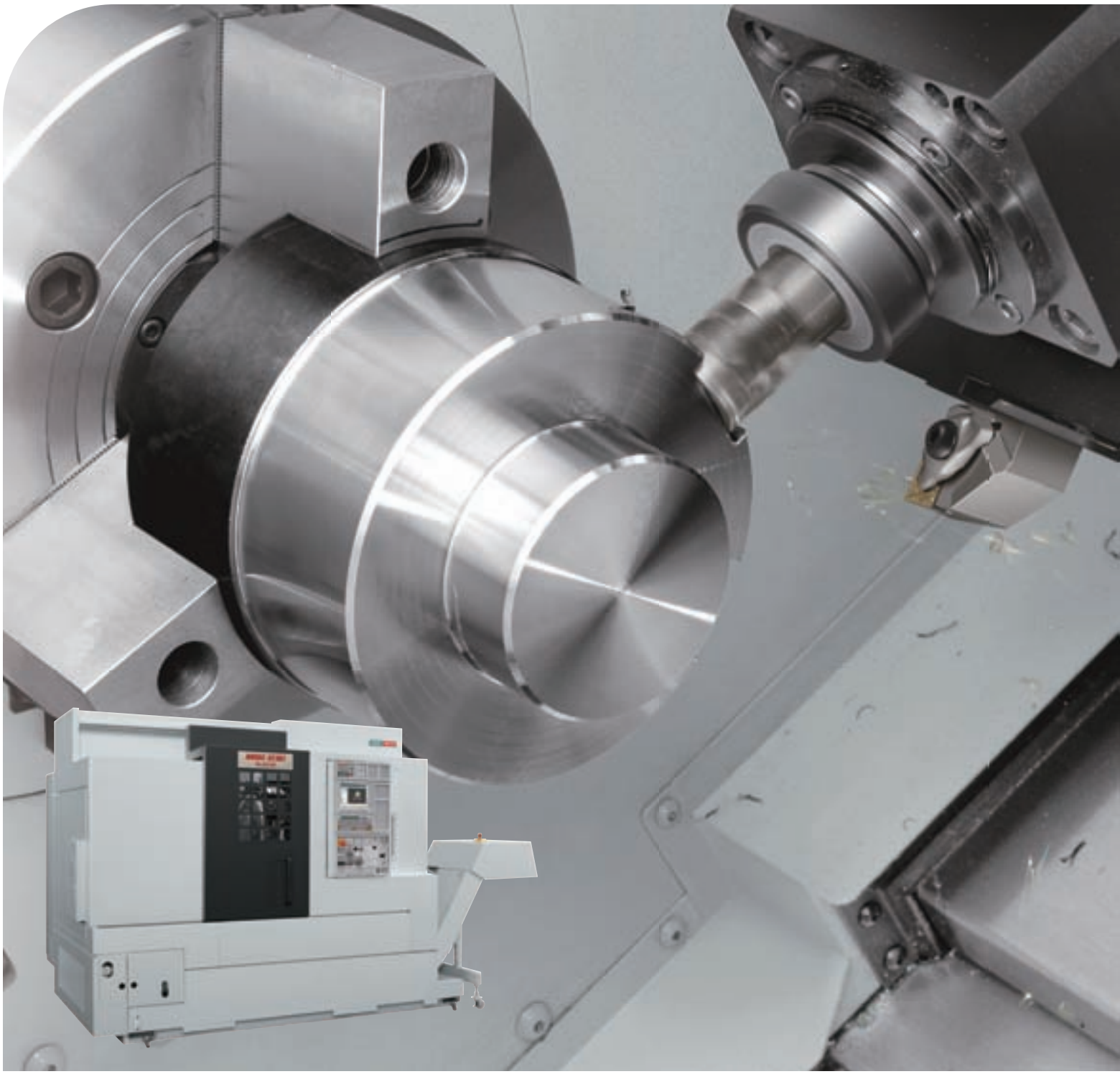
www.dmgmori.com

DMG MORI

NL1500
NL2000
NL2500
NL3000

Rigid and Precise CNC Lathe

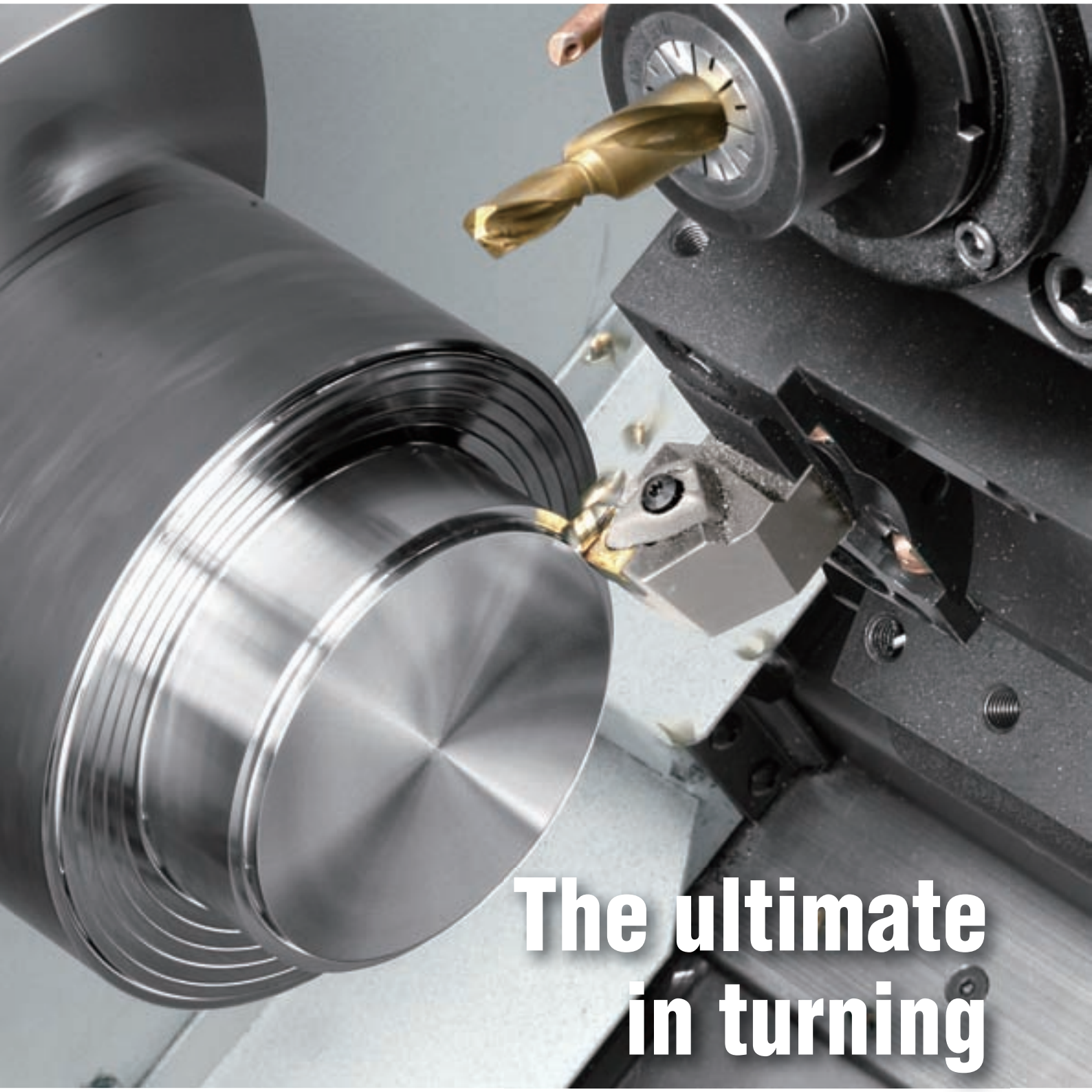
NL Series



Rigid and Precise CNC Lathe

NL SERIES

The Nikkan Kogyo Shimbun sponsored
"34th Machine Design Award
(Japan Machine Tool Builders' Association Award)"



The ultimate in turning

BMT®
Built-in Motor Turret

CNC lathes recognized worldwide.

Since DMG MORI SEIKI released our very first lathe in 1968, we have unveiled more than 100 models of CNC lathes. When we were developing our leading machine for the next generation, the greatest challenge was its milling ability. Against this background, we completely revised the design of the turret and came up with DMG MORI SEIKI's original technology, BMT (Built-in Motor Turret), to confront the problems of heat and vibration head-on. In 2004 we released the NL Series, which is equipped with this revolutionary turret, and since then it has become our best-selling series, with over 10,000 units shipped. Here is the NL Series of high-rigidity, high-precision CNC lathes, which has overturned conventional wisdom about lathes and continues to be the global benchmark for machine tools.

BMT®
Built-in Motor Turret

Built-in Motor Turret

The 2004 JSME Medal for New Technology
JSME: The Japan Society of Mechanical Engineers

A revolution in turret milling.

The problems with the turrets on CNC lathes until now have been insufficient milling power, unstable rigidity and the effect of adjacent tools on the machining accuracy. Also, since power was transmitted from the motor to the milling turret through many parts such as gears and belts, there was heat generation and vibration over a wide area. For the NL Series, DMG MORI SEIKI developed the industry's first built-in structure, in which the motor was placed inside the turret, dramatically improving both the accuracy and cutting power for milling. By doing this, we have achieved milling ability approaching that of a No. 40 taper machining center.

Heat-suppressing design

In conventional milling turrets, the transmission structure had many heat-generating parts such as gears and belts, which affected the machining accuracy. With BMT, the motor is built in, so there is no transmission mechanism. As well as reducing the number of heat sources, the built-in motor also has a cooling jacket to control temperature increases.

Previous model

Motor

Timing belt 1

Timing belt 2

Spline shaft

Bevel gear

Keyed shaft

The transmission with all its gear, belts, and more, generates a substantial amount of heat and can adversely affect machining precision.

NL SERIES

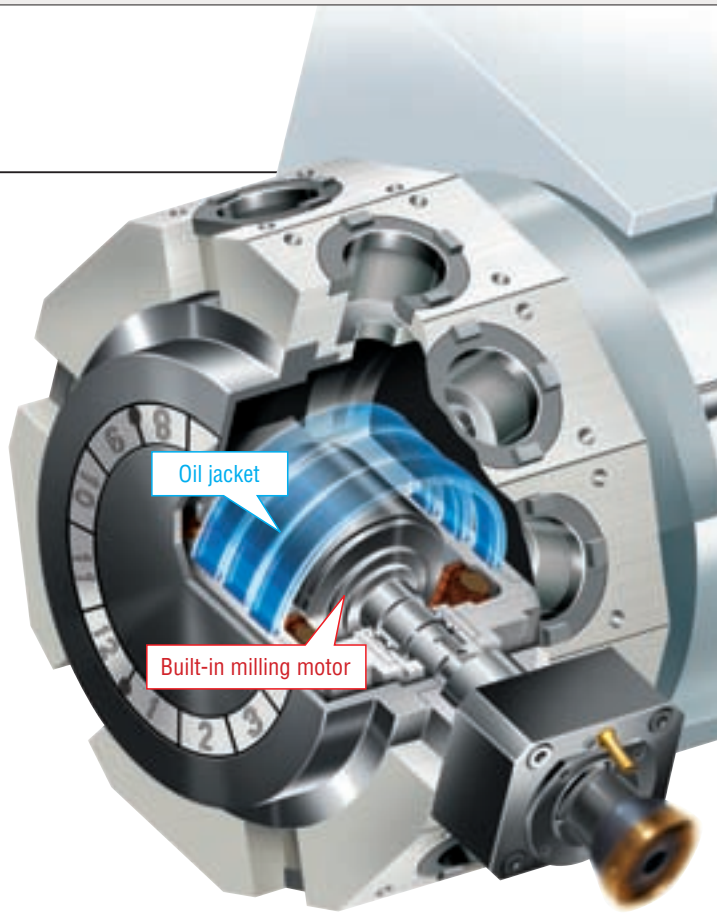
Built-in milling motor

Keyed shaft

The built-in milling motor design has eliminated the transmission mechanism. Therefore, sources of heat are eliminated and jacket cooling is performed. This is only achieved with a built-in milling motor.

Rising turret temperatures
(comparison to conventional machines)

1/10 or less



Faster, more powerful, advanced milling ability.

Rotary tool spindle

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

Max. rotary tool spindle speed

Previous model
4,000 min^{-1}

NL SERIES
6,000 min^{-1}
▶ 50% Greater

Rotary tool spindle acceleration time

Previous model
0→4,000 min^{-1}
0.35 sec.

NL2500
0→4,000 min^{-1}
0.11 sec.
0→6,000 min^{-1}
0.23 sec.
▶ Reduced approximately 70%

Maximum rotary tool spindle torque

NL1500 24 N·m (17.7 ft·lbf) <3 min>

NL2000 29 N·m (21.4 ft·lbf) <3 min>

NL2500 NL3000 40 N·m (29.5 ft·lbf) <3 min>

NL3000 54 N·m (39.8 ft·lbf) OP <10 min>

DDS: Direct Drive Spindle

Face mill

NL2500

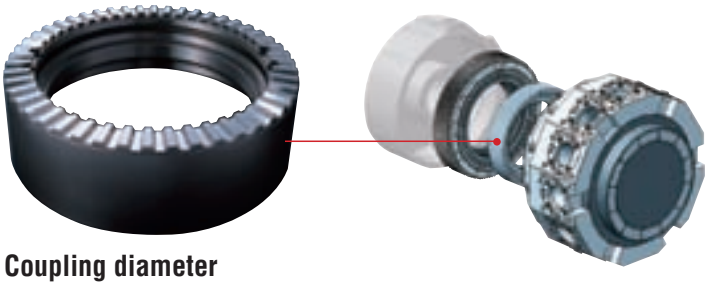
ϕ 80 mm (ϕ 3.1 in.)

OP Option

The ultimate turret backed by stable rigidity.

Coupling

We have increased the rigidity of the turret by making the diameter of the coupling much bigger than for conventional models.



Coupling diameter

Previous model
210 mm (8.3 in.)

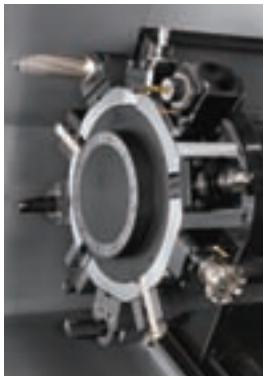
NL2500
250 mm (9.8 in.)
▶ 19% Greater

Turret variations

20-station turret head (NL1500/NL2000/NL2500) OP

20-station turret specifications for long-term operation at night and complex machining

- With the 20-station turret you can machine a wide range of workpieces, including those for which automation used to be difficult because they require many processes.
- By using a high-rigidity, compact tooling system, we have achieved machining ability and versatility which matches those of machining centers.

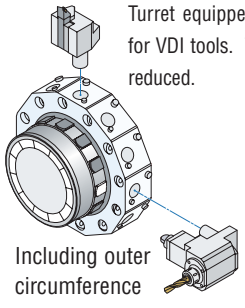


10-station turret head (NL3000)

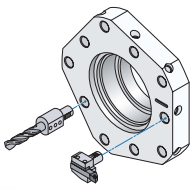
Equipped with the bolt-fastened type, 10-station turret from the NL3000.

Quick-change type turret head (VDI) OP

Turret equipped with quick-change specifications for VDI tools. Tool attachment time is dramatically reduced.



Including outer circumference



Face type

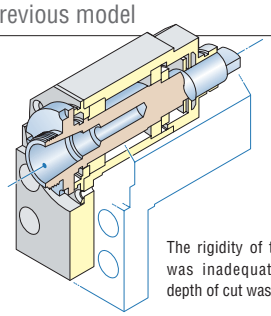
● The face type is only available for 2-axis turning specifications.

High-rigidity tool holders to extract the full cutting ability.

Rotary tool holders OP

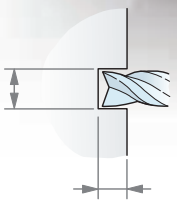
With conventional lathes, chattering occurred when the depth of cut was increased. The NL Series, however, is equipped with rotary tool holders with improved rigidity, allowing deeper cutting than before.

Previous model



The rigidity of the structure was inadequate when the depth of cut was large.

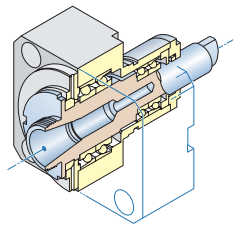
Tool diameter
20 mm (0.8 in.)



Depth of cut
10—15 mm (0.4—0.6 in.)

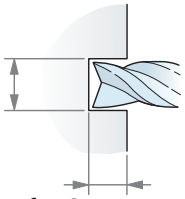
Rotary tool holder rigidity
▼ 180% Greater

NL2500



Rigidity is improved by using bearings.

Tool diameter
26 mm (1.0 in.) <max.>

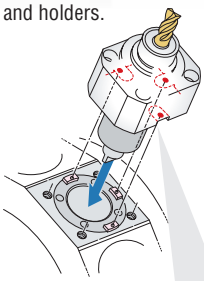


Depth of cut
20 mm (0.8 in.) <max.>

● The cutting test results indicated in this catalog are provided as examples. The results indicated in this catalog may not be obtained due to differences in cutting conditions and environmental conditions during measurement.

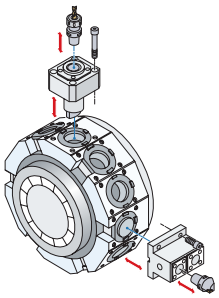
Positioning key

By using 3 positioning keys, we have increased the gripping power of the turret and holders.



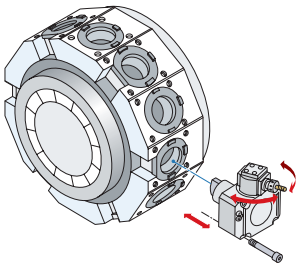
Capto-compatible holder OP

The Coromant Capto modular tooling system, with much faster tool-changing time than conventional machines.



Universal holder <Consultation is required> OP

Since you can adjust the angle of the tool to suit the type of machining, it is suitable for inclined hole machining, etc.



● Only suitable for the NL holder.

Small hole machining using a universal tool holder

The range of machining has expanded thanks to the wide variety of tooling.

Outer diameter (for standard turrets)

For O.D. cutting

Max. tool diameter: 20 mm (0.8 in.)
Max. rotary tool spindle speed: 6,000 min^{-1}

For O.D. cutting

Max. tool diameter: 26 mm (1.0 in.)
Max. rotary tool spindle speed: 6,000 min^{-1}

End face (for standard turrets)

For face cutting

Max. tool diameter: 20 mm (0.8 in.)
Max. rotary tool spindle speed: 6,000 min^{-1}

For face cutting

Max. tool diameter: 26 mm (1.0 in.)
Max. rotary tool spindle speed: 6,000 min^{-1}

Both end faces (for standard turrets)

For both face cutting

Max. tool diameter: 20 mm (0.8 in.)
Max. rotary tool spindle speed: 6,000 min^{-1}

For both face cutting

Max. tool diameter: 26 mm (1.0 in.)
Max. rotary tool spindle speed: 6,000 min^{-1}

Special (for 20-station turrets)

Offset holder for O.D. machining

Max. tool diameter: 13 mm (0.5 in.)
Max. rotary tool spindle speed: 6,000 min^{-1}

Oil hole (for standard turrets)

Oil hole holder for O.D. machining

Max. tool diameter: 20 mm (0.8 in.)
Max. rotary tool spindle speed: 3,000 min^{-1}

Oil hole holder for end face machining

Max. tool diameter: 20 mm (0.8 in.)
Max. rotary tool spindle speed: 6,000 min^{-1}

Face mill (for standard turrets)

Face mill holder for O.D. machining FMC22

Max. rotary tool spindle speed: 3,000 min^{-1}

Face mill holder for end face machining FMC22

Max. rotary tool spindle speed: 3,000 min^{-1}

Capto C3 (for 20-station turrets)

For O.D. cutting

Max. rotary tool spindle speed: 6,000 min^{-1}

For face cutting

Max. rotary tool spindle speed: 6,000 min^{-1}

- The 20-station turret is only available for the NL1500, NL2000.
- Only some of the tooling is shown here. For other tooling, please check the diagrams.

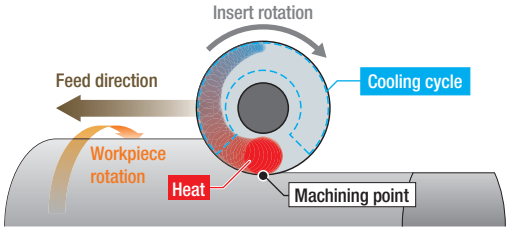
DMG MORI SEIKI's latest technologies for high-efficiency production.

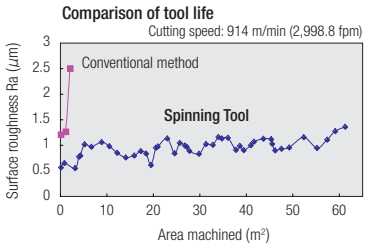
Spinning Tool

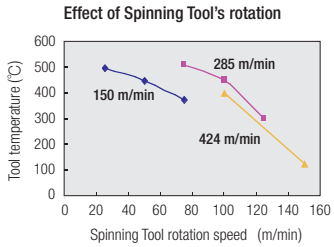
The Spinning Tool is a patented, axially-loaded cutting tool which represents a revolution in turning. As well as eliminating vibration, it also dramatically improves productivity and tool life. Compared with conventional methods, the Spinning Tool significantly reduces tool temperature increases and wear, achieving new standards in high-precision, high-efficiency machining, both for roughing and finishing.

- Improves productivity by 5 times*
- Extends tool life by 20 times*
- Dissipates heat, allowing 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.



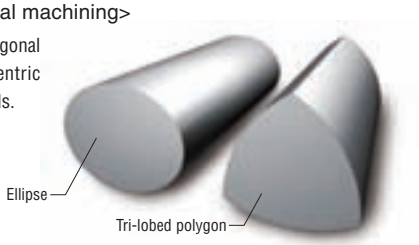




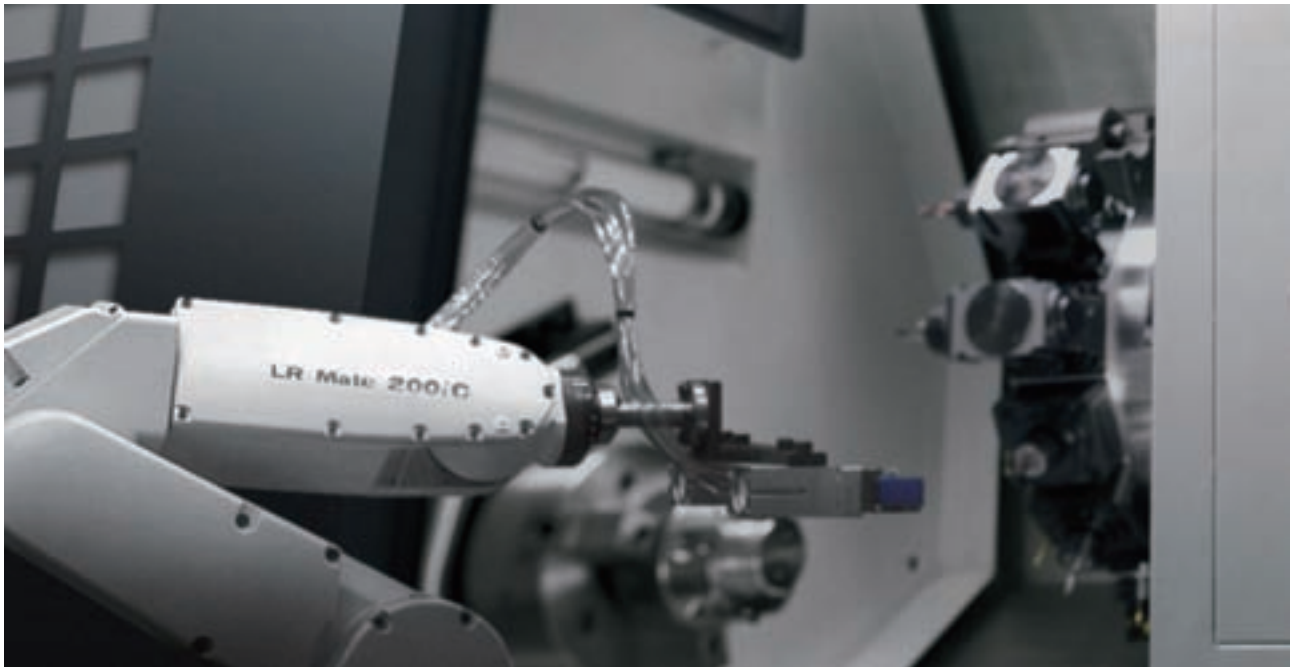
Special applications

<Elliptical/polygonal machining>

Achieves elliptical/polygonal machining using eccentric mounted Spinning Tools.



● Separate consultation is required. For details, please consult with our sales representative.



MAPPS EtherNet/IP

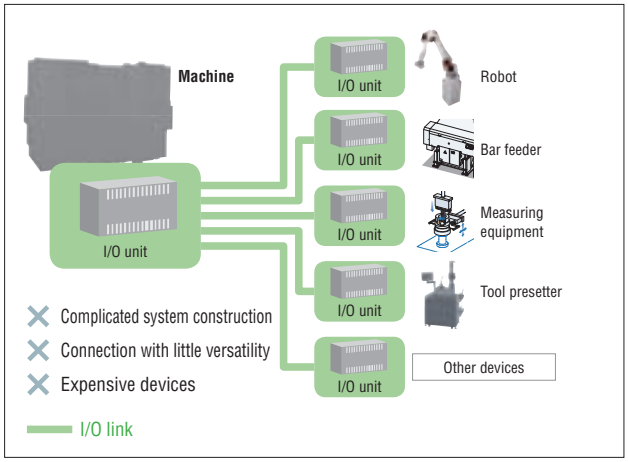
When a machine tool and multiple devices are connected using a conventional system, the wiring between I/O units as well as the settings of each device become complicated, and the system construction requires a lot of money. With EtherNet/IP, one of DMG MORI SEIKI's ACT solutions that strengthen connections between machine tools and peripherals, Plug and Play is possible simply by connecting to a hub via MAPPS, enabling easy system construction. The use of standard cables also helps to reduce costs.

- Implement Common Industrial Protocol (CIP) on standard Ethernet protocol
- Combining the machine tool and peripheral equipment, we will promote factory automation

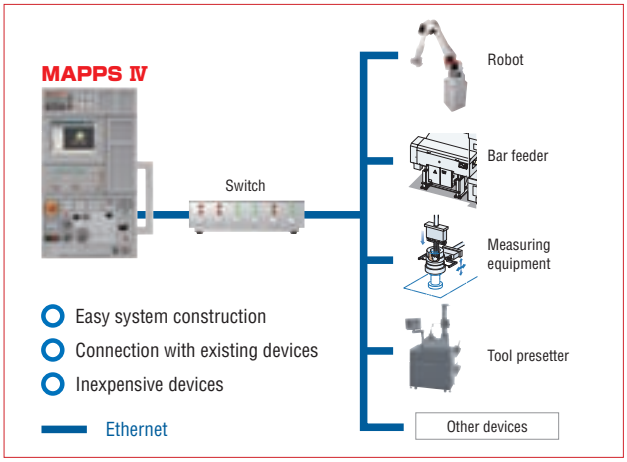
ACT
Advanced Communication Technology

DMG MORI SEIKI's new proposal, ACT, is designed to strengthen connections between machine tools and peripheral equipment by standardizing communication and software of the entire system. With ACT, standardization of interfaces of peripherals, simplified wiring, and labor saving can be achieved.

With I/O Link



MAPPS EtherNet/IP

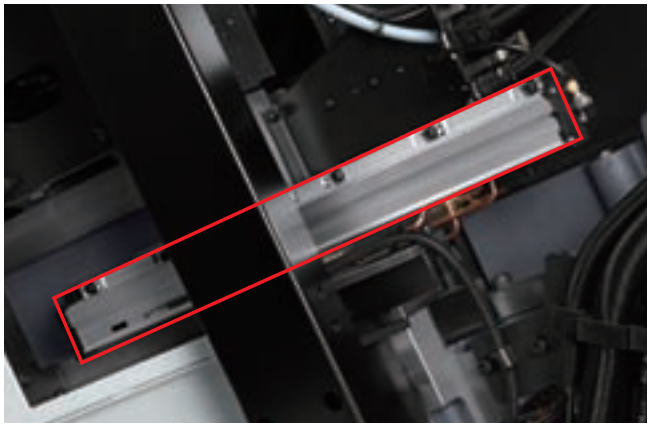


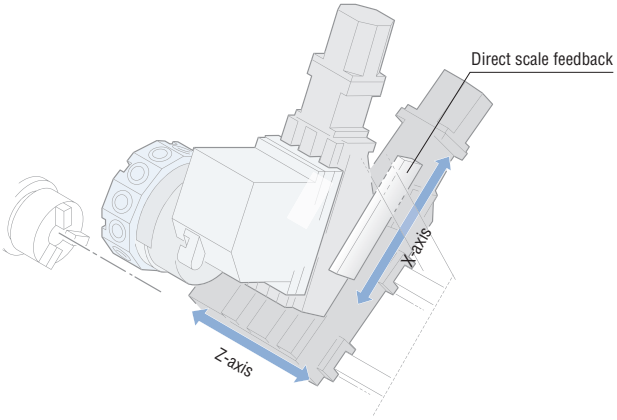
OP Option

High-precision equipment

Direct scale feedback (X, Y and Z axes) OP

This magnetic-type absolute positioning scale is suitable for high-accuracy positioning.



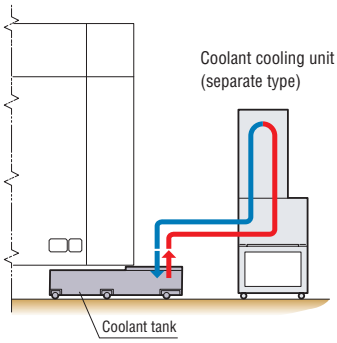


Coolant cooling unit (separate type) OP

The coolant temperature rises because of heat generated by machining. Circulating the coolant also raises the temperature. Increases in the oil temperature have a major effect on thermal displacement in the machine and the dimensional accuracy of the workpiece. This unit prevents the coolant from heating. When using oil-based coolant, the oil temperature can become extremely high even with the standard coolant pump, so we strongly recommend this unit.

When using oil-based coolant, please be sure to consult with our sales representative.

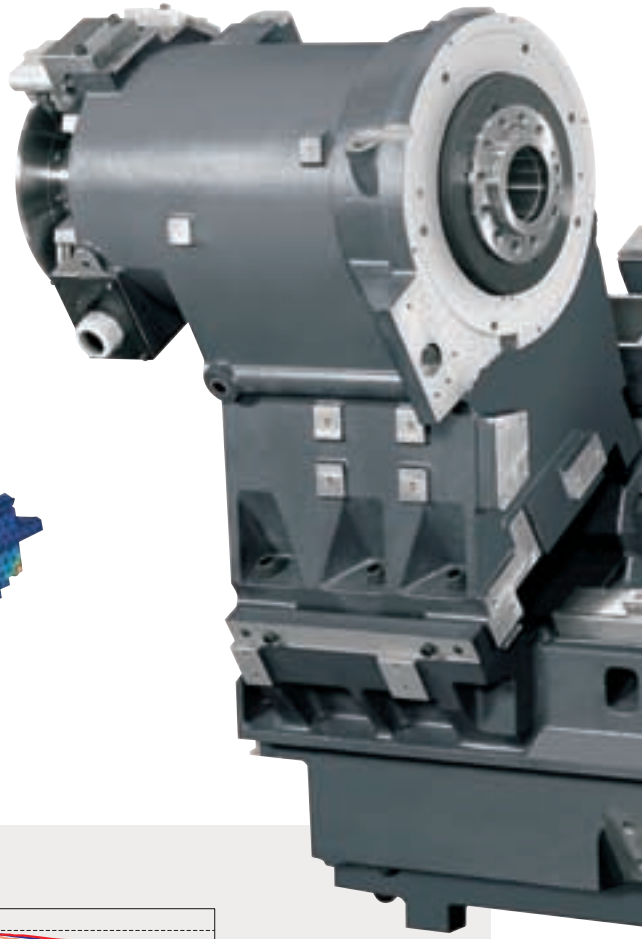
- While this unit is not the only way to completely control the temperature of the coolant, it makes a major contribution to preventing increases in the oil temperature.



Basic structure

Ultra-high rigidity structure

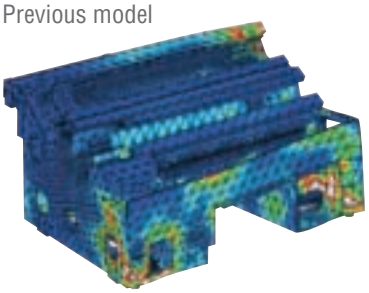
We have a new design for the basic structure: the spindle, saddle and tailstock. This new design ensures consistent rigidity. The result is a level of rigidity that has not been seen before, with increased stability due to the broad bottom face.



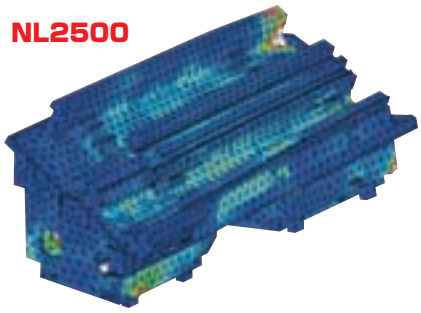
Bed torsion rigidity

Dramatically better bed torsion rigidity compared to conventional machines has been achieved through static analysis.

Previous model

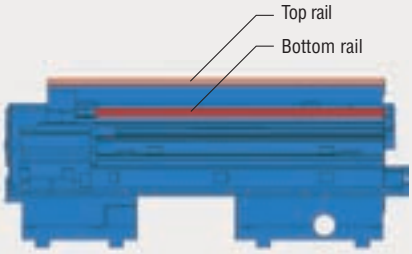


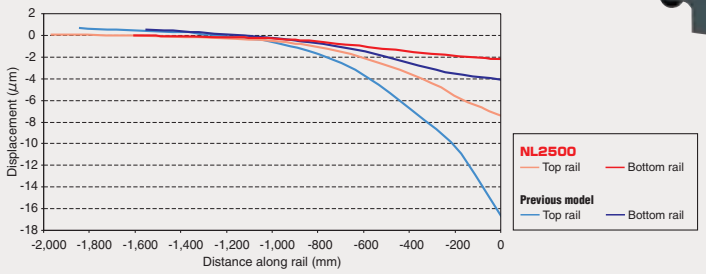
NL2500



Torsionally rigid
(comparison to conventional machines)
100% Greater

Torsion displacement graph

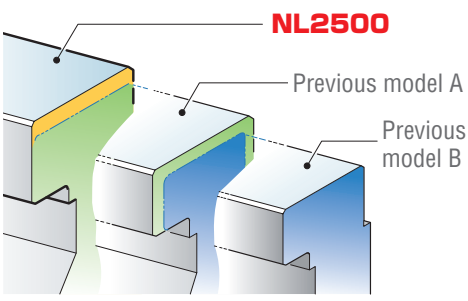


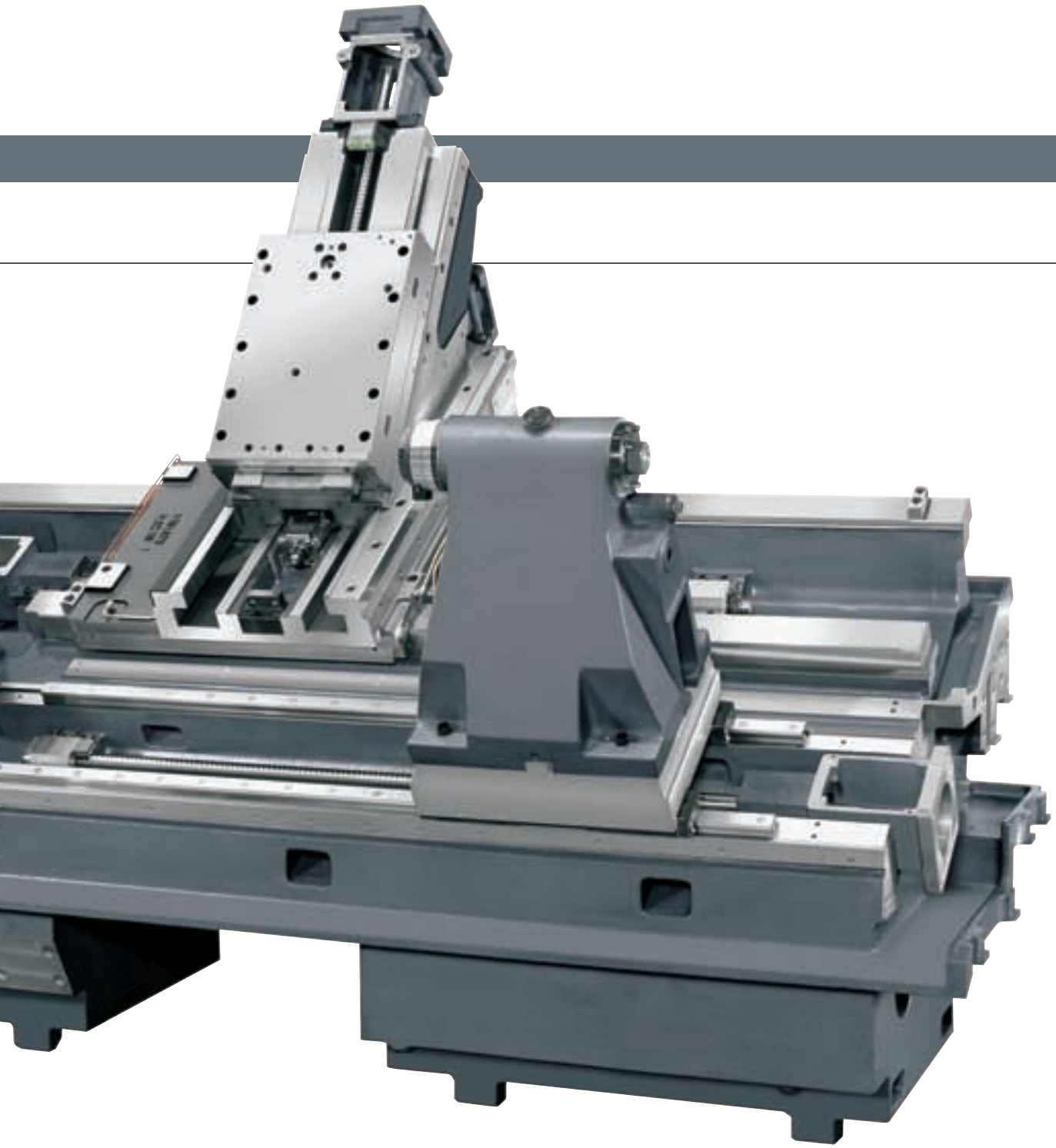


Broader guideways

The slideways are 30% wider than those of conventional machines and are the largest in the class. We have achieved an unknown level of stability not only in turning work but also in milling work.

Guideway width
(comparison to conventional machines)
30% Greater





Highly rigid spindle

The axis rigidity of the headstock and its mounting have been improved by changing the shape of the headstock and increasing the thickness of its parts. The diameter of the bearings has been increased. This allows better spindle rigidity while enlarging the through-hole diameter.

Rigidity of the spindle itself
(comparison to conventional machines)

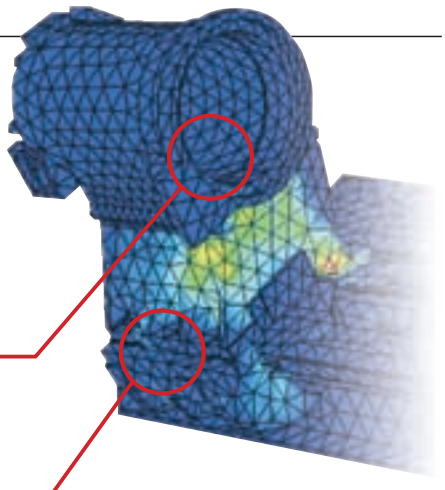
50% Greater

Axis rigidity
(comparison to conventional machines)

20% Greater

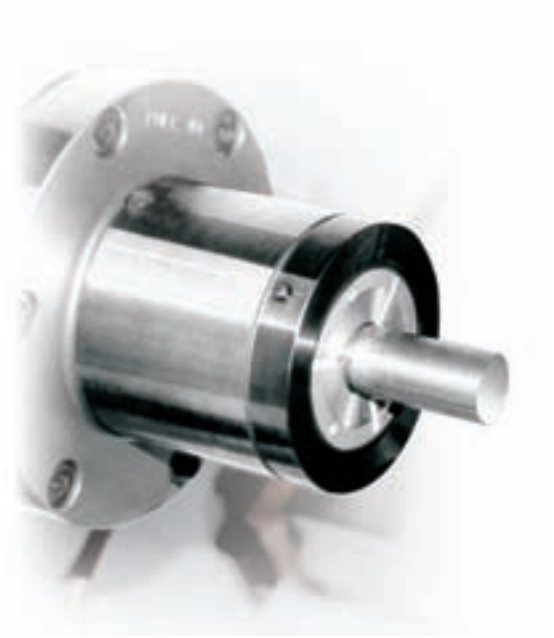
Headstock attachment rigidity
(comparison to conventional machines)

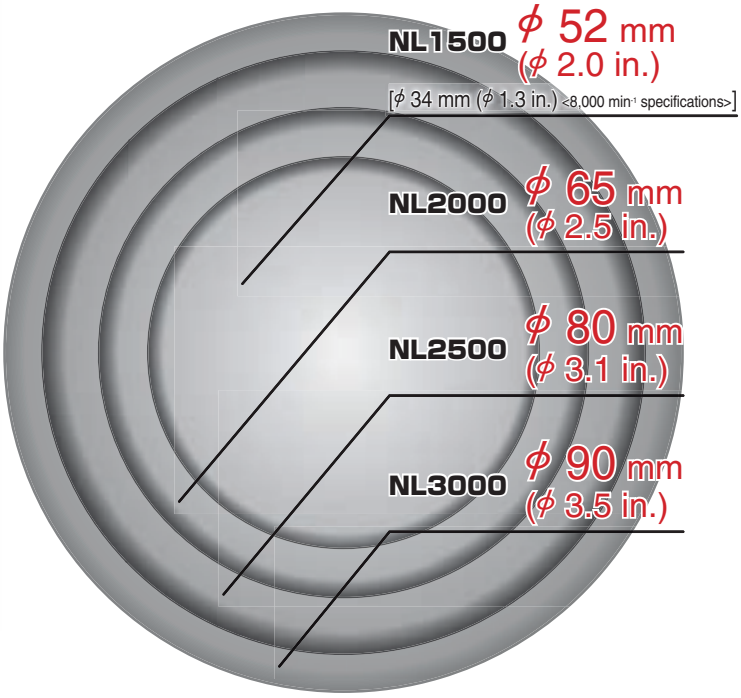
30% Greater



Bar work capacity

The bar work capacity has also been increased to the highest in its class, so that it can be used for a wide range of bar workpieces.





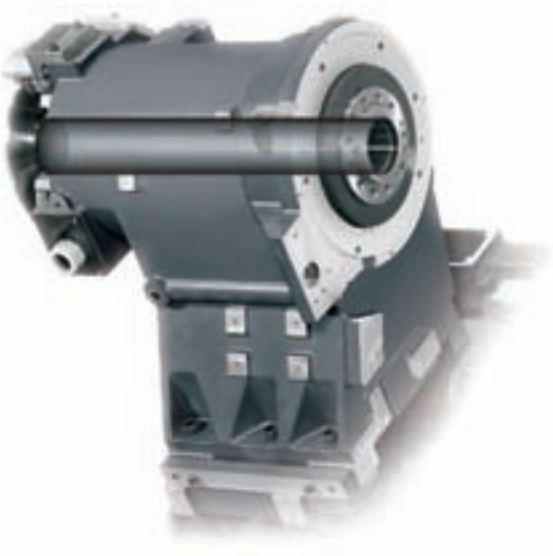
《Actual size》

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

[ ] Option

Through-spindle hole diameter (headstock 1)

Although the NL Series machines remain rock solid during heavy-duty cutting, their design incorporates the largest through-spindle hole in its class <ϕ 91 mm (ϕ 3.6 in.) for NL2500>.



NL1500 61 mm (2.4 in.)
[43 mm (1.7 in.) <8,000 min-1 specifications>]

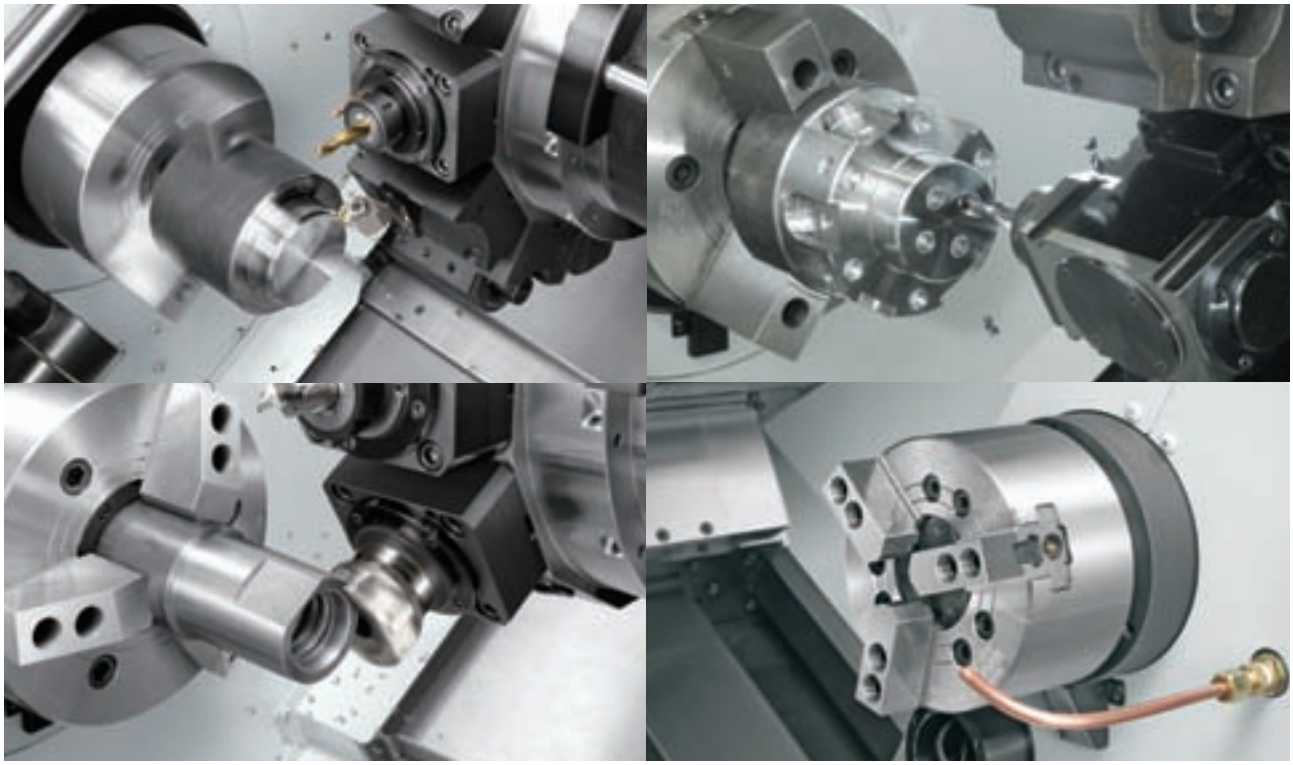
NL2000 73 mm (2.9 in.)

NL2500 91 mm (3.6 in.)

NL3000 105 mm (4.1 in.)

[ ] Option

Variations

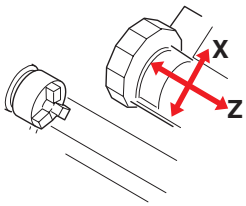


30
variations

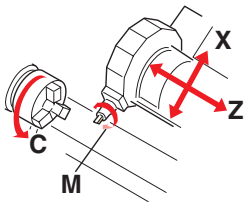
We want everyone to use the new standard in CNC lathes. DMG MORI SEIKI's NL Series has machines in four classes for different workpiece sizes and six types to best match the level of the customer's machining and process integration. With a total of 30 variations, you are bound to find one right for you.

Functions

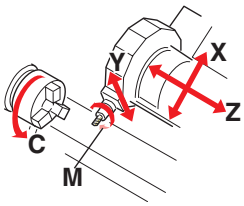
2-axis turning



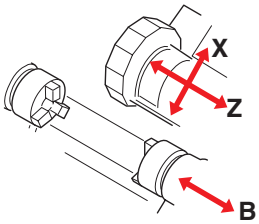
MC Milling+C-axis control



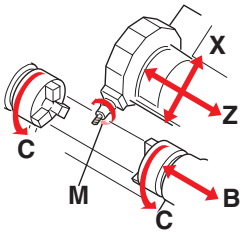
Y Y-axis control



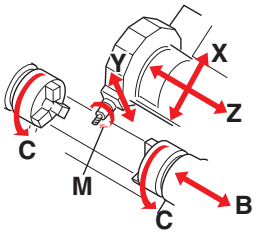
S Sub-spindle



SMC Sub-spindle+Milling+C-axis control



SY Sub-spindle+Y-axis control



NL1500

NL1500MC/500

2-axis turning **MC** **Y** **S** **SMC** **SY**

Distance between centers	←500→
Standard chuck size <spindle 1/spindle 2>	(6) inches / (6) inches
Bar work capacity	52 (2.0 in.) [34 (1.3 in.) <8,000 min^{-1}>] mm
Number of tool stations	12 [16] [20] tools
Travel <X-/Z-axis>	260/590 mm (10.2/23.2 in.)
Travel <Y-axis>	100 <±50> mm (3.9 <±2.0> in.)

[ ] Option

NL2000

NL2000MC/500

2-axis turning **MC** **Y** **S** **SMC** **SY**

Distance between centers	←500→
Standard chuck size <spindle 1/spindle 2>	(8) inches / (6) inches
Bar work capacity	65 mm (2.5 in.)
Number of tool stations	12 [10] [16] [20] tools
Travel <X-/Z-axis>	260/590 mm (10.2/23.2 in.)
Travel <Y-axis>	100 <±50> mm (3.9 <±2.0> in.)

[ ] Option

NL2500

NL2500Y/1250

2-axis turning **MC** **Y** **S** **SMC** **SY**

Distance between centers	←1250→
Standard chuck size <spindle 1/spindle 2>	(10) inches / (6) inches
Bar work capacity	80 mm (3.1 in.)
Number of tool stations	12 [10] [20] tools
Travel <X-/Z-axis>	260/1,345 mm (10.2/53.0 in.)
Travel <Y-axis>	100 <±50> mm (3.9 <±2.0> in.)

[ ] Option

NL3000

NL3000MC/1250

NL3000Y/700

2-axis turning **MC** **Y**

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

[ ] Option

● Bar work capacity: depending on the chuck/cylinder used and its restrictions, it may not be possible to reach full bar work capacity. ● The photo shows the machine equipped with options.

Variations

Y-axis specifications Y SY

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

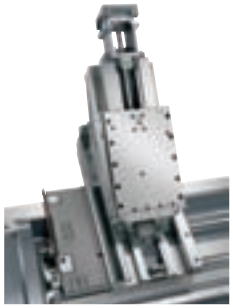
Y-axis travel

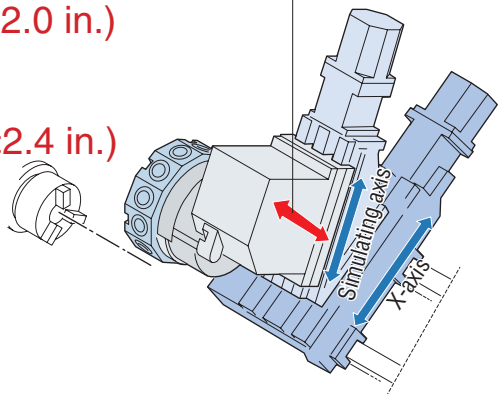
NL1500/NL2000/NL2500

±50 mm (±2.0 in.)

NL3000

±60 mm (±2.4 in.)

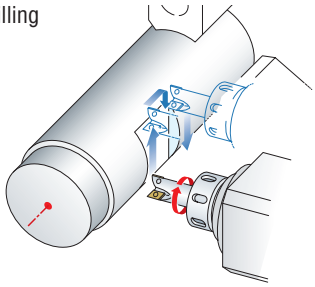




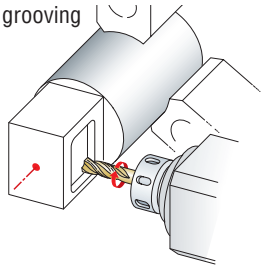
The Y-axis is created by linking the feed of the X-axis and the simulating axes. We have made the axis unit compact and restricted the height of the machine.

Bar machining with Y-axis control

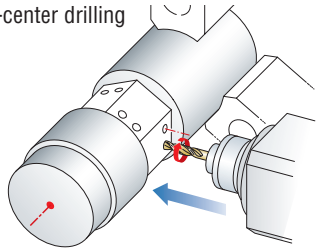
Side milling



Off-center grooving

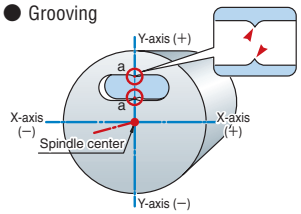


Off-center drilling

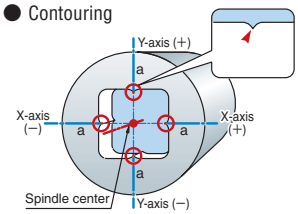


Comparison between polar coordinate interpolation and Y-axis control

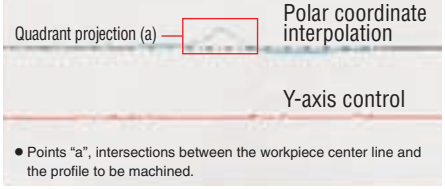
● Grooving



● Contouring

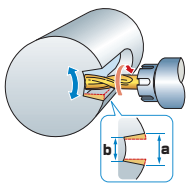


On a conventional turning center, polar coordinate interpolation is used for tool motion control during grooving and contouring, as illustrated in the left figure. In this control mode, however, the X-axis travel direction is reversed at points "a", the intersections between the workpiece center line and the profile to be machined. This reversal changes cutting conditions and subsequently effects profile accuracy. Machining with Y-axis control, on the other hand, is free of such changes and ensures a high level of profile accuracy.



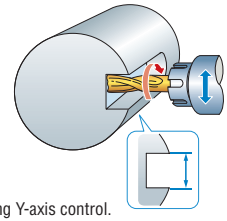
● Points "a", intersections between the workpiece center line and the profile to be machined.

Circumferential grooving on a turning center with Y-axis control



Milling without Y-axis control

It is hard to match the width of outer (a) and inner (b) grooves.



Milling on the NL Series

Groove width can be matched using Y-axis control.

Spindle 2

S SMC SY

Choose from S-type, which allows both-face continuous machining, SMC-type which offers consistent machining from turning to secondary machining and back face machining thanks to its combination of spindle 2 and rotary tools, and SY-type, which achieves superior multi-axis machining with the additional Y-axis.

Maximum spindle 2 torque

NL SERIES

77.8 N·m (57.4 ft·lbf) <25%ED>

Digital tailstock

2-axis turning MC Y Not including NL3000/2000, NL3000/3000

The NL Series comes standard with a new feature – a highly rigid digital tailstock driven by a servo motor. This drastically reduces setup time. (New standard feature does not apply to S, SMC and SY types.)

Fewer steps requiring operation of the tailstock

The operator is freed from the hassle of having to lock the tailstock when changing to a workpiece of a different length, connecting it to the turret, etc.

Operating time reduced

With the conventional hydraulic system, changing the tailstock spindle settings was inconvenient, so there was a limit to how much operating time could be reduced. A digital tailstock with variable feed speed control allows separate speeds to be set for approach and engagement, reducing the operating time of the tailstock spindle by over 20%.

Variable pressure control using program instructions

With a hydraulic tailstock spindle, thrust is controlled indirectly using a hydraulic pressure meter, so if you use different machine models, you will get different thrusts even if the same pressure is set. With a digital tailstock, however, the thrust is measured directly, so the workpiece engagement is done accurately, raising machining precision.

Simple operation using MAPPS

Tailstock control screen

Approach position, retract position, re-chucking and more can be done simply and easily from the MAPPS screen. Besides being able to handle a variety of different workpiece types, it can also work with M-code thrust selection as a standard feature.

Setup time

Reduced by over 50%

Tailstock spindle operating time

Reduced by over 20%

More applications

With a servomotor for positioning, the digital tailstock has outstanding functionality. It can also be used for certain types of machining (e.g., drilling, boring) of the center of the workpiece end face.

Machining using the tailstock drill (option)

- The NL3000 with a distance between centers of 2000 type, 3000 type is equipped with a programmable tailstock (carriage direct-coupled) as standard.
- Spindle 2 tailstock or digital tailstock specifications: it is recommended to select a velocity monitor for tailstock if a driving center is used or a heavy workpiece is machined.

Variations

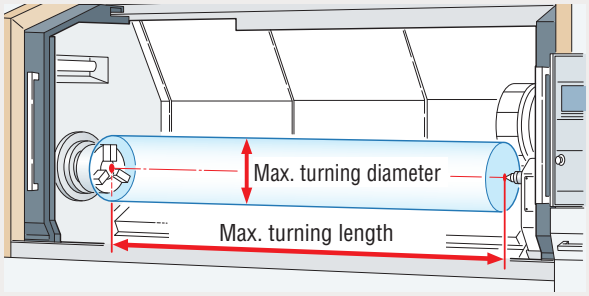
Distance between centers 2000 type, 3000 type (NL3000)

NL3000MC/3000

In order to machine long workpieces with high speed and high precision, we have added a high-rigidity bed and special functions and equipment for machining long workpieces. It is the definitive bar work machine, eliminating all compromise.

● The NL3000 with a distance between centers of 2000 type, 3000 type is equipped with a chip conveyor right disposal type (hinge type) as standard.

Machining range



Max. turning diameter

430 mm (16.9 in.)

Max. turning length

NL3000/2000

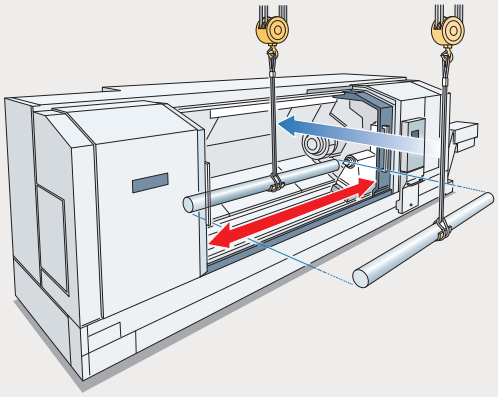
2,123 mm (83.5 in.)

NL3000/3000

3,123 mm (122.9 in.)

Wide door opening

To improve operability when using a crane, it is equipped with a wide door opening.



NL3000/2000

2,340 mm (92.1 in)

NL3000/3000

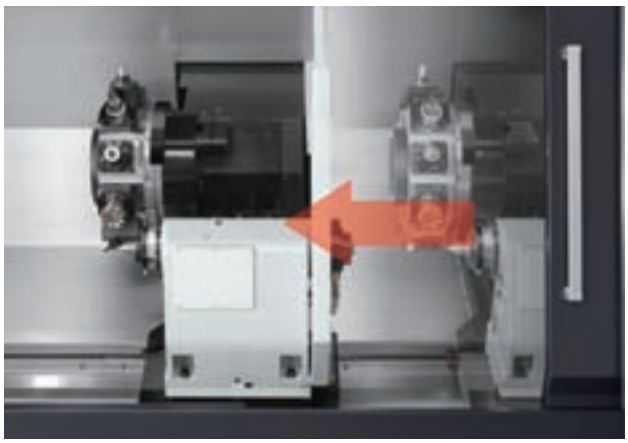
3,340 mm (131.5 in.)

10-station turret head

Tailstock (digital tailstock cannot be used)

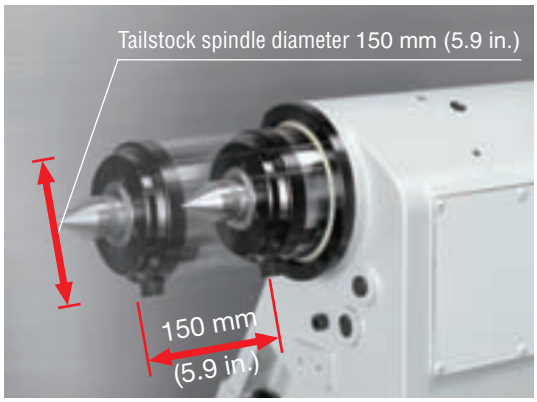
Programmable tailstock (carriage direct-coupled)

The programmable tailstock, which can easily be to user-defined positions, allows shorter setup time, even for workpieces of different lengths.

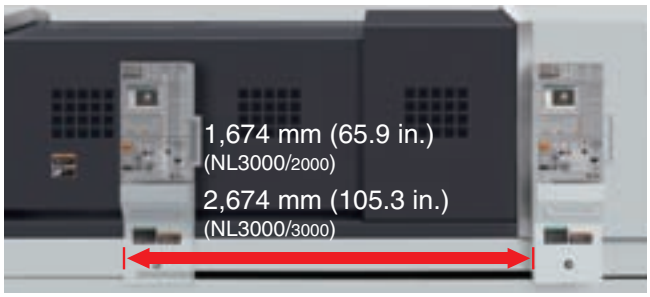


By connecting the tailstock and turret by a pin, the Z-axis can drive the tailstock without using a servo motor.

Tailstock spindle travel



Operation panel that enhances operability



Depending on machining situation, the operator can slide the operation panel for ease and comfort.

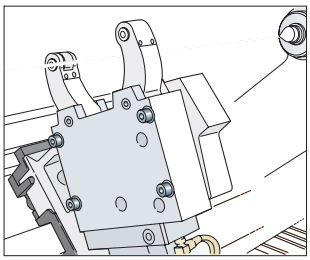
The easy-to-use operation panel swivels 90°. Improved visibility during operation.

0–90°

Peripheral equipment

Chip conveyor

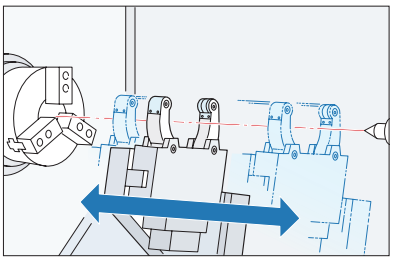
Hinge-type, right disposal specifications are standard.



Hydraulic steady rest OP

(bolt-tightening)

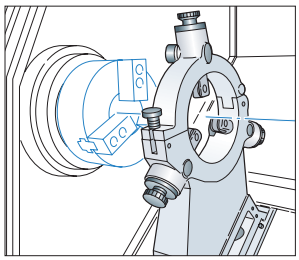
The hydraulic steady rest can be set up in less time and without any manual setting thanks to automatic centering.



Hydraulic steady rest OP

(carriage direct-coupled)

We have made workpiece support automatic with hydraulics. The movement of the steady rest also has accurate position indexing thanks to NC control.



Steady rest OP

Bolts are tightened manually, supporting the workpiece.

Applicable workpiece diameter
20–240 mm (0.8–9.4 in.)
180–350 mm (7.1–13.7 in.)

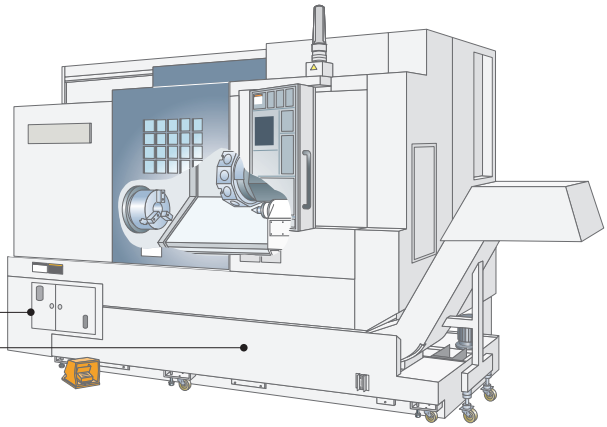
● Center rest: not available when the workpiece unloader is selected, because of interference.

Maintenance

Improved maintainability

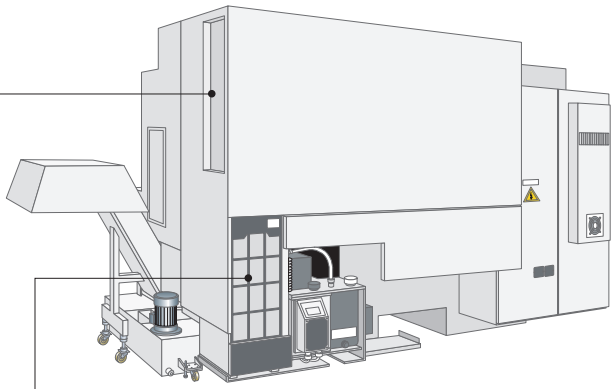
Lubricating oil (for sliding surfaces) tank

The supply hole for the lubricant tank for the box way is located in the front of the machine for easy refilling.



Pull out the coolant tank in front

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



Layout of pneumatic equipment

The air equipment is located on the right side panel in order to facilitate maintenance.

Oil cooler, Hydraulic unit

The oil cooler and hydraulic unit are placed together at the rear of the machine without a cover for easy access.

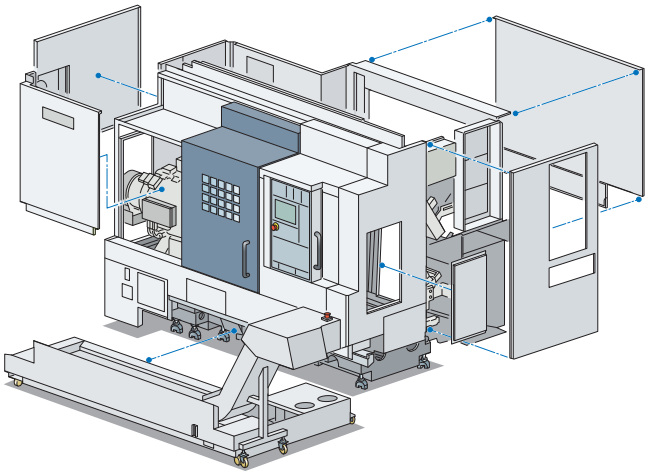
Reduced MTTR

● To ensure safety and machine accuracy, the following operations must be carried out by DMG MORI SEIKI's trained service technicians.

MTTR: Mean Time To Repair

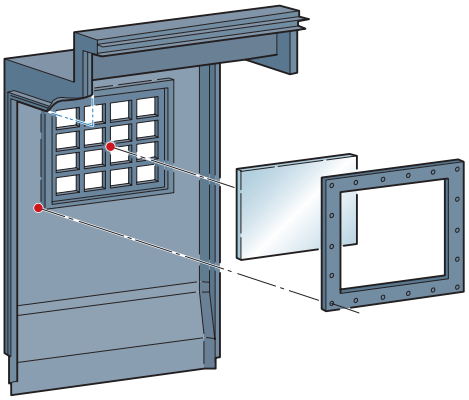
Machine cover design

We designed the machine covers so that maintenance locations are easily seen when they are removed, and the openings have been made wider to allow easier access.



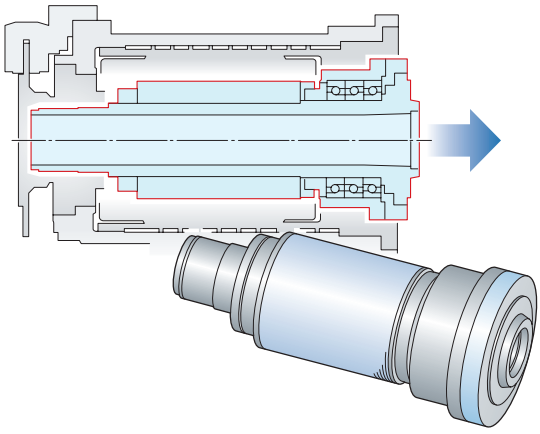
Replacing windows

Machine downtime is further reduced by using a door design that enables window replacement without having to remove the door.



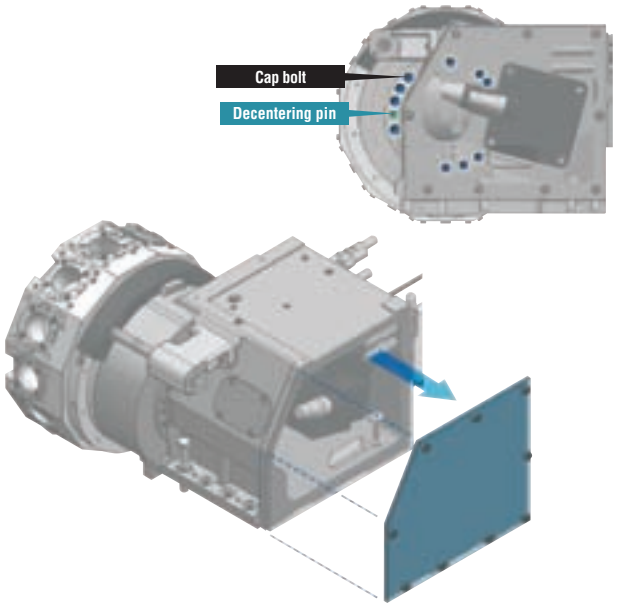
Spindle unit replacement

A spindle design with a separate rear bearing housing makes it possible to replace the spindle unit without having to remove the motor wiring. The time it takes to replace the spindle is dramatically shorter when compared with previous models.



Turret centering adjustment

Removing the machine side covers provides access to the decentering pin and all the coupling bolts, including the cap bolts. This has made turret centering adjustment much easier.



Convenience

Automatic door OP

Automatic doors to enhance automation, not only during normal operation but also when using a robot.

● Door opening may vary from the standard machine.

Broader field of vision

The new design includes a vertical front door and a window closer to the operator. The broader field of vision allows the operator to view the machine interior without having to stoop down. The distance between the operation panel and the machine interior has been shortened, thus reducing eye strain.

Adjustable operation panel

The easy-to-use operation panel swivels 90°. Improved visibility during operation.

0–90°

NL Series operation panel

We have changed the layout of the buttons on the operation panel to improve setup. We've also used rotary buttons for those with most frequent use.

NL SERIES (MAPPS Ⅳ)

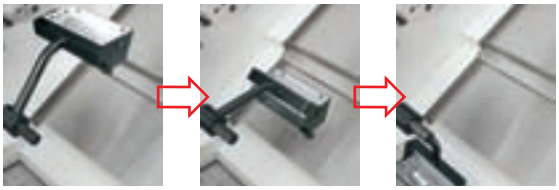
Previous model

OP Option

Transfer system

Workpiece unloader* (built-in type) OP

We have further developed the previous parts catcher so that it can now be customized more easily by the end user. Both spindles handle workpieces up to double the previous length.



Workpiece bucket

The capacity of the bucket has been doubled for more convenient automation.

Applicable workpiece diameter

NL SERIES
80 mm (3.1 in.)

Applicable workpiece length

NL SERIES
200 mm (7.8 in.)

Max. transfer weight

NL1500
NL2000
NL2500
3.0 kg (6.6 lb.)

NL3000
4.0 kg (8.8 lb.)

* Standard for S, SMC and SY types. (Not including gantry loader specifications)
● Not available when the steady rest is selected, because of interference. For standard machines, it is necessary to remove the workpiece unloader when the steady rest specifications are selected.

Bar feeder system OP

Complete bar machining is possible on a single machine when coupled with a workpiece unloader. You won't need a work loader/unloader or turnover unit.

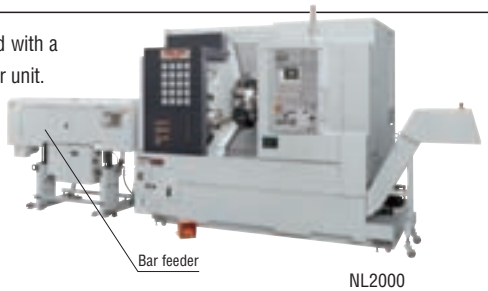
Bar work capacity

NL1500
ϕ 52 mm (ϕ 2.0 in.)

NL2500
ϕ 80 mm (ϕ 3.1 in.)

NL2000
ϕ 65 mm (ϕ 2.5 in.)

NL3000
ϕ 90 mm (ϕ 3.5 in.)



NL2000

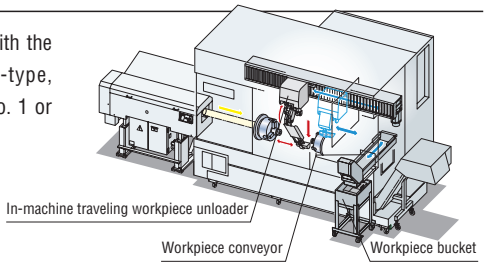
Recommended accessories for bar feeder specification

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

● Cover interlock available.
● Bar work capacity: depending on the chuck/cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

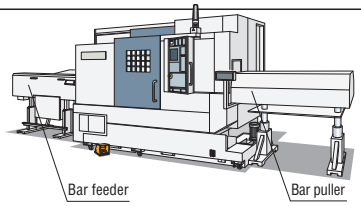
In-machine traveling workpiece unloader system OP

Operate unmanned when equipped with the workpiece conveyor. With the S-type, receive workpieces from either the No. 1 or No. 2 spindles.



Bar puller system <Consultation is required> OP

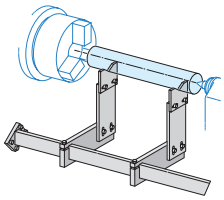
Automatically discharge the machined piece from the No. 2 spindle, making it easier to automate machining of bar workpieces and making this system ideal for long workpieces that cannot be handled by a workpiece unloader.



Workpiece rest OP

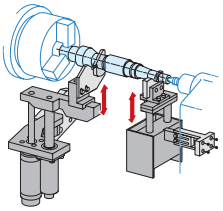
Fixed type

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.



Transfer system

Gantry-type loader system OP

We have achieved completely automated start-to-finish machining using only one machine, from material supply to discharging the completed workpiece. This is a high-speed mass production system that reduces non-cutting time.

Loader travel speed (travel)

NL1500/NL2000
200 m/min
(656.2 fpm)

NL2500/NL3000
120 m/min
(393.7 fpm)

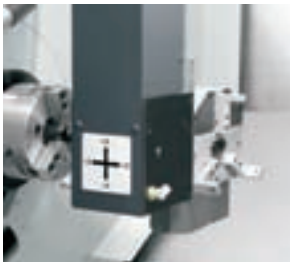

NL1500 with Gantry Loader

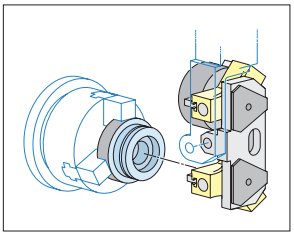
Item			NL1500/NL2000	NL2500	NL3000
Loader type			LG-05 <machine travel type>	LG-10 <machine travel type>	
Gantry-type loader	Max. travel speed	X-axis <hand up/down>	180 m/min (590.6 fpm)	90 m/min (295.3 fpm)	
		Z-axis <loader unit left/right>	200 m/min (656.2 fpm)	120 m/min (393.7 fpm)	
Loader hand	Model		Parallel hands (Back end hands)		
	Max. transfer weight		5 kg (11 lb.)×2	10 kg (22 lb.)×2	
	Applicable workpiece diameter		40—150 mm (1.6—5.9 in.)	40—200 mm (1.6—7.8 in.)	40—250 mm (1.6—9.8 in.)
	Applicable workpiece length		20—120 mm (0.8—4.7 in.)	20—150 mm (0.8—5.9 in.)	
Workstocker	Number of pallet tables		14 <20, 26>	10 <20>	
	Max. workpiece weight		35 kg (77 lb.)/pallet	75 kg (165 lb.)/pallet	
	Max. workpiece stacked height		470 mm (18.5 in.)		
	Applicable workpiece diameter		40—150 mm (1.6—5.9 in.)	40—200 mm (1.6—7.8 in.)	40—250 mm (1.6—9.8 in.)

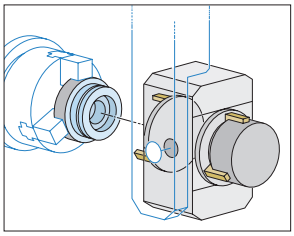
- Depending on the shape of the workpiece, it may not be possible to machine with standard specifications. Please contact our sales representative for details.
- Please consult with our sales representative in the case that a workpiece diameter is less than 40 mm (1.6 in.), or a workpiece length is less than 20 mm (0.8 in.).

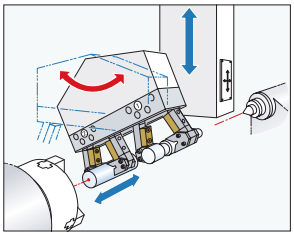
Loader hand

A close confirmation switch comes as a standard feature, thus improving the reliability of the work chucking.



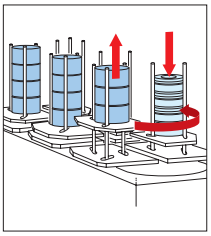

Parallel hands

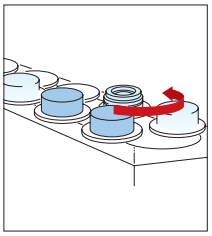

Back end hands

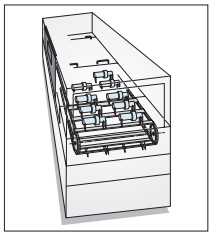

Hand for shaft workpieces
<Consultation is required>

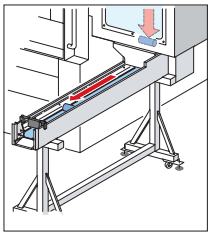
Workstocker

A ball caster wheel conveyor is used because it does not cause many chip problems.


Rotary workstocker


Flat workstocker
<Consultation is required>


Workstocker for shaft workpieces
<Consultation is required>


Belt conveyor
<Consultation is required>

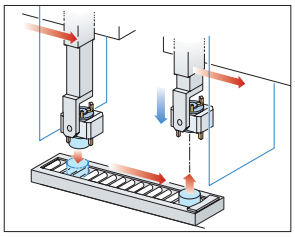
Standard features

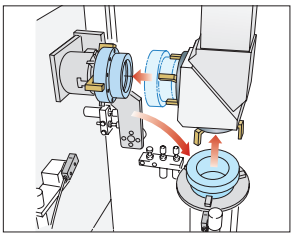
Air blow system, chuck (spindle 1)

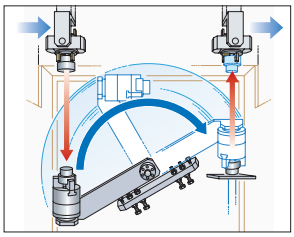
Others

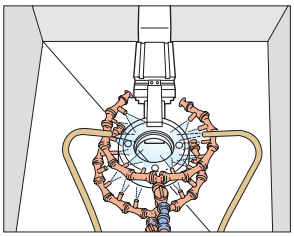
- 14-station rotary workstocker (LG-05)/ 10-station rotary workstocker (LG-10)
- Hand air-blow
- Automatic power-off system
- Spindle orientation
- Low air pressure detecting switch
- Workpiece counter (internal)

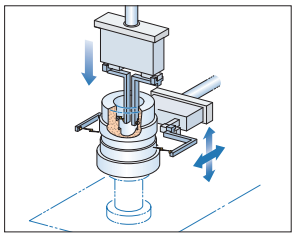
Optional features <Consultation is required>

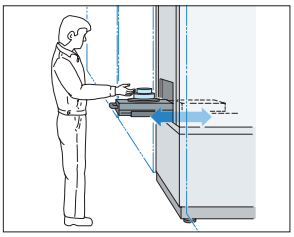

Transfer unit


Turnover unit


Transfer turnover unit


Washing unit


Measuring system


Quality inspection station

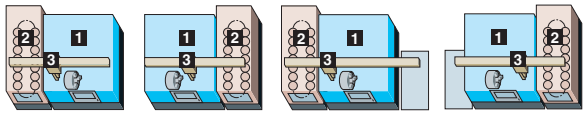
Others

- Gantry-type loader for shaft workpieces
- Turret-mounted workpiece-pusher
- 20-station rotary workstocker/ 26-station rotary workstocker (LG-05)
- Workpiece holding detection (chuck)
- External emergency stop button
- Quality check chute
- Center-guide specifications (workpiece pallet)
- Hexagonal material specifications (workpiece pallet)

System variations

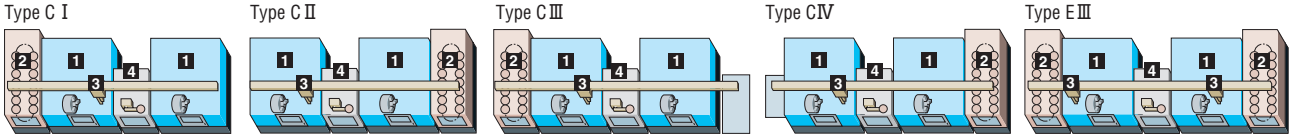
Specifications

Type A Ⅰ Type A Ⅱ Type A Ⅲ Type A Ⅳ



Order system <Consultation is required>

Type C Ⅰ Type C Ⅱ Type C Ⅲ Type C Ⅳ Type E Ⅲ



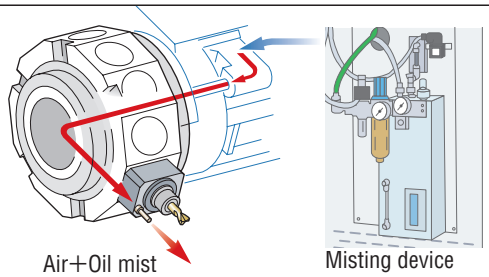
Units

1 Machine 2 Workstocker 3 Loader 4 Turnover unit

- Not applicable for hollow cylinder specifications: Type AⅠ, Type AⅢ, Type CⅠ, Type CⅢ, Type EⅢ

Peripheral equipment

Semi-dry unit OP



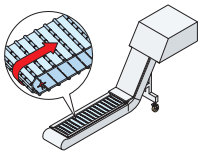
Manual type in-machine tool presetter

Perform tool measurement more efficiently, thereby improving setup.

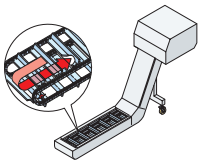
Chip conveyor OP

A chip conveyor that efficiently disposes of chips. Choose the specifications right for you.

Hinge type



Scraper type



Specifications	Workpiece material and chip size ◎: Ideal ○: Suitable ×: Not suitable						
	Steel			Cast iron	Aluminum/non-ferrous metal		
	Long	Short	Powdery	Short	Long	Short	Powdery
Hinge type	○	○	×	×	○	×	×
Hinge type (aluminum)	×	×	×	×	×	○	×
Scraper type	×	○	○	○	×	×	×
Magnet scraper type	×	◎	◎	◎	×	×	×

- Chip size guidelines
  Short: chips 50 mm (2.0 in.) or less in length, bundles of chips ϕ 40 mm (ϕ 1.6 in.) or less
  Long: bigger than the above
- The options table below the general options when using coolant. Changes may be necessary if you are not using coolant, or depending on the amount of coolant, compatibility with machines, or the specifications required.
- Please select a chip conveyor to suit the shape of your chips. When using special or difficult-to-cut material (chip hardness HRC45 or higher), please consult with our sales representative.
- Chip conveyors are available in various types for handling chips of different shape and material. For details, please consult with our sales representative.
- Hinge type chip conveyor comes standard on NL3000/2000, NL3000/3000.

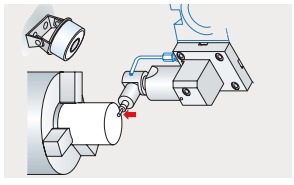
Others OP

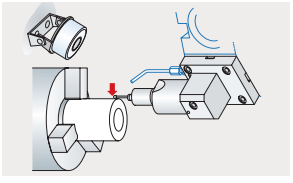

Oil mist collector


Oil skimmer


Collet chuck


Super high-pressure coolant unit


In-machine measuring system




Hydraulic steady rest


Coolant float switch

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

OP Option

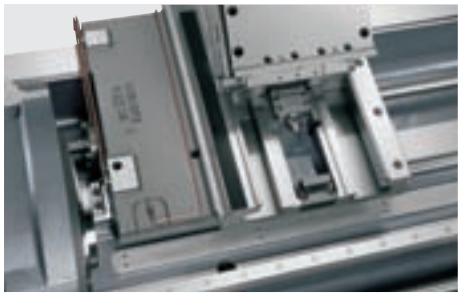
Eco-friendly design

Reduced consumption of lubricating oil Energy savings

The amount of lubricant needed by the box way has been reduced, contributing to energy savings.

Comparison of amounts of lubricant needed

Less 50%



Reduced consumption of electricity Power savings

Automatic machine light function

If the operation panel is not touched for a certain amount of time, the interior light turns off. This saves energy and lengthens the life of the machine lights.

Function to reduce power consumption during standby

The amount of electricity consumed in standby mode has been reduced.

Automatic sleep function

If the keyboard is not touched for a certain amount of time and NC operation is not being performed, power is cut off to the servo motor, the spindle, the coolant pump and the chip conveyor, thereby saving energy.

Energy-saving settings screen

MAPPS Ⅳ

A New High-Performance Operating System
for CNC Lathes

● 10.4-inch operation panel

A new high-performance operating system that pursues ease of use, and combines the best hardware in the industry with the advanced application/network systems.

- **Outstanding operability thanks to upgraded hardware**
- **New functions for easier setup and maintenance**
- **In the event of trouble, DMG MORI SEIKI's remote maintenance service solves it smoothly**
  MORI-NET Global Edition Advance OP

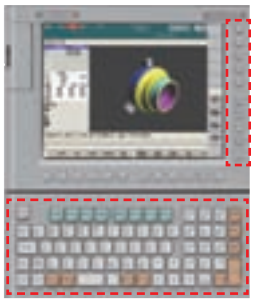
Outstanding operability

Vertical soft-keys

The vertical soft-keys can be used as option buttons or shortcut keys to which you can assign your desired screens and functions, allowing you to quickly display the screen you want.

Keyboard

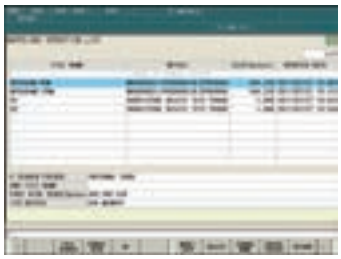
A PC-type keyboard is used as standard, making key input easy.



Program management

External memory DNC operation function OP

DNC operation can be performed using programs stored in an external memory. It is also possible to transfer data between an external memory and the NC memory and delete/copy/rename programs in an external memory.



● Macro programs such as GOTO, IF and WHILE cannot be used in DNC operating programs.

Improved ease of setup

File display and Memo function

Data necessary for setups such as operating instructions, drawing data and text data can be viewed on MAPPS. Text data is editable.

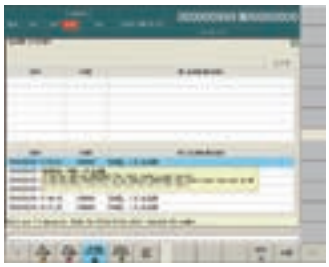
Viewable file types

- PDF ・TXT (Editable)
- Any file that can be displayed with Internet Explorer is available

Improved ease of maintenance

Alarm help function

When an alarm occurs, MAPPS identifies the cause of the trouble and provides solutions.



Network application systems

Remote Maintenance/Machine Operation Monitoring Service

MORI-NET Global Edition Advance OP

This system enables access to customer support services as well as high-speed, large-capacity data transmission between the machines and Service Center, by using a network that combines the internal LAN and the Internet.

- Download data
- Remote alarm support
- Transmission of alarm information

Application for Data Transmission

MORI-SERVER [Standard features]

This enables high-speed transfer of programming data between your office computer and machine, reducing the lead time of pre-machining processes.

MAPPS: Mori Advanced Programming Production System

● The photo shown may differ from actual machine.
● Information about the screen is current as of May 2012.

Machine specifications (NL1500)

Item			NL1500/500	NL1500MC/500	NL1500Y/500	NL1500S/500	NL1500SMC/500	NL1500SY/500
Capacity	Swing over bed	mm (in.)	923.8 (36.4) <interference with front cover 579.8 (22.8)>					
	Swing over cross slide	mm (in.)	755 (29.7)					
	Max. turning diameter	mm (in.)	386 (15.1)*1 366 (14.4)*2 [278 (10.9) <20-station turret head>]					
	Standard turning diameter	mm (in.)	260 (10.2)*1 271 (10.6)*2 [192 (7.5) <20-station turret head>]					
	Max. turning length	mm (in.)	515 (20.2)					
	Bar work capacity	mm (in.)	52 (2.0) [34 (1.3) <8,000 min-1>]					
Travel	X-axis travel	mm (in.)	260 (10.2) <193+67 (7.6+2.6)>					
	Z-axis travel	mm (in.)	590 (23.2) [580 (22.8) <20-station turret head>]					
	Y-axis travel	mm (in.)	—		100 <±50> (3.9 <±2.0>)	—		100 <±50> (3.9 <±2.0>)
	Headstock 2 travel <B-axis>	mm (in.)	—			624 (24.6)		
Spindle	Max. spindle speed	min-1	6,000 [6,000 <high output>] [8,000 <high speed>]			Spindle 1: 6,000 [6,000 <high output>] [8,000 <high speed>] Spindle 2: 6,000 [8,000 <high speed>]		
	Type of spindle nose		JIS A2-5			Spindle 1, 2: JIS A2-5		
	Through-spindle hole diameter	mm (in.)	61 (2.4) [43 (1.7) <8,000 min-1>]			Spindle 1: 61 (2.4) [43 (1.7) <8,000 min-1>] Spindle 2: 43 (1.7)		
	Min. spindle indexing angle		—	0.001°		—	0.001°	
	Spindle bearing inner diameter	mm (in.)	100 (3.9) [85 (3.3) <8,000 min-1>]			Spindle 1: 100 (3.9) [85 (3.3) <8,000 min-1>] Spindle 2: 85 (3.3)		
Turret	Number of tool stations		12 [16] [20]					
	Shank height for square tool	mm (in.)	20 (3/4)/25 (1) <with the SL holder: 20 (3/4)>					
	Shank diameter for boring bar	mm (in.)	40 (1 1/2)/50 (2) <with the SL holder: 32 (1 1/4)> [25 (1) <double boring holder>] [32 (1 1/4) <20-station turret head>]			Spindle 1: 40 (1 1/2)/50 (2) <with the SL holder: 32 (1 1/4)> [25 (1) <double boring holder>] Spindle 2: 32 (1 1/4) [25 (1) <20-station turret head>]		
	Tool shank diameter for rotary tool	mm (in.)	—	26 (1.0)		—	26 (1.0)	
	Turret indexing time	s	0.2 [0.25 <20-station turret head>]	0.25		0.2 [0.25 <20-station turret head>]	0.25	
	Max. rotary tool spindle speed	min-1	—	6,000 [6,000 <high torque>]		—	6,000 [6,000 <high torque>]	
Feedrate	Rapid traverse rate	mm/min (ipm)	X, Z: 30,000 (1,181.1) Tailstock: 7,000 (275.6)	X, Z: 30,000 (1,181.1) Tailstock: 7,000 (275.6) C: 400 min-1	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) Tailstock: 7,000 (275.6) C: 400 min-1	X, Z, B: 30,000 (1,181.1)	X, Z, B: 30,000 (1,181.1) C: 400 min-1	X, Z, B: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min-1
Tailstock	Tailstock travel	mm (in.)	564 (22.2)			—		
	Tailstock spindle diameter	mm (in.)	80 (3.1)			—		
	Taper hole of tailstock spindle		Live center <MT4> [Built-in center <MT3>]			—		
Motor	Spindle drive motor <50%ED/30min/cont> 6,000 min-1	kW (HP)	11/11/7.5 (15/15/10) [15/15/11 (20/20/15)]			Spindle 1: 11/11/7.5 (15/15/10) [15/15/11 (20/20/15)] Spindle 2: 11/7.5 (15/10) <25%ED/cont>		
	8,000 min-1	kW (HP)	[11/7.5 (15/10) <25%ED/cont>]			Spindle 1, 2: [11/7.5 (15/10) <25%ED/cont>]		
	Rotary tool spindle drive motor <3 min/5 min/cont>	kW (HP)	—	5.5/5.5/3.7 (7.5/7.5/5)		—	5.5/5.5/3.7 (7.5/7.5/5)	
	Feed motor	kW (HP)	X, B: 2.0 (2.7) Z: 3.5 (4.7)		X, Z, Y: 3.5 (4.7) B: 2.0 (2.7)	X, B: 2.0 (2.7) Z: 3.5 (4.7)		X, Z, Y: 3.5 (4.7) B: 2.0 (2.7)
Power sources <standard>	Electrical power supply <cont> I94028B01	kVA	19.0	23.5	27.4	27.5	27.4	31.8
	Compressed air supply	MPa (psi), L/min (gpm)	— (a compressed air supply may be needed, depending on options and peripheral equipment)			0.5 (72.5), 100 (26.4) {when the tool tip air blow is regularly used, air supply of more than 300 L/min (79.2 gpm) is separately required} <ANR>		
Tank capacity	Coolant tank capacity	L (gal.)	235 (62.0)					
Machine size	Machine height <from floor>	mm (in.)	2,120 (83.5)					
	Floor space <width×depth>	mm (in.)	2,705×1,922 (106.5×75.7)			2,705×2,000 (106.5×78.7)		
	Mass of machine	kg (lb.)	5,300 (11,660)	5,400 (11,880)	5,600 (12,320)	5,400 (11,880)	5,500 (12,100)	5,700 (12,540)
Noise data	A-weighted, time-average radiated sound pressure level	dB	59—72 (Measurement uncertainty is 4 dB)					

[ ] Option JIS: Japanese Industrial Standard

*1 Shank height for square tool: 20 mm (3/4 in.).

*2 Shank height for square tool: 25 mm (1 in.).

- Bar work capacity: depending on the chuck/cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
- 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.
- ANR: ANR refers to a standard atmospheric state; i. e., temperature at 20 ℃ (68 ℉), absolute pressure at 101.3 kPa (14.7 psi) and relative humidity at 65%.
- Power sources, machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.
- Compressed air supply: please be sure to supply clean compressed air <air pressure: 0.7 MPa (101.5 psi), pressure dew point: 10 ℃ (50 °F) or below>.
- A criterion capacity to select a compressor is 90 L/min (23.8 gpm) per 0.75 kW (1 HP). However, this figure may differ depending on the type of compressors and options attached. For details, please check the compressor specifications.
- Noise data: the values were measured at the front of the NL1500MC/700 with a maximum spindle speed of 6,000 min-1. Please contact your sales representative for details.
- The information in this catalog is valid as of January 2012.

Machine specifications (NL2000)

Item			NL2000/500	NL2000MC/500	NL2000Y/500	NL2000S/500	NL2000SMC/500	NL2000SY/500
Capacity	Swing over bed	mm (in.)	923.8 (36.4) <interference with front cover 579.8 (22.8)>					
	Swing over cross slide	mm (in.)	755 (29.7)					
	Max. turning diameter	mm (in.)	366 (14.4)*1 356 (14.0)*2 [278 (10.9) <20-station turret head>]					
	Standard turning diameter	mm (in.)	271 (10.6)*1 275 (10.8)*2 [192 (7.5) <20-station turret head>]					
	Max. turning length	mm (in.)	510 (20.0)					
	Bar work capacity	mm (in.)	65 (2.5)					
Travel	X-axis travel	mm (in.)	260 (10.2) <183+77 (7.2+3.0)>*1 260 (10.2) <178+82 (7.0+3.2)>*2					
	Z-axis travel	mm (in.)	590 (23.2) [580 (22.8) <20-station turret head>]					
	Y-axis travel	mm (in.)	—		100 <±50> (3.9 <±2.0>)	—		100 <±50> (3.9 <±2.0>)
	Headstock 2 travel <B-axis>	mm (in.)	—			624 (24.6)		
Spindle	Max. spindle speed	min^{-1}	5,000 [5,000 <high output>]			Spindle 1: 5,000 [5,000 <high output>] Spindle 2: 6,000 [5,000 <through-spindle hole diameter: 73 mm (2.9 in.)>]		
	Type of spindle nose		JIS A_2-6			Spindle 1: JIS A_2-6 Spindle 2: JIS A_2-5 [JIS A_2-6 <through-spindle hole diameter: 73 mm (2.9 in.)>]		
	Through-spindle hole diameter	mm (in.)	73 (2.9)			Spindle 1: 73 (2.9) Spindle 2: 43 (1.7) [73 (2.9)]		
	Min. spindle indexing angle		—	0.001°		—	0.001°	
	Spindle bearing inner diameter	mm (in.)	120 (4.7)			Spindle 1: 120 (4.7) Spindle 2: 85 (3.3) [120 (4.7) <through-spindle hole diameter: 73 mm (2.9 in.)>]		
Turret	Number of tool stations		12 [10] [16] [20]					
	Shank height for square tool	mm (in.)	25 (1) [20 ($^3/_4$) <20-station turret head>]					
	Shank diameter for boring bar	mm (in.)	50 (2) [32 ($1^1/_4$) <double boring holder>] [32 ($1^1/_4$) <20-station turret head>]			Spindle 1: 50 (2) [32 ($1^1/_4$) <double boring holder>] Spindle 2: 32 ($1^1/_4$) [25 (1) <20-station turret head>]		
	Tool shank diameter for rotary tool	mm (in.)	—	26 (1.0)		—	26 (1.0)	
	Turret indexing time	s	0.2 [0.25 <20-station turret head>]	0.25		0.2 [0.25 <20-station turret head>]	0.25	
	Max. rotary tool spindle speed	min^{-1}	—	6,000 [6,000 <high torque>]		—	6,000 [6,000 <high torque>]	
Feedrate	Rapid traverse rate	mm/min (ipm)	X, Z: 30,000 (1,181.1) Tailstock: 7,000 (275.6)	X, Z: 30,000 (1,181.1) Tailstock: 7,000 (275.6) C: 400 min^{-1}	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) Tailstock: 7,000 (275.6) C: 400 min^{-1}	X, Z, B: 30,000 (1,181.1)	X, Z, B: 30,000 (1,181.1) C: 400 min^{-1}	X, Z, B: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min^{-1}
Tailstock	Tailstock travel	mm (in.)	564 (22.2)			—		
	Tailstock spindle diameter	mm (in.)	80 (3.1)			—		
	Taper hole of tailstock spindle		Live center <MT4> [Built-in center <MT3>]			—		
Motor	Spindle drive motor <50%ED/30min/cont>	kW (HP)	15/15/11 (20/20/15) [18.5/18.5/18.5/15 (24.7/24.7/24.7/20) <25%ED/50%ED/30 min/cont>]			Spindle 1: 15/15/11 (20/20/15) [18.5/18.5/18.5/15 (24.7/24.7/24.7/20) <25%ED/50%ED/30 min/cont>] Spindle 2: 11/7.5 (15/10) <25%ED/cont>		
	Rotary tool spindle drive motor <3 min/5 min/cont>	kW (HP)	—	5.5/5.5/3.7 (7.5/7.5/5)		—	5.5/5.5/3.7 (7.5/7.5/5)	
	Feed motor	kW (HP)	X, B: 2.0 (2.7) Z: 3.5 (4.7)		X, Z, Y: 3.5 (4.7) B: 2.0 (2.7)	X, B: 2.0 (2.7) Z: 3.5 (4.7)		X, Z, Y: 3.5 (4.7) B: 2.0 (2.7)
Power sources <standard>	Electrical power supply <cont> I94029B01	kVA	20.5	24.2	31.5	31.5		35.9
	Compressed air supply	MPa (psi), L/min (gpm)	— (a compressed air supply may be needed, depending on options and peripheral equipment)			0.5 (72.5), 100 (26.4) {when the tool tip air blow is regularly used, air supply of more than 300 L/min (79.2 gpm) is separately required} <ANR>		
Tank capacity	Coolant tank capacity	L (gal.)	235 (62.0)					
Machine size	Machine height <from floor>	mm (in.)	2,120 (83.5)					
	Floor space <width×depth>	mm (in.)	2,705×1,922 (106.5×75.7)			2,705×2,000 (106.5×78.7)		
	Mass of machine	kg (lb.)	5,400 (11,880)	5,500 (12,100)	5,700 (12,540)	5,500 (12,100)	5,600 (12,320)	5,800 (12,760)
Noise data	A-weighted, time-average radiated sound pressure level	dB	60—71 (Measurement uncertainty is 4 dB)					

[ ] Option JIS: Japanese Industrial Standard

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

*2 For O.D. cutting tool with an overhang of 40 mm (1.6 in.).

- Bar work capacity: depending on the chuck/cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
- 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.
- ANR: ANR refers to a standard atmospheric state; i. e., temperature at 20 ℃ (68 ℉), absolute pressure at 101.3 kPa (14.7 psi) and relative humidity at 65%.
- Power sources, machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.
- Compressed air supply: please be sure to supply clean compressed air <air pressure: 0.7 MPa (101.5 psi), pressure dew point: 10 ℃ (50 °F) or below>.
- A criterion capacity to select a compressor is 90 L/min (23.8 gpm) per 0.75 kW (1 HP). However, this figure may differ depending on the type of compressors and options attached. For details, please check the compressor specifications.
- Noise data: the values were measured at the front of the NL2000SY/500 with a maximum spindle speed of 5,000 min^{-1}. Please contact your sales representative for details.
- The information in this catalog is valid as of January 2012.

Machine specifications (NL2500/1250)

Item			NL2500/1250	NL2500MC/1250	NL2500Y/1250	NL2500S/1250	NL2500SMC/1250	NL2500SY/1250
Capacity	Swing over bed	mm (in.)	923.8 (36.4) <interference with front cover 679.8 (26.8)>					
	Swing over cross slide	mm (in.)	755 (29.7)					
	Max. turning diameter	mm (in.)	366 (14.4)*1 356 (14.0)*2 [278 (10.9) <20-station turret head>]					
	Standard turning diameter	mm (in.)	271 (10.6)*1 275 (10.8)*2 [192 (7.5) <20-station turret head>]					
	Max. turning length	mm (in.)	1,298 (51.1)					
	Bar work capacity	mm (in.)	80 (3.1)					
Travel	X-axis travel	mm (in.)	260 (10.2) <183+77 (7.2+3.0)>*1 260 (10.2) <178+82 (7.0+3.2)>*2					
	Z-axis travel	mm (in.)	1,345 (53.0) [1,335 (52.6) <20-station turret head>]					
	Y-axis travel	mm (in.)	—		100 <±50> (3.9 <±2.0>)	—		100 <±50> (3.9 <±2.0>)
	Headstock 2 travel <B-axis>	mm (in.)	—			1,284 (50.6)		
Spindle	Max. spindle speed	min^{-1}	4,000 [4,000 <high output>]			Spindle 1: 4,000 [4,000 <high output>] Spindle 2: 6,000 [5,000 <through-spindle hole diameter: 73 mm (2.9 in.)>]		
	Type of spindle nose		JIS A_2-8			Spindle 1: JIS A_2-8 Spindle 2: JIS A_2-5 [JIS A_2-6 <through-spindle hole diameter: 73 mm (2.9 in.)>]		
	Through-spindle hole diameter	mm (in.)	91 (3.6)			Spindle 1: 91 (3.6) Spindle 2: 43 (1.7) [73 (2.9)]		
	Min. spindle indexing angle		—	0.001°		—	0.001°	
	Spindle bearing inner diameter	mm (in.)	140 (5.5)			Spindle 1: 140 (5.5) Spindle 2: 85 (3.3) [120 (4.7) <through-spindle hole diameter: 73 mm (2.9 in.)>]		
Turret	Number of tool stations		12 [10] [20]					
	Shank height for square tool	mm (in.)	25 (1)					
	Shank diameter for boring bar	mm (in.)	50 (2) [32 ($1^1/_4$) <double boring holder>] [32 ($1^1/_4$) <20-station turret head>]			Spindle 1: 50 (2) [32 ($1^1/_4$) <double boring holder>] Spindle 2: 32 ($1^1/_4$) [25 (1) <20-station turret head>]		
	Tool shank diameter for rotary tool	mm (in.)	—	26 (1.0)		—	26 (1.0)	
	Turret indexing time	s	0.2 [0.25 <20-station turret head>]	0.25		0.2 [0.25 <20-station turret head>]	0.25	
	Max. rotary tool spindle speed	min^{-1}	—	6,000		—	6,000	
Feedrate	Rapid traverse rate	mm/min (ipm)	X, Z: 30,000 (1,181.1) Tailstock: 7,000 (275.6)	X, Z: 30,000 (1,181.1) Tailstock: 7,000 (275.6) C: 400 min^{-1}	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) Tailstock: 7,000 (275.6) C: 400 min^{-1}	X, Z, B: 30,000 (1,181.1)	X, Z, B: 30,000 (1,181.1) C: 400 min^{-1}	X, Z, B: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min^{-1}
Tailstock	Tailstock travel	mm (in.)	1,284 (50.6)			—		
	Tailstock spindle diameter	mm (in.)	110 (4.3)			—		
	Taper hole of tailstock spindle		Live center <MT5> [Built-in center <MT4>]			—		
Motor	Spindle drive motor <25%ED/50%ED/cont>	kW (HP)	18.5/18.5/15 (24.7/24.7/20) [26/26/22 (34.7/34.7/30) <10 min/30 min/cont>]			Spindle 1: 18.5/18.5/15 (24.7/24.7/20) [26/26/22 (34.7/34.7/30) <10 min/30 min/cont>] Spindle 2: 11/7.5 (15/10) <25%ED/cont>		
	Rotary tool spindle drive motor <3 min/5 min/cont>	kW (HP)	—	5.5/5.5/3.7 (7.5/7.5/5)		—	5.5/5.5/3.7 (7.5/7.5/5)	
	Feed motor	kW (HP)	X, B: 2.0 (2.7) Z: 4.5 (6)		X, Y: 3.5 (4.7) Z: 4.5 (6) B: 2.0 (2.7)	X, B: 2.0 (2.7) Z: 4.5 (6)		X, Y: 3.5 (4.7) Z: 4.5 (6) B: 2.0 (2.7)
Power sources <standard>	Electrical power supply <cont> I94030B01	kVA	28.8	33.1	37.5	37.5		40.4
	Compressed air supply MPa (psi), L/min (gpm)		— (a compressed air supply may be needed, depending on options and peripheral equipment)			0.5 (72.5), 100 (26.4) {when the tool tip air blow is regularly used, air supply of more than 300 L/min (79.2 gpm) is separately required} <ANR>		
Tank capacity	Coolant tank capacity	L (gal.)	345 (91.1)					
Machine size	Machine height <from floor>	mm (in.)	2,232 (87.9)					
	Floor space <width×depth>	mm (in.)	4,339×2,143 (170.8×84.4)					
	Mass of machine	kg (lb.)	7,200 (15,840)	7,300 (16,060)	7,500 (16,500)	7,300 (16,060)	7,400 (16,280)	7,600 (16,720)

[ ] Option JIS: Japanese Industrial Standard

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

*2 For O.D. cutting tool with an overhang of 40 mm (1.6 in.).

- Bar work capacity: depending on the chuck/cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
- 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.
- ANR: ANR refers to a standard atmospheric state; i. e., temperature at 20 ℃ (68 ˚F), absolute pressure at 101.3 kPa (14.7 psi) and relative humidity at 65%.
- Power sources, machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.
- Compressed air supply: please be sure to supply clean compressed air <air pressure: 0.7 MPa (101.5 psi), pressure dew point: 10 ℃ (50 °F) or below>.
- A criterion capacity to select a compressor is 90 L/min (23.8 gpm) per 0.75 kW (1 HP). However, this figure may differ depending on the type of compressors and options attached. For details, please check the compressor specifications.
- The information in this catalog is valid as of January 2012.

Machine specifications (NL3000/700, NL3000/1250)

Item			NL3000/700	NL3000MC/700	NL3000Y/700	NL3000/1250	NL3000MC/1250	NL3000Y/1250
Capacity	Swing over bed	mm (in.)	995 (39.2) <interference with front cover 670 (26.4)>			995 (39.2) <interference with front cover 700 (27.6)>		
	Swing over cross slide	mm (in.)	825 (32.5)					
	Max. turning diameter	mm (in.)	430 (16.9)*1 420 (16.5)*2					
	Standard turning diameter	mm (in.)	358 (14.0)*1 366 (14.4)*2					
	Max. turning length	mm (in.)	713 (28.0)			1,260 (49.6)		
	Bar work capacity	mm (in.)	90 (3.5)					
Travel	X-axis travel	mm (in.)	280 (11.0) <215+65 (8.5+2.6)>*1 280 (11.0) <210+70 (8.3+2.8)>*2					
	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					
	Through-spindle hole diameter	mm (in.)	105 (4.1)					
	Min. spindle indexing angle		—	0.001°		—	0.001°	
	Spindle bearing inner diameter	mm (in.)	160 (6.3)					
Turret	Number of tool stations		10 [12]					
	Shank height for square tool	mm (in.)	25 (1)					
	Shank diameter for boring bar	mm (in.)	50 (2)					
	Tool shank diameter for rotary tool	mm (in.)	—	26 (1.0)		—	26 (1.0)	
	Turret indexing time	s	0.3					
	Max. rotary tool spindle speed	min^{-1}	—	6,000 [4,000 <high torque>]		—	6,000 [4,000 <high torque>]	
Feedrate	Rapid traverse rate	mm/min (ipm)	X, Z: 30,000 (1,181.1) Tailstock: 7,000 (275.6)	X, Z: 30,000 (1,181.1) Tailstock: 7,000 (275.6) C: 400 min^{-1}	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) Tailstock: 7,000 (275.6) C: 400 min^{-1}	X, Z: 30,000 (1,181.1) Tailstock: 7,000 (275.6)	X, Z: 30,000 (1,181.1) Tailstock: 7,000 (275.6) C: 400 min^{-1}	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) Tailstock: 7,000 (275.6) C: 400 min^{-1}
Tailstock	Tailstock travel	mm (in.)	734 (28.9)			1,284 (50.6)		
	Tailstock spindle diameter	mm (in.)	110 (4.3)					
	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 <3 min/5 min/cont>	kW (HP)	—	5.5/5.5/3.7 (7.5/7.5/5)		—	5.5/5.5/3.7 (7.5/7.5/5)	
	Feed motor	kW (HP)	X: 2.0 (2.7) Z: 4.5 (6) B: 3.5 (4.7)	X, B: 3.5 (4.7) Z: 4.5 (6)	X, Y, B: 3.5 (4.7) Z: 4.5 (6)	X: 2.0 (2.7) Z: 4.5 (6) B: 3.5 (4.7)	X, B: 3.5 (4.7) Z: 4.5 (6)	X, Y, B: 3.5 (4.7) Z: 4.5 (6)
Power sources <standard>	Electrical power supply <cont> I94031B01	kVA	33.3	38.9	40.5	33.3	38.9	40.5
	Compressed air supply	MPa (psi), L/min (gpm)	— (a compressed air supply may be needed, depending on options and peripheral equipment)					
Tank capacity	Coolant tank capacity	L (gal.)	300 (79.2)			370 (97.7)		
Machine size	Machine height <from floor>	mm (in.)	2,270 (89.4)			2,390 (94.1)		
	Floor space <width×depth>	mm (in.)	3,418×2,089 (134.6×82.2)			4,532×2,291 (178.4×90.2)		
	Mass of machine	kg (lb.)	6,000 (13,200)		6,500 (14,300)	7,600 (16,720)		8,100 (17,820)
Noise data	A-weighted, time-average radiated sound pressure level	dB	58—72 (Measurement uncertainty is 4 dB)					

[ ] Option JIS: Japanese Industrial Standard

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

*2 For O.D. cutting tool with an overhang of 40 mm (1.6 in.).

- Bar work capacity: depending on the chuck/cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
- 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.
- Power sources, machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.
- Compressed air supply: please be sure to supply clean compressed air <air pressure: 0.7 MPa (101.5 psi), pressure dew point: 10 ℃ (50 °F) or below>.
- A criterion capacity to select a compressor is 90 L/min (23.8 gpm) per 0.75 kW (1 HP). However, this figure may differ depending on the type of compressors and options attached. For details, please check the compressor specifications.
- Noise data: the values were measured at the front of the NL3000Y/1250 with a maximum spindle speed of 3,000 min^{-1}. Please contact your sales representative for details.
- The information in this catalog is valid as of January 2012.

Machine specifications (NL3000/2000, NL3000/3000)

Item			NL3000/2000	NL3000MC/2000	NL3000Y/2000	NL3000/3000	NL3000MC/3000	NL3000Y/3000
Capacity	Swing over bed	mm (in.)	995 (39.2) <interference with front cover 963 (37.9)>					
	Swing over cross slide	mm (in.)	825 (32.5)					
	Max. turning diameter	mm (in.)	430 (16.9)*1 420 (16.5)*2					
	Standard turning diameter	mm (in.)	358 (14.0)*1 366 (14.4)*2					
	Max. turning length	mm (in.)	2,123 (83.5)			3,123 (122.9)		
	Bar work capacity	mm (in.)	90 (3.5)					
Travel	X-axis travel	mm (in.)	280 (11.0) <215+65 (8.5+2.6)>*1 280 (11.0) <210+70 (8.3+2.8)>*2					
	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 A2-8					
	Through-spindle hole diameter	mm (in.)	105 (4.1)					
	Min. spindle indexing angle		—	0.001°		—	0.001°	
	Spindle bearing inner diameter	mm (in.)	160 (6.3)					
Turret	Number of tool stations		10 [12]					
	Shank height for square tool	mm (in.)	25 (1)					
	Shank diameter for boring bar	mm (in.)	50 (2)					
	Turret indexing time	s	0.3					
	Max. rotary tool spindle speed	min-1	—	6,000 [4,000 <high torque>]		—	6,000 [4,000 <high torque>]	
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)		
	Tailstock spindle diameter	mm (in.)	150 (5.9)					
	Tailstock spindle travel	mm (in.)	150 (5.9)					
	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 <5 min/cont>	kW (HP)	—	5.5/3.7 (7.5/5)		—	5.5/3.7 (7.5/5)	
	Feed motor	kW (HP)	X: 2.0 (2.7) Z: 7.0 (9.3)	X: 3.5 (4.7) Z: 7.0 (9.3)	X, Y: 3.5 (4.7) Z: 7.0 (9.3)	X: 2.0 (2.7) Z: 7.0 (9.3)	X: 3.5 (4.7) Z: 7.0 (9.3)	X, Y: 3.5 (4.7) Z: 7.0 (9.3)
Power sources <standard>	Electrical power supply <cont> I94031B01	kVA	37.0	42.6	44.1	37.0	42.6	44.1
	Compressed air supply	MPa (psi), L/min (gpm)	— (a compressed air supply may be needed, depending on options and peripheral equipment)					
Tank capacity	Coolant tank capacity	L (gal.)	470 (124.1)			540 (142.6)		
Machine size	Machine height <from floor>	mm (in.)	2,390 (94.1)					
	Floor space <width×depth> (including chip conveyor)	mm (in.)	7,080×2,587 (278.7×101.9) <depth includes operation panel>			8,147×2,587 (320.7×101.9) <depth includes operation panel>		
	Mass of machine	kg (lb.)	11,500 (25,300)		12,000 (26,400)	13,500 (29,700)		14,000 (30,800)
Noise data	A-weighted, time-average radiated sound pressure level	dB	58—72 (Measurement uncertainty is 4 dB)					

[ ] Option JIS: Japanese Industrial Standard

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

*2 For O.D. cutting tool with an overhang of 40 mm (1.6 in.).

- Bar work capacity: depending on the chuck/cylinder used and its restrictions, it may not be possible to reach full bar work capacity.
- 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.
- Power sources, machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.
- Compressed air supply: please be sure to supply clean compressed air <air pressure: 0.7 MPa (101.5 psi), pressure dew point: 10 ℃ (50 °F) or below>.
- A criterion capacity to select a compressor is 90 L/min (23.8 gpm) per 0.75 kW (1 HP). However, this figure may differ depending on the type of compressors and options attached. For details, please check the compressor specifications.
- Noise data: the values were measured at the front of the NL3000Y/1250 with a maximum spindle speed of 3,000 min-1. Please contact your sales representative for details.
- The information in this catalog is valid as of January 2012.

DMG MORI

2-year warranty, twice the peace of mind.

For machines delivered outside of Japan, parts relating to machine breakdown will be guaranteed free for 2 years from the date of installation, and labor costs to repair will be free for 1 year. Please contact our sales representative for details.

<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 SEIKI or its distributor representative. DMG MORI SEIKI 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 SEIKI and its distributor representative shall have no obligation to re-enable such Equipment. DMG MORI SEIKI 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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