

Press Release

November 30, 2012

Mori Seiki NLX Series Full Lineup

Mori Seiki Co., Ltd. will begin taking orders for three new models in the **NLX series** of high-rigidity, high-precision CNC lathes: the **NLX1500** with a 6-inch chuck, the **NLX2000** with an 8-inch chuck, and the **NLX3000** with a 12-inch chuck. These models were on display as world premieres at JIMTOF 2012 which was held November 1-6.

The NLX series has been highly acclaimed since the release of the NLX2500 equipped with a 10-inch chuck in 2010. And now, Mori Seiki expands the lineup of the NLX series by adding the 6-, 8- and 12-inch chuck machines in order to meet an even wider range of customer needs.

We would like to highlight the features of the newly released models from the perspectives of (1) High accuracy, (2) High rigidity, (3) "Mature" and "evolved" BMT, (4) Improved reliability, (5) Extensive specification variations, (6) Energy saving, (7) MAPPS IV, and (8) Compliance with safety standards.

(1) High accuracy

The machines employ the Mori Seiki's original thermal displacement control method realized with various technologies such as one that circulates coolant inside castings. As a result, thermal displacement has been reduced to less than one third compared with the existing machines. Periodic error compensation (patent-pending) is conducted to position the C-axis, which contributes to halving the positioning error compared with the existing models.

(2) High rigidity

Each model has inherited the advantages of the existing machines and has adopted highly rigid slideways. The use of the slideways, with their high rigidity and excellent damping characteristics, makes it possible to achieve high surface quality even when machining difficult-to-cut material or in intermittent cutting, where chatter is likely to occur. The robust construction maximizes the high milling capability of the BMT, realizing machining ability six times greater than that of the existing models.

(3) "Mature" and "evolved" BMT

Our original BMT (Built-in Motor Turret) has been further "evolved", achieving a maximum rotational speed of 10,000 min⁻¹. Despite the substantial increase in speed from the 6,000 min⁻¹ on existing models, it takes a mere 0.45 seconds to accelerate up to 10,000 min⁻¹, and this gives a powerful edge when machining aluminum and in machining with small-diameter drills. In addition, the "maturity" resulting from delivery of 12,000 units has enabled a substantial improvement in terms of accuracy; vibration in the turret is reduced to less than one-third and the turret temperature rise to less than one-tenth of those of a gear-driven turret. The BMT is a precision turret with the top performance in its class, having the same machining capability as that on a machining center.

(4) Improved reliability

The reliability and durability of the spindle have been increased by a whole series of improvements to ensure that it can be used for a long time with peace of mind. The front door has been lightened to reduce the burden on the operator during setup work. The machines are equipped with various characteristics and functions that make them easy to use, such as the extended tool overhang of 100 mm for O.D. cutting tools. We have created highly reliable, “mature” machines by reflecting the requirements from customers relating to existing machines in every aspect.

(5) Extensive specification variations

The NLX1500 and NLX2000 are available in four variations – MC type (with milling function), Y type (MC type plus Y-axis function), SMC type (MC type plus Spindle 2) and SY type (Y type plus Spindle 2), while the NLX3000 is available in three variations: Turning, MC type and Y type. With a Y-axis travel of ± 50 mm on the NLX1500 and NLX2000 and of ± 60 mm on the NLX3000, these machines also support multi-axis machining.

The high-precision quick-change turret which achieves mounting repeatability of 6 μm or better is also available as an option. This specification shortens tool changes and reduces setup time by up to 80%. A variety of new packaged solutions, including the bar feeder package, gantry loader package, robot package and super high-precision package, are also offered to help our customers achieve even greater productivity.

(6) Energy saving

The machines feature a green design that considers reducing the environmental burden and running costs. LEDs are used for the built-in worklight and the signal tower, cutting power consumption by at least 30% compared to existing machines. And the newly incorporated function that stops lubricating oil supply during standby has reduced the lubricating oil consumption by 20% or more.

(7) MAPPS IV

The NLX machines use the MAPPS IV high-performance operating system for their operation panel. Designed to offer outstanding ease of use and flexibility, the MAPPS IV features the customizable main screen and easy-to-use key arrangement. And its conversational programming function enables users to perform complex machining with minimal key input, offering much simplified programming and operation. Additionally, the new NLX series comes with a variety of options. The 3D interference checking function, which prevents collisions inside the machine, ensures the world's best protection against interference even during complex machining that uses the C-axis, Y-axis or Spindle 2. There are also other options for threading and hobbing, providing powerful support for many lathe users.

(8) Compliance with safety standards

The NLX series complies with safety standards all over the world, including IEC Standards, UL Standards and JIS standards.

Type	High-rigidity, high-precision CNC lathe	
Model name	NLX1500/500	(MC type, Y type, SMC type, SY type)
	NLX2000/500	(MC type, Y type, SMC type, SY type)
	NLX3000/700	(Turning, MC type, Y type)
Market	Automobile parts, construction machinery, hydraulic/pneumatic equipment, etc.	

■ Main specifications

Item		NLX1500Y/500	NLX2000SY/500	NLX3000Y/700
Max. turning diameter	(mm)	386	366 ^{*1} 356 ^{*2}	430 ^{*1} 420 ^{*2}
Max. turning length	(mm)	515	510	713
Bar work capacity	(mm)	52 [34] ^{*3}	65	90 [102]
Axis travel (X/Z/Y)	(mm)	260/590/±50		280/820/±60
Rapid traverse rate (X/Z/Y)	(m/min)	30/30/10		
Max. spindle speed (Spindle 1)	(min ⁻¹)	6,000 [6,000] ^{*4} [8,000] ^{*3}	5,000 [5,000] ^{*3}	3,000 [3,000] ^{*3}
Max. spindle speed (Spindle 2)	(min ⁻¹)	-	6,000 [5,000] ^{*5}	-
Spindle 1 drive motor	(kW)	11/11/7.5 (50%ED/30 min. /cont.) [15/15/11] ^{*4} (50%ED/30 min. /cont.) [11/7.5] ^{*3} (25%ED/cont.)	15/15/11 (50%ED/30 min. /cont.) [22/22/15] ^{*4} (15%ED/30 min. /cont.)	22/18.5 (30 min./cont.) [30/25] ^{*4} (30 min. /cont.)
Spindle 2 drive motor	(kW)	-	11/7.5 (25%ED/cont.)	-
Number of tool stations on the turret		12 [16] [20]	12 [10] [16] [20]	10 [12]
Max. rotary tool spindle speed	(min ⁻¹)	10,000 [10,000] ^{*6}		10,000 [4,000] ^{*6}
Rotary tool spindle drive motor	(kW)	5.5/5.5/3.7 (3 min. /5 min. /cont.)		
Floor space (Including chip conveyor)	(mm)	2,805 × 1,928		3,580 × 2,096

[] Option

*1 For O.D. cutting tool with an overhang of 35 mm

*2 For O.D. cutting tool with an overhang of 40 mm

*3 High-speed specification

*4 High-output specification

*5 Through-spindle hole diameter φ73 mm

*6 High-torque specification (Rotary tool spindle)



Photo 1: NLX1500Y/500



Photo 2: NLX2000SY/500



Photo 3: NLX3000Y/700



Photo 4: High-speed milling with a max. spindle speed of 10,000 min⁻¹