

Press Release

March 30, 2012

Announcing the NVX5000II Series that Has Evolved from Popular NVX5000 Series

On March 30, Mori Seiki Co., Ltd. has started taking orders for the **NVX5000II Series** that has advanced and evolved from its popular NVX5000 Series of high-rigidity, high-precision vertical machining centers.

The NVX5000II Series offers improved machining efficiency thanks to a spindle with an increased maximum spindle speed of 13,000 min⁻¹, as well as excellent features of the previous model, including slideways with high damping performance. Its new cover designed with workability in mind offers better accessibility, operability, and visibility. Additionally, an external chip conveyor (option), designed in-house and capable of handling any chip in any shape, ensures higher productivity. Here, we would like to highlight other features from the perspectives of (1) High Rigidity, (2) High Precision, (3) Higher Reliability, (4) Improved Workability, (5) Wide Variety of Models, (6) DDRT Series, (7) MAPPS IV + ESPRIT, and (8) Compliance with Safety Standards.

(1) High Rigidity

In the spindle, air and cooling oil pipes and bolt mounting positions are arranged symmetrically relative to the center of the spindle. The spindle bearing internal diameter is 80 mm for No. 40 taper spindle and 120 mm for No. 50 taper spindle. The both sizes are the largest in the class. The spindle is designed to minimize thermal displacement and to be robust against run-out. Additionally, the slideways with high damping performance have increased machine rigidity, minimizing chatter during heavy-duty cutting of difficult-to-cut material.

(2) High Precision

The slideways with high damping performance minimize chatter during machining, offering high surface quality. For machining that requires higher precision, optional coolant circulation is available. Coolant circulating inside the column minimizes heat generated on the slideways during machining and deformation caused by changes in ambient temperature. The coolant circulation reduces thermal displacement to 7 µm or less in the X- and Y-axis directions and to 6 µm or less in the Z-axis direction.

(3) Higher Reliability

The NVX5000II uses a spindle with an advanced labyrinth structure to prevent coolant from entering the spindle. This durable spindle offers highly reliable machining of difficult-to-cut material, including advanced material, which requires operations using short tools and high-pressure coolant. Additionally, an external chip conveyor –equipped with a drum filter + a cyclone filter, designed in-house and capable of handling any chip in any shape– is available. The cyclone filter allows the conveyor to collect fine sludge*, reducing the frequency of cleaning inside the tank. With excellent chip disposal capability, this conveyor ensures high reliability and productivity.

*Chips in the form of dust are called fine sludge. They absorb moisture and oil from coolant and are difficult to be transferred and discharged.

(4) Improved Workability

A single door with a larger window is used to allow operators to view the spindle center from the front of the machine. It also provides good visibility; the machining point as well as interference can be checked easily. Additionally, the position of the lower end of the front door has been lowered by 66 mm to offer better access to the spindle and table, ensuring efficient setup operations including attaching and removing tools and workpieces.

(5) Wide Variety of Models

The NVX5000II Series is basically divided into three models based on the X-axis travel: the **NVX5060II** (X-axis travel: 600 mm), **NVX5080II** (X-axis travel: 800 mm), and **NVX5100II** (X-axis travel: 1,050 mm). And each model can be equipped with either a No. 40 taper or No. 50 taper spindle. Furthermore, the HSC specification, which offers a spindle speed of 20,000 min⁻¹, is also available for machines with a No. 40 taper spindle. Customers can choose the ideal machines from nine different variations according to their workpiece size and material needs.

(6) DDRT Series

The NVX5000II Series can be equipped with the DDRT Series of high-speed, high-precision rotary tables. Mori Seiki's original **DDM (Direct Drive Motor)** technology that transmits the drive power of the motor directly to the rotary axes achieves high-speed, high-precision indexing and no backlash. The NVX5000II machine equipped with 1-axis rotary table or 5AX-DDRT200 2-axis rotary table offers machining of complex-shaped workpieces that require simultaneous 4-axis and 5-axis control.

(7) MAPPS IV + ESPRIT

The machine uses the MAPPS IV high-performance operating system for its operation panel. MAPPS IV is equipped with the conversational automatic programming function as standard, and the ESPRIT CAM software license is available as an optional feature. The combination of ESPRIT and MAPPS IV enables creation of complex machining programs on a PC that is connected to the machine via the network. Other features of MAPPS IV include a large user memory area (50MB) for program storage, which is separate from the NC memory, and the USB interface which facilitates easy data transfer between the machine and the PC. The programs stored in MAPPS can be used by transferring them to the NC unit directly.

(8) Compliance with Safety Standards

The NVX5000II complies with safety standards all over the world, including IEC Standards, UL Standards and JIS standards.

Mori Seiki will continue to improve our product line-up in order to meet the needs of an even wider range of customers.

DDM is a trademark or registered trademark of Mori Seiki Co., Ltd. in Japan, USA and other countries.

Type	High-Rigidity, High-Precision Vertical Machining Center	
Model name	No. 40 taper specifications	NVX5060II/40 NVX5080II/40 NVX5100II/40
	HSC specifications	NVX5060II/40 HSC NVX5080II/40 HSC NVX5100II/40 HSC
	No. 50 taper specifications	NVX5060II/50 NVX5080II/50 NVX5100II/50
Market	Automobiles, aircraft, construction/agricultural machinery, hydraulic/pneumatic equipment, industrial machinery, etc.	
Order starts	March 30, 2012	
Production	70 units/month	

■ Main specifications

< No. 40 taper specifications >

Item		NVX5060II/40	NVX5080II/40	NVX5100II/40
Axis travel(X)	(mm)	600	800	1,050
	(Y/Z)	530/510		
Table working surface	(mm)	900 x 600	1,100 x 600	1,350 x 600
Max. table loading capacity	(kg)	800	1,000	1,200
Max. spindle speed	(min ⁻¹)	13,000 [8,000] HSC: 20,000		
Rapid traverse rate(X/Y/Z)	(m/min)	30/30/30		
Type of tool shank		BT40 [CAT40] [DIN40] [HSK A63]		
Tool storage capacity	(tool)	30 [60] [90]		
Spindle drive motor	(kW)	15/11 (10%ED/Cont.) [30/22 (25%ED/Cont.)] HSC: 18.5/15/11 (10 min/30 min/Cont.)		
Floor space(width x depth)	(mm)	2,403 x 2,851	2,526 x 2,851	3,084 x 2,851

[] Option

<No. 50 taper specifications>

Item		NVX5060II/50	NVX5080II/50	NVX5100II/50
Axis travel(X)	(mm)	600	800	1,050
	(Y/Z)	530/510		
Table working surface	(mm)	900 x 600	1,100 x 600	1,350 x 600
Max. table loading capacity	(kg)	800	1,000	1,200
Max. spindle speed	(min ⁻¹)	8,000 [15,000]		
Rapid traverse rate(X/Y/Z)	(m/min)	30/30/30		
Type of tool shank		BT50 [CAT50] [DIN50] [HSK A100]		
Tool storage capacity	(tool)	30 [60]		
Spindle drive motor	(kW)	30/22 (25%ED/Cont.)		
Floor space(width x depth)	(mm)	3,474 x 2,851	3,597 x 2,851	3,901 x 2,851

[] Option



Fig.1 Exterior
(NVX5080II)



Fig.2 Interior
(NVX5100II)



Fig.3 Machining with DDRT