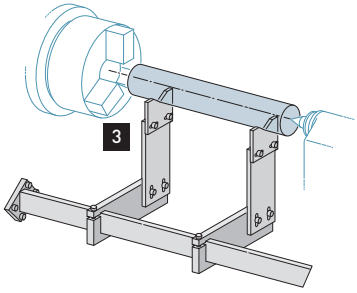


- The illustration shows the NLX 2000

3 Workpiece rest (option)

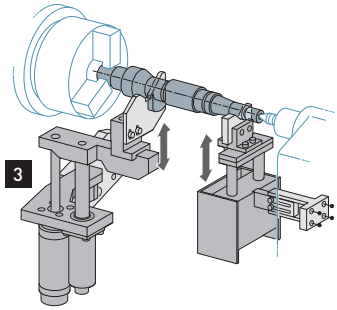
Fixed type

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 colors and configurations shown in the photographs or illustrations may differ from those of the actual product.

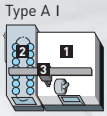
Gantry-type loader system

A high-speed system for mass production that significantly increases productivity while reducing non-cutting time.

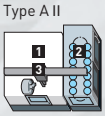
NLX 2000

Specifications

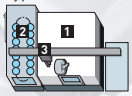
Type A I



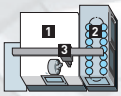
Type A II



Type AIII

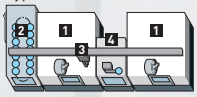


Type AIV

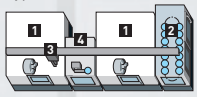


Other specifications <Consultation is required>

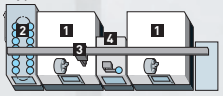
Type C I



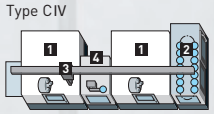
Type C II



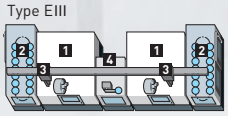
Type CIII



Type CIV



Type EIII

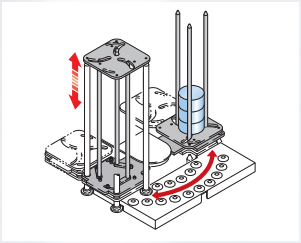


Units
1 Machine
2 Workstocker
3 Loader
4 Turnover unit

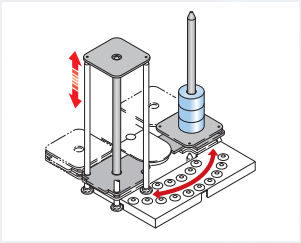
- Separate consultation is required for hollow cylinder specifications. (Type A I , Type A III , Type C I , Type C III , Type E III)

Workstocker <Consultation is required>

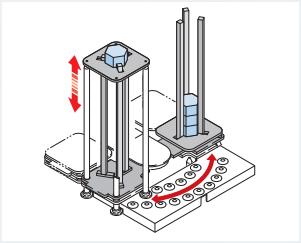
3-guide specification



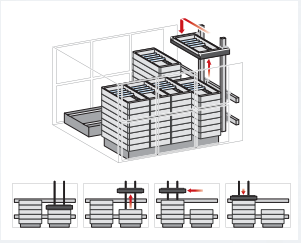
Center-guide specification



Hexagonal bar guide specification

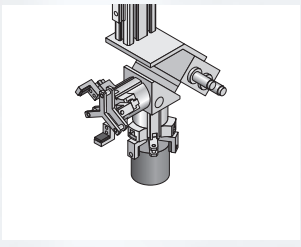


Tray changer

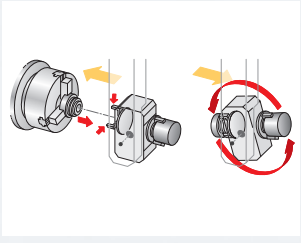


Loader hand <Consultation is required>

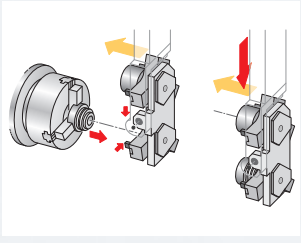
Swivel hand



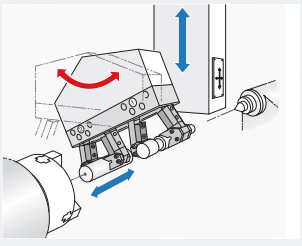
Back end hands



Parallel hands



Hand for shaft workpieces

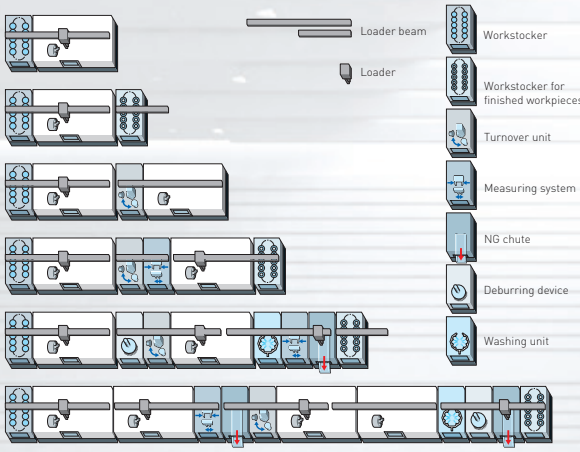


Gantry loader system with modularized peripherals

All units (peripherals) that make up the gantry-type loader system, including a transfer unit, workpiece stocker and on-machine measuring system, have been modularized to standardize their sizes. This allows system installation in the shortest time as well as flexible layout change according to changes in production requirements, which used to be difficult to achieve.

Flexible module system

+ The system units can be freely expanded or changed using combinations of two types of loader beams <1 m (3.3 ft) and 2 m (10.8 ft)> available
+ Modular units can be combined flexibly and replaced easily

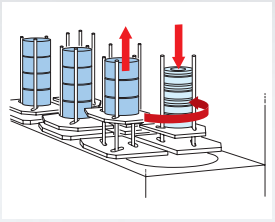


● Please contact us for dimensions.

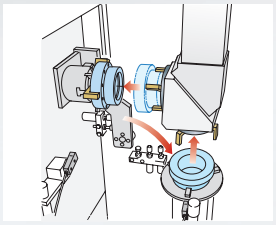
Various modules are available

+ Standardized peripherals enable flexible system change even after installation

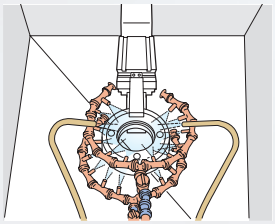
Rotary workstocker



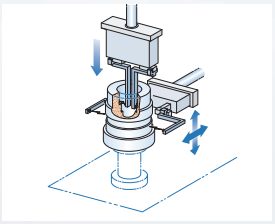
Turnover unit



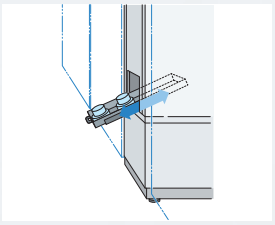
Washing unit



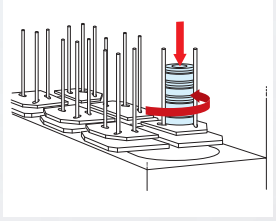
Measuring system



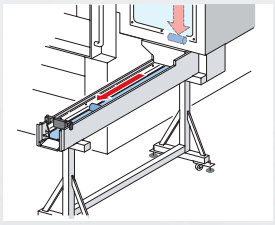
NG chute



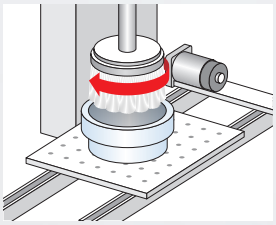
Rotary workstocker for finished workpieces



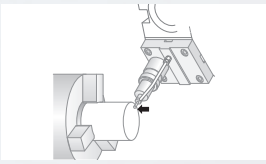
Belt conveyor for finished workpieces



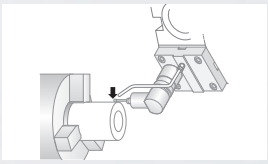
Deburring device



Functions to support automation



In-machine measuring system
(when measuring a workpiece length)



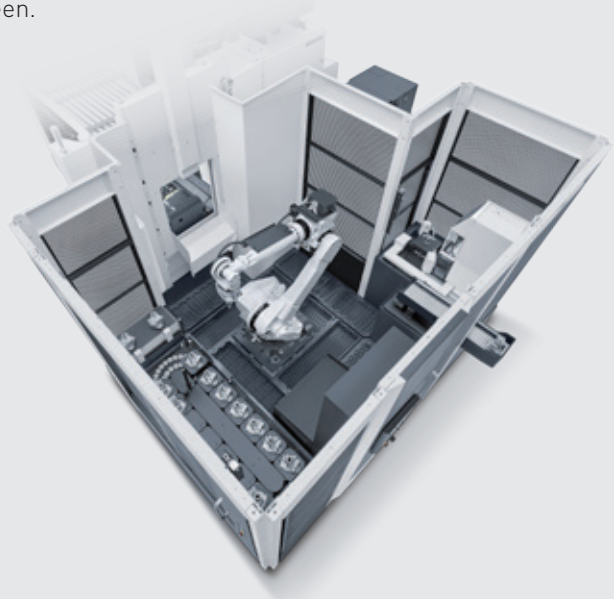
In-machine measuring system
(when measuring a workpiece diameter)

Tool breakage detection
(automatic in-machine tool presetter)

NLX 3000

No Programming Required! New Robot System MATRIS

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

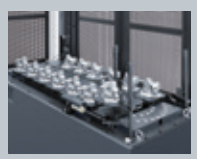
MAPPSconnected

+ 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

Intercommunication **Intercommunication** **Intercommunication**

Robot

Modules



Machine

Standard Package

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.

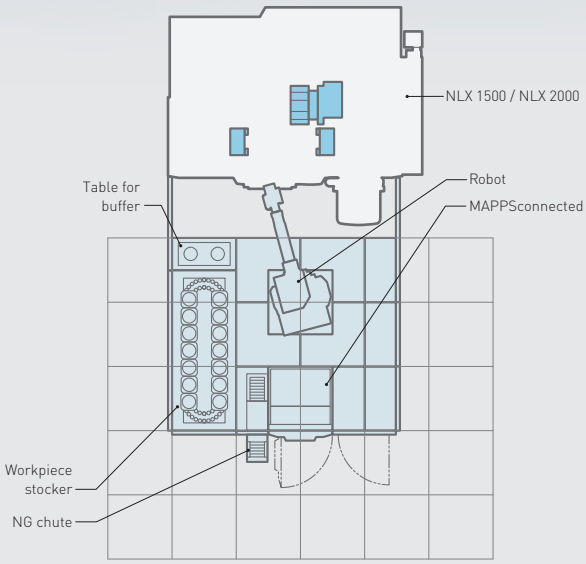
01 Handling package

+ 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

Example of layout



Example: Handling package

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

NLX 3000

One Stop Service for Various Needs DMG MORI Qualified Products

The DMG MORI Qualified Products (DMQP) program <option> 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

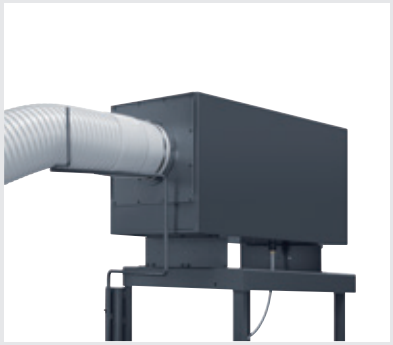
● The options above are examples. For details, please consult our sales representative.

DMQP: DMG MORI Qualified Products

Bar feeder

Hydraulic steady rest

Mist collector



Super-high-pressure coolant system

External chip conveyor

Coolant chiller

Air dryer

Air compressor

Tool cabinet

Robot system

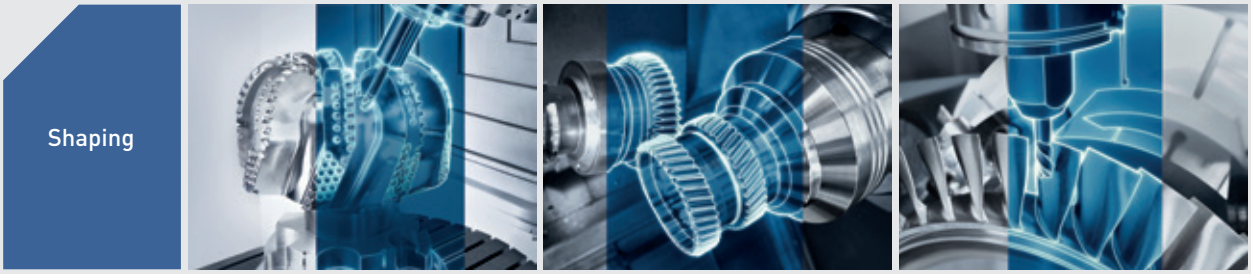
Coolant flow switch

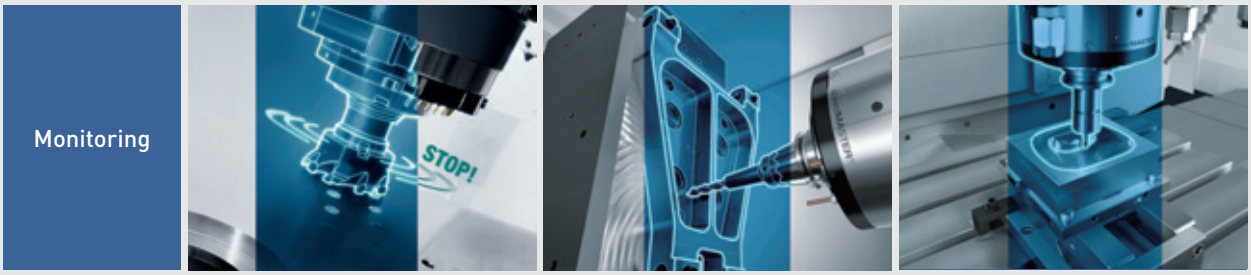
Oil skimmer

NLX 3000

DMG MORI Technology Cycles

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.





- The availability of the functions differ depending on the machine. For details, please consult our sales representative.
- The above is an image picture.

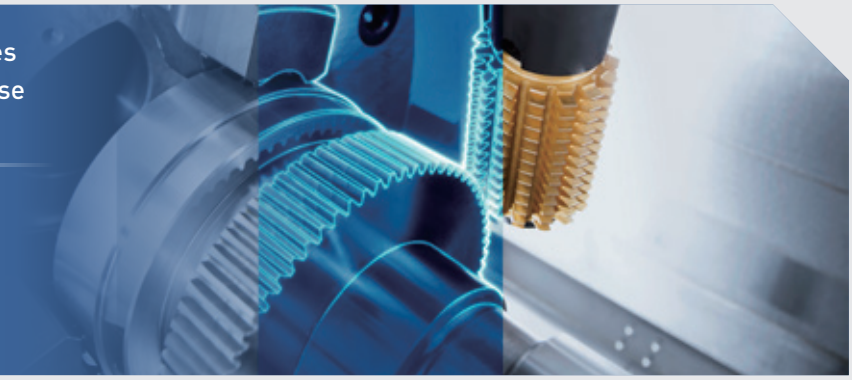
Respond to Various Technology Cycles

Shaping

Gear hobbing

Optimal programming achieves hobbing with a general-purpose machine

Efficient High-precision

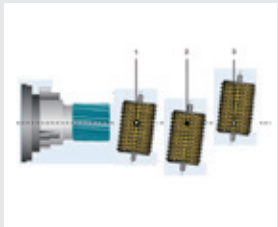


Issue (before introduction)

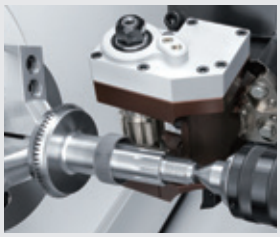
+ A gear machine is needed. After blank machining with a turning machine, gear machining needs to be performed with a gear machine after setup changes
+ Want to extend the tool life of expensive hob cutter

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

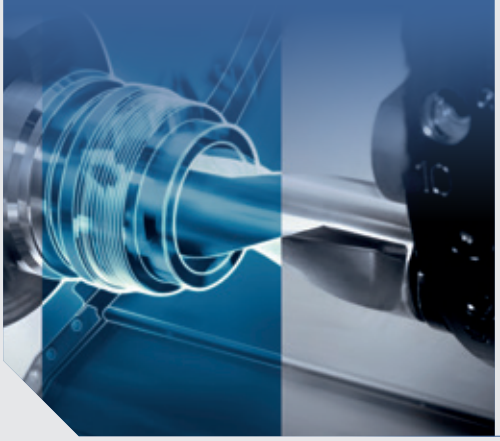
∗ <Reference> Wikipedia: Hobbing; https://ja.wikipedia.org/wiki/%E3%83%9B%E3%83%96%E7%9B%A4 (quoted on September 19, 2018)

Monitoring

Easy tool monitoring

Monitoring load of spindle and traveling axes

Efficient Safe



Issue (before introduction)

+ Abundant experience is needed to set cutting conditions
+ Want to prevent tool breakage and machine failure
+ Difficult to monitor load to the spindle and tools at all times

Results (after introduction)

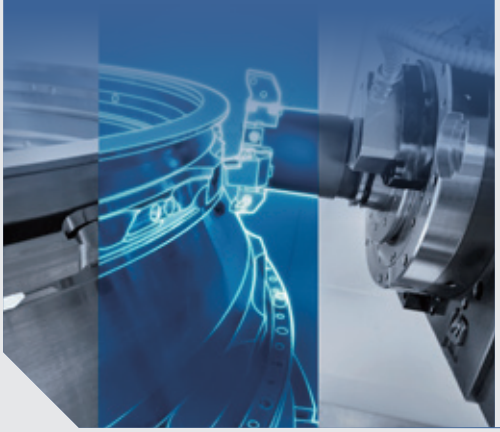
+ **Conditions can be set in advance, enabling digital cutting management not dependent on experience or expertise**
+ **Can reduce tool breakage and maintenance cost by maximizing the capacities of the tools and machine**
+ **Load to the traveling axis and spindle during machining is monitored at all times, and the machine stops when abnormal values are detected**

Handling

Multi-tool

Maximizing number of tools & minimizing non-cutting time

Efficient



Issue (before introduction)

+ Models with the Y axis or Spindle 2 specification require tools for various cutting operations
+ More than one tool is mounted to one station in some cases, making their management complex
+ Including spare tools, it is necessary to prepare more tools than the number of turret stations

Results (after introduction)

+ **Tool compensation setting and life management can be easily performed for multiple tools of each station**
+ **Operator can set optimum tool information for each tool and maximize the number of tools**
+ **Prevent tool breakage and enhance production efficiency by switching to spare tools according to the operating time of the set tool**

Handling

Alternating speed

Stable machining in which chatter hardly occurs

Efficient High-precision

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

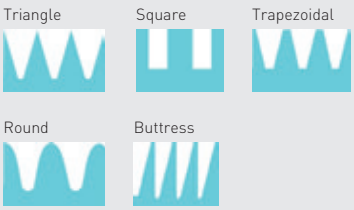
Efficient

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**

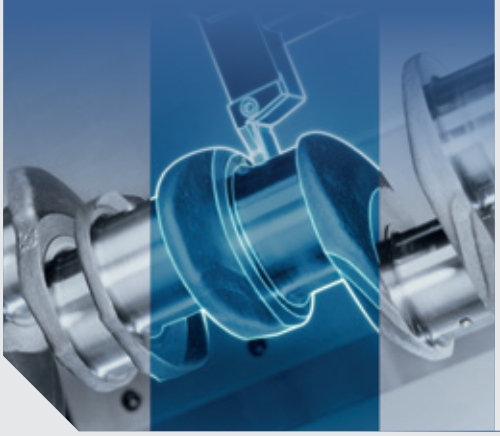


Shaping

Excentric machining

Easy programming of excentric machining

Efficient High-precision

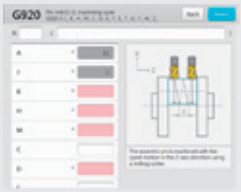


Issue (before introduction)

+ Hope to perform excentric machining processes on one machine
+ Expensive jigs for excentric machining are necessary

Results (after introduction)

+ **Reduce setup time by consolidating machining operations performed with a special machine into a general-purpose machine**
+ **Complicated program for excentric machining can be created using the conversational programming style**
+ **Compatible with both turning and milling to achieve efficient machining**
+ **Require no eccentric machining jigs**



Shaping

gearSKIVING

High-speed gear cutting including internal teeth

Efficient High-precision

Issue (before introduction)

+ Not sure how to create a program because it involves a special machining technique
+ Require multiple processes with a gear machine and a cutting machine

Results (after introduction)

+ **Can easily program a machining technique called gear skiving**
+ **Internal teeth that cannot be machined by hobbing can be cut**
+ **Consolidation of processing operations into the general-purpose machine reduces setup time and enhances accuracy such as concentricity due to no setup change**

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

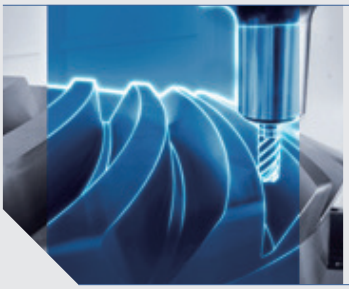
Automation allows for easy return to the zero return position without errors

+ 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

Shaping

DMG MORI gearMILL

Efficient High-precision



Integrating gear cutting into turning / milling

+ 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

NLX 3000

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.

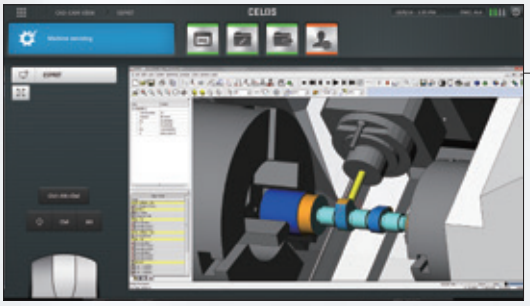
CELOS APPs facilitate quick and easy operation: three examples »»

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

CELOS: Control Efficiency Lead Operation System

ERGO*line* 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

NLX 3000

Revolutionary Productivity with Cutting-edge Technology DMG MORI's Connected Industries

By making full use of cutting-edge technology, DMG MORI realizes its Connected Industries* to help improve your productivity and profitability significantly. Our Connected Industries is structured in three layers. Centering around the cutting-edge operation system "CELOS," our Connected Industries networks not just individual machines but also production systems and the entire plant. This network will help clearly define your problems, offering the best and customized solutions.

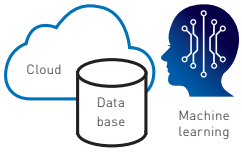
* An industrial society in which new added value will be created through connected humans, machines, and technologies – A new vision for the future of Japanese industries that the Ministry of Economy, Trade and Industry advocates.

AI-based solutions

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



The speed of learning is increased by accumulating data from multiple machines in the DMG MORI's server for integrated data management.

Machine status monitoring

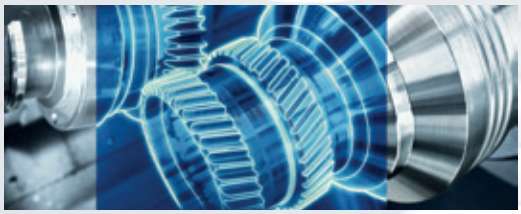
Various machine data generated by sensors can be easily checked on the CELOS.

Each monitoring value is displayed in an easy-to-understand manner.

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

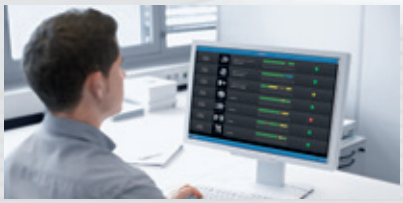
∗ The information needed to machine a workpiece (setups, tools, programs, etc.)



JOB MANAGER
Job* preparation / process planning

JOB SCHEDULER
Machining preparation

JOB ASSISTANT
Machining / checking



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: Control Efficiency Lead Operation System

CELOS Club

Continuously supporting your productivity improvements

+ Latest functions always available through version upgrades
+ Centralized machine management and streamlined programming
+ Maximizing operating time
+ CELOS Club Platinum (option)

● Japan only.

MAPPS: Mori Advanced Programming Production System

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

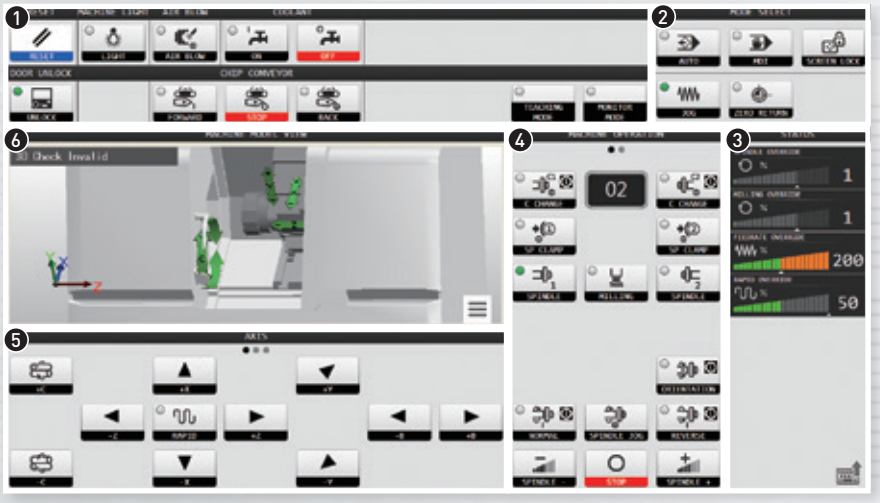
● Please consult our sales representative for more detailed information, including the release time in your country.

NLX 3000

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.

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



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

❶ Individual function operation area : Displays function buttons at all times regardless of the operation mode.

❷ Operation mode selection area : Displays mode selection buttons at all times.

❸ Status display area : Displays the override status.

❹ Machine operation area : Displays buttons related to spindle / turret operation and optional functions over multiple pages.

❺ 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.

❻ In-machine display area : Displays the machine model view.

NLX 3000

Unique Energy-saving Function GREENmode

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 CO_2 emission amount

GREENmode

GREEN monitoring

+ Visualize power consumption and CO_2 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

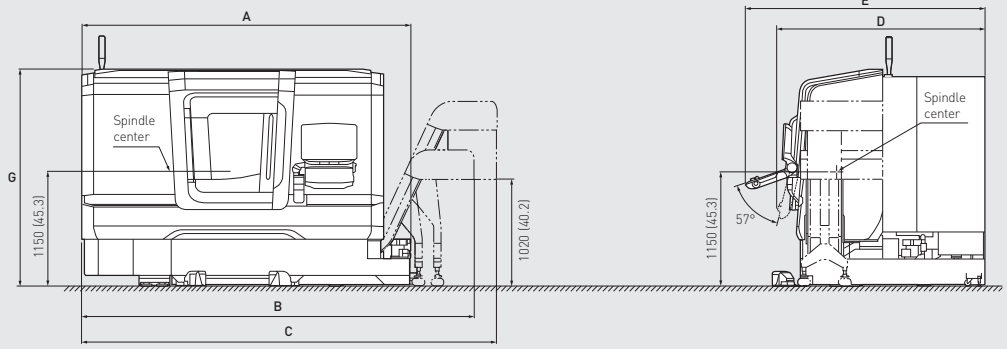
CELOS: Control Efficiency Lead Operation System

Machine Size

mm (in.)

NLX 3000 | 700

Front view



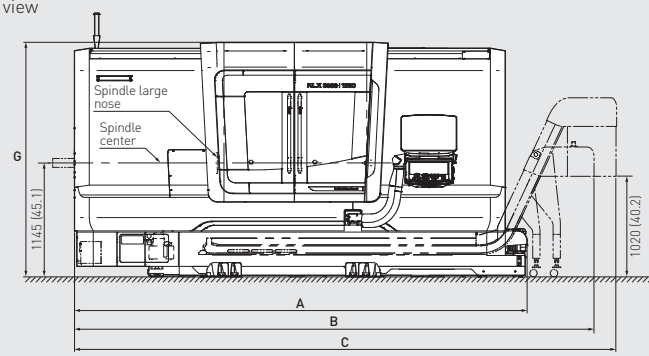
Side view

Q59341A03

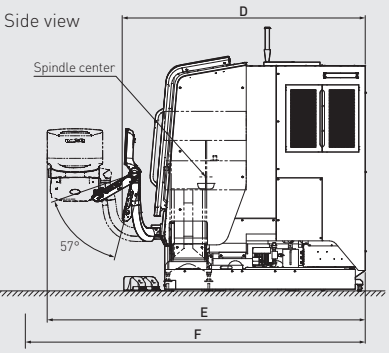
mm (in.)

NLX 3000 | 1250

Front view



Side view

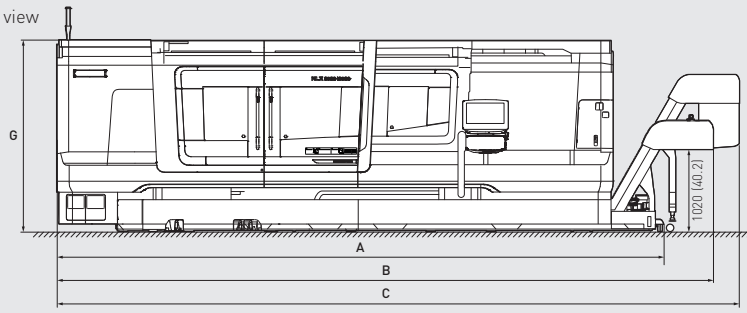


Q56231A02

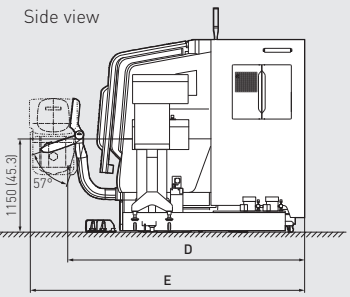
mm (in.)

NLX 3000 | 2000, NLX 3000 | 3000

Front view



Side view



Q56335A03
Q56338A03

Machine type	Width			Depth			Height
	Machine only	Including chip conveyor	Including chip conveyor <EN>	Machine only	Machine only <with operation panel swiveled>	Including space to remove coolant tank	Machine only
	A	B	C	D	E	F	G
NLX 3000 | 700	3,585 (141.1)	4,291 (168.9)	4,524 (178.1)	2,198 (86.5)	2,524 (99.4)	—	2,273 (89.5)
NLX 3000 | 1250	4,572 (180.0)	5,246 (206.5)	5,478 (215.7)	2,480 (97.6)	3,211 (126.4)	3,523 (138.7)	2,362 (93.0)
NLX 3000 | 2000	6,512 (256.4)	7,147 (281.4)	7,477 (294.4)	2,807 (110.5)	3,352 (132.0)	—	2,403 (94.6)
NLX 3000 | 3000	7,592 (298.9)	8,227 (323.9)	8,557 (336.9)	2,941 (115.8)	3,486 (137.2)	—	2,405 (94.7)

EN: European Norm (European Standards)

NLX 3000

Machine Specifications

		NLX 3000 | 700			NLX 3000 | 1250		
Basic specification		T TS			T TS		
Optional specifications		—	MC	MC Y	—	MC	MC Y
Capacity							
Swing over bed	mm (in.)	978 (38.5) <interference with front cover 612 (24.1)>			978 (38.5) <interference with front cover 713 (28.1)>		
Swing over cross slide	mm (in.)	808 (31.8)					
Max. turning diameter	mm (in.)	430 (16.9)*1 / 420 (16.5)*2					
Max. turning length	mm (in.)	713 (28.0)			1,260 (49.6)		
Bar work capacity	mm (in.)	ø 90 (ø 3.5)*3, ø 102 (ø 4.0)*3*4					
Travel							
X-axis travel	mm (in.)	280 (11.0)					
Z-axis travel	mm (in.)	820 (32.3)			1,370 (53.9)		
Y-axis travel	mm (in.)	—		120 < ±60> (4.7 < ±2.4>)	—		120 < ±60> (4.7 < ±2.4>)
Spindle							
Max. spindle speed	min^{-1}	3,000, 3,000 <high output>					
Type of spindle nose		JIS A_2-8					
Turret							
Number of tool stations		10, 12					
Shank height for square tool	mm (in.)	25 (1)					
Max. rotary tool spindle speed	min^{-1}	—	10,000, 4,000*5		—	10,000, 4,000*5	
Feedrate							
Rapid traverse rate	mm/min (ipm)	X, Z: 30,000 (1,181.1) Tailstock <forward / backward>: 7,000 / 20,000 (275.6 / 787.4)	X, Z: 30,000 (1,181.1) Tailstock <forward / backward>: 7,000 / 20,000 (275.6 / 787.4) C: 400 min^{-1}	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) Tailstock <forward / backward>: 7,000 / 20,000 (275.6 / 787.4) C: 400 min^{-1}	X, Z: 30,000 (1,181.1) Tailstock <forward / backward>: 7,000 / 20,000 (275.6 / 787.4)	X, Z: 30,000 (1,181.1) Tailstock <forward / backward>: 7,000 / 20,000 (275.6 / 787.4) C: 400 min^{-1}	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) Tailstock <forward / backward>: 7,000 / 20,000 (275.6 / 787.4) C: 400 min^{-1}
Tailstock							
Tailstock travel	mm (in.)	734 (28.9)			1,284 (50.6)		
Taper hole of tailstock spindle		Live center <MT5>, Built-in center <MT4>					
Motor							
Spindle drive motor <30 min / cont>	kW (HP)	22 / 18.5 (30 / 24.7), 30 / 25 (40 / 33.3)					
Rotary tool spindle drive motor	kW (HP)	—	5.5 / 5.5 / 3.7 (7.5 / 7.5 / 5) <3 min / 5 min / cont> 5.5 / 3.7 / 2.2 (7.5 / 5 / 3) <10 min / 15 min / cont>*5		—	5.5 / 5.5 / 3.7 (7.5 / 7.5 / 5) <3 min / 5 min / cont> 5.5 / 3.7 / 2.2 (7.5 / 5 / 3) <10 min / 15 min / cont>*5	
Machine size							
Machine height <from floor>	mm (in.)	2,273 (89.5)			2,362 (93.0)		
Floor space <width × depth>	mm (in.)	3,585 × 2,198 (141.1 × 86.5) 4,291 × 2,198 (168.9 × 86.5)*6			4,572 × 2,480 (180.0 × 97.6) 5,246 × 2,480 (206.5 × 97.6)*6		
Mass of machine	kg (lb.)	6,800 (14,960)	6,850 (15,070)	7,100 (15,620)	8,400 (18,480)	8,500 (18,700)	8,900 (19,580)
Control unit							
Mitsubishi Electric		M730UM					

JIS: Japanese Industrial Standard

∗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 Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

∗4 With a specific chuck / cylinder selected. ∗5 High torque ∗6 Including chip conveyor.

● 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.

● For details, please check the Detailed Specifications. ● The information in this catalog is valid as of October 2018.

T : Turret
TS : Tailstock
MC : Milling (option)
Y : Y-axis (option)
The basic model is equipped with T and TS.

		NLX 3000 | 2000			NLX 3000 | 3000		
Basic specification		T TS			T TS		
Optional specifications		—	MC	MC Y	—	MC	MC Y
Capacity							
Swing over bed	mm (in.)	995 (39.2)					
Swing over cross slide	mm (in.)	825 (32.5)					
Max. turning diameter	mm (in.)	430 (16.9)*1 / 420 (16.5)*2					
Max. turning length	mm (in.)	2,123 (83.5)			3,123 (122.9)		
Bar work capacity	mm (in.)	ø 90 (ø 3.5)*3, ø 102 (ø 4.0)*3*4					
Travel							
X-axis travel	mm (in.)	280 (11.0)					
Z-axis travel	mm (in.)	2,170 (85.4)			3,170 (124.8)		
Y-axis travel	mm (in.)	—		120 <±60> (4.7 <±2.4>)	—		120 <±60> (4.7 <±2.4>)
Spindle							
Max. spindle speed	min^{-1}	3,000, 3,000 <high output>					
Type of spindle nose		JIS A_2-8					
Turret							
Number of tool stations		10, 12					
Shank height for square tool	mm (in.)	25 (1)					
Max. rotary tool spindle speed	min^{-1}	—	10,000, 4,000*5, 4,000*6		—	10,000, 4,000*5, 4,000*6	
Feedrate							
Rapid traverse rate	mm/min (ipm)	X, Z: 30,000 (1,181.1)	X, Z: 30,000 (1,181.1) C: 400 min^{-1}	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min^{-1}	X, Z: 30,000 (1,181.1)	X, Z: 30,000 (1,181.1) C: 400 min^{-1}	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min^{-1}
Tailstock							
Tailstock travel	mm (in.)	2,164 (85.2)			3,164 (124.6)		
Taper hole of tailstock spindle		Built-in center <MT5>					
Motor							
Spindle drive motor <30 min / cont>	kW (HP)	22 / 18.5 (30 / 24.7), 30 / 25 (40 / 33.3)					
Rotary tool spindle drive motor	kW (HP)	—	5.5 / 5.5 / 3.7 (7.5 / 7.5 / 5) <3 min / 5 min / cont> 5.5 / 3.7 / 2.2 (7.5 / 5 / 3) <10 min / 15 min / cont>*5 10.0 / 6.0 (13.3 / 8) <4 min / cont>*6		—	5.5 / 5.5 / 3.7 (7.5 / 7.5 / 5) <3 min / 5 min / cont> 5.5 / 3.7 / 2.2 (7.5 / 5 / 3) <10 min / 15 min / cont>*5 10.0 / 6.0 (13.3 / 8) <4 min / cont>*6	
Machine size							
Machine height <from floor>	mm (in.)	2,403 (94.6)			2,405 (94.7)		
Floor space <width × depth>*7	mm (in.)	7,147 × 3,352 (281.4 × 132.0)*8			8,227 × 3,486 (323.9 × 137.2)*8		
Mass of machine	kg (lb.)	11,700 (25,740)	11,750 (25,850)	12,200 (26,840)	13,700 (30,140)	13,750 (30,250)	14,200 (31,240)
Control unit							
Mitsubishi Electric		M730UM					

JIS: Japanese Industrial Standard
*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 Depending on the chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
*4 With a specific chuck / cylinder selected.
*5 High torque <54 N•m (39.8 ft•lbf)> *6 High torque <100 N•m (73.8 ft•lbf)>
*7 Including chip conveyor. *8 Depth includes operation panel.
● 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.
● For details, please check the Detailed Specifications. ● The information in this catalog is valid as of October 2018.

NLX 3000 | 700, NLX 3000 | 1250

Standard & Optional Features

●: Standard features ○: Options
◇: Select one ☆: Consultation is required
—: Not applicable

			NLX 3000 | 700			NLX 3000 | 1250		
Basic specification			T TS			T TS		
Optional specifications			—	MC	MC Y	—	MC	MC Y
Spindle								
Spindle	3,000 min^{-1}: 22 / 18.5 kW (30 / 24.7 HP) <30 min / cont> {standard}		●	●	●	●	●	●
	3,000 min^{-1}: 30 / 25 kW (40 / 33.3 HP) <30 min / cont> {high output}		○	○	○	○	○	○
Turret								
10-station bolt-tightened turret for NL holders			●	●	●	●	●	●
12-station bolt-tightened turret for NL holders			○	○	○	○	○	○
Rotary tool spindle		10,000 min^{-1}: 5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP) <3 min / 5 min / cont> {standard}	—	◇	◇	—	◇	◇
		4,000 min^{-1}: 5.5 / 3.7 / 2.2 kW (7.5 / 5 / 3 HP) <10 min / 15 min / cont> {high torque}	—	◇	◇	—	◇	◇
Tailstock								
Tailstock spindle live center*1		MT5	●	●	●	●	●	●
Tailstock spindle built-in center*2		MT4	○	○	○	○	○	○
Tailstock with the hydraulic quill			○	○	○	○	○	○
Fixture / Steady rest								
Fixed steady rest*3		ø 20—ø 240 mm (ø 0.8—ø 9.4 in.)	○	○	○	○	○	○
Coolant								
Coolant system		0.20 / 0.30 MPa (29 / 43.5 psi)*4, 350 / 550 W <50 / 60 Hz>	●	●	●	●	●	●
High-pressure coolant system		0.45 / 0.65 MPa (65.3 / 94.3 psi)*4, 800 / 1,100 W <50 / 60 Hz>	○	○	○	○	○	○
		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)*6		3.5 MPa (507.5 psi)	○*5	○*5	○*5	○*5	○*5	○*5
		7 MPa (1,015 psi)	○*5	○*5	○*5	○*5	○*5	○*5
		Interface	○	○	○	○	○	○
Chip disposal								
Chip conveyor		Right discharge, hinge type	○	○	○	○	○	○
		Right discharge, hinge type (aluminum)	○	○	○	○	○	○
		Right discharge, scraper type	○	○	○	○	○	○
		Right discharge, magnet scraper type	○	○	○	○	○	○
		Right discharge, hinge type + drum filter type	☆	☆	☆	☆	☆	☆
		Rear discharge, hinge type	○	○	○	—	—	—
		Rear discharge, scraper type	○	○	○	—	—	—
		Rear discharge, magnet scraper type	○	○	○	—	—	—
		Rear discharge, hinge type (aluminum)	☆	☆	☆	—	—	—

T : Turret
TS : Tailstock
MC : Milling (option)
Y : Y-axis (option)
The basic model is equipped with T and TS.

● : Standard features ○ : Options
◇ : Select one ☆ : Consultation is required
— : Not applicable

		NLX 3000 | 700			NLX 3000 | 1250		
Basic specification		T TS			T TS		
Optional specifications		—	MC	MC Y	—	MC	MC Y
Measurement							
Manual in-machine tool presetter	Pivoting type	●	●	●	●	●	●
	Removable type	○	○	○	○	○	○
Automatic in-machine tool presetter	Pivoting type	○	○	○	○	○	○
In-machine workpiece measuring system*7	Touch sensor (optical signal transmission type)	○	○	○	○	○	○
Improved accuracy							
Oil chiller		●	●	●	●	●	●
Full closed loop control (Scale feedback)	X-axis	○	○	○	○	○	○
	Y-axis	—	—	○	—	—	○
	Z-axis	○	○	○	○	○	○
Automation							
Auto power off		●	●	●	●	●	●
Workpiece unloader (built-in type)*8		○	○	○	○	○	○
Other							
Built-in worklight (LED) {2 pieces for the model with a distance between centers of 1,250 mm (49.2 in.) <standard>}		●	●	●	●	●	●
Signal lamp	4 colors (LED type: red, yellow, green, blue)	○	○	○	○	○	○
Signal lamp buzzer		○	○	○	○	○	○
Chuck foot switch	Single	●	●	●	●	●	●
	Double	○	○	○	○	○	○
Foot switch for tailstock		○	○	○	○	○	○
Manual pulse generator (separate type)		○	○	○	○	○	○

*1 The center is optional.
*2 The center is standard.
*3 Not available when the workpiece unloader is selected.
*4 In the case that the discharge rate is 30 L/min (7.9 gpm). The values may vary depending on the shape of a tool to be used.
*5 DMQP (DMG MORI Qualified Products)
*6 When a super-high-pressure coolant system is used, a coolant chiller is recommended. For details, please consult our sales representative.
*7 Certain workpiece shapes cannot be measured.
*8 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.
● DMQP: Please see Page 30 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.

NLX 3000 | 2000, NLX 3000 | 3000

Standard & Optional Features

●: Standard features ○: Options
◇: Select one —: Not applicable

		NLX 3000 | 2000			NLX 3000 | 3000		
Basic specification		T TS			T TS		
Optional specifications		—	MC	MC Y	—	MC	MC Y
Spindle							
Spindle	3,000 min^{-1}: 22 / 18.5 kW (30 / 24.7 HP) <30 min / cont> {standard}	●	●	●	●	●	●
	3,000 min^{-1}: 30 / 25 kW (40 / 33.3 HP) <30 min / cont> {high output}	○	○	○	○	○	○
Turret							
10-station bolt-tightened turret for NL holders		●	●	●	●	●	●
12-station bolt-tightened turret for NL holders		○	○	○	○	○	○
Rotary tool spindle	10,000 min^{-1}: 5.5 / 5.5 / 3.7 kW (7.5 / 7.5 / 5 HP) <3 min / 5 min / cont> 40 / 30 / 14 N•m (29.5 / 22.1 / 10.3 ft•lbf) {standard}	—	◇	◇	—	◇	◇
	4,000 min^{-1}: 5.5 / 3.7 / 2.2 kW (7.5 / 5 / 3 HP) <10 min / 15 min / cont> 54 / 54 / 32 N•m (39.8 / 39.8 / 23.6 ft•lbf) {high torque}	—	◇	◇	—	◇	◇
	4,000 min^{-1}: 10.0 / 6.0 kW (13.3 / 8 HP) <4 min / cont> 100 / 68 N•m (73.8 / 50.2 ft•lbf) {high torque}	—	◇	◇	—	◇	◇
Tailstock							
Programmable tailstock		●	●	●	●	●	●
Tailstock spindle built-in center*1	MT5	●	●	●	●	●	●
Tailstock with the hydraulic quill		●	●	●	●	●	●
Fixture / Steady rest							
Fixed steady rest	ø 20—ø 240 mm (ø 0.8—ø 9.4 in.)	○	○	○	○	○	○
	ø 180—ø 350 mm (ø 7.1—ø 13.8 in.)	○	○	○	○	○	○
Coolant							
Coolant system	0.20 / 0.30 MPa (29 / 43.5 psi)*2, 350 / 550 W <50 / 60 Hz>	●	●	●	●	●	●
High-pressure coolant system	0.45 / 0.65 MPa (65.3 / 94.3 psi)*2, 800 / 1,100 W <50 / 60 Hz>	○	○	○	○	○	○
	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)*4	3.5 MPa (507.5 psi)	○*3	○*3	○*3	○*3	○*3	○*3
	7 MPa (1,015 psi)	○*3	○*3	○*3	○*3	○*3	○*3
	Interface	○	○	○	○	○	○
Chip disposal							
Chip conveyor	Right discharge, hinge type	●	●	●	●	●	●
	Right discharge, scraper type	○	○	○	○	○	○
	Right discharge, hinge type + drum filter type	☆	☆	☆	☆	☆	☆

T : Turret
TS : Tailstock
MC : Milling (option)
Y : Y-axis (option)
The basic model is equipped with T and TS.

●: Standard features ○: Options
◇: Select one —: Not applicable

		NLX 3000 | 2000			NLX 3000 | 3000		
Basic specification			T TS			T TS	
Optional specifications		—	MC	MC Y	—	MC	MC Y
Measurement							
Manual in-machine tool presetter	Pivoting type	●	●	●	●	●	●
	Removable type	○	○	○	○	○	○
Automatic in-machine tool presetter	Pivoting type	○	○	○	○	○	○
In-machine workpiece measuring system*5	Touch sensor (optical signal transmission type)	○	○	○	○	○	○
Improved accuracy							
Oil chiller		●	●	●	●	●	●
Full closed loop control (Scale feedback)	X-axis	○	○	○	○	○	○
	Y-axis	—	—	○	—	—	○
	Z-axis	○	○	○	○	○	○
Automation							
Auto power off		●	●	●	●	●	●
Other							
Built-in worklight (LED) {3 pieces for the model with a distance between centers of 2,000 mm (78.8 in.) and 3,000 mm (118.1 in.) <standard>}		●	●	●	●	●	●
Signal lamp	4 colors (LED type: red, yellow, green, blue)	○	○	○	○	○	○
Signal lamp buzzer		○	○	○	○	○	○
Chuck foot switch	Single	●	●	●	●	●	●
	Double	○	○	○	○	○	○
Foot switch for tailstock		○	○	○	○	○	○
Manual pulse generator (separate type)		○	○	○	○	○	○

∗1 The center is standard.
∗2 In the case that 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 DMQP (DMG MORI Qualified Products)
∗4 When a super-high-pressure coolant system is used, a coolant chiller is recommended. For details, please consult our sales representative.
∗5 Certain workpiece shapes cannot be measured.
● DMQP: Please see Page 30 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 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.

+ 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.

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