

Press Release

August 10, 2017

Highest Accuracy Ever Achieved - Vertical Machining Center NVX 5000 2nd Generation with High Rigidity, High Speed and Best Surface Quality

DMG MORI began taking orders for the second generation of the NVX 5000 series, **the NVX 5000 2nd Generation which achieves the highest accuracy ever.** The NVX 5000 2nd Generation has improved its performance in every aspect by incorporating voices and requests from customers of the first generation models.

The vertical machining center NVX 5000 2nd Generation series ensures the world's highest heavy-duty cutting abilities and surface quality. The second generation models boast cutting abilities twice as high thanks to strengthened joint sections of the column and bed, and the direct scale feedback mounted on the all axes as standard allows high-accuracy positioning and high-quality finished surfaces. **The models allow high surface quality suitable for machining of dies and molds while maintaining outstanding cutting performance.**

DMG MORI assures our customers of higher productivity by offering modular automation systems and optimized coolant and chip disposal together with the machines and provides fullest support for them.

The features of the NVX 5000 2nd Generation series are: 1. Higher rigidity and shorter machining time; 2. Improved surface quality and accuracy; 3. Better workability and maintainability; and 4. Automation systems.

1. Higher rigidity and shorter machining time

- **Improved rigidity by strengthened joint sections of the column and bed, and reduced machining time by cutting abilities **twice as high as** those of the conventional models.**
- **Highest machining performance achieved ever with a high-performance spindle speedMASTER with a maximum spindle speed of 15,000 min-1 as standard and powerMASTER with a maximum torque of 360 Nm (10%ED).**
- Fine adjustment to every detail by the FEM analysis, including the thickness of the bed, the shape and layout of the ribs to achieve high rigidity.
- Better cutting conditions leading to shorter machining time with the C-shaped column structure that ensures stable machining performance regardless of the position of the Z-axis.

2. Improved surface quality and accuracy

- Coolant circulation inside the bed and column casting to control the Z-axis thermal displacement to **4 μm** with a room temperature fluctuation of 8 degrees.
- Positioning accuracy of **4 μm** guaranteed by the Magnescale's magnetic linear scale and direct scale feedback on all axes as standard that effectively ensures high-accuracy positioning.
- The optimized oil groove shape on the slideways to evenly distribute dynamic pressure when the axis travels, aiming for stable circularity (dispersion within **4 μm**).
- The slideways (X-/Y-axis) with outstanding vibration damping performance for stable machining.
- Improved responsiveness achieved with the high-rigidity roller guides (Z-axis) to ensure high-quality surfaces for dies and molds.
- Slideway width wider than that of the conventional model to reduce surface pressure and minimize changes over years.
- The Z-axis linear guides for high-speed feedrates to improve responsiveness.

3. Automation systems

- Robot systems consisting of modular units such as a workpiece stocker and an on-machine measuring system; and the 2-station APC (shuttle type) that drastically reduces non-cutting time available.
- High-quality integrated automation systems including machining technologies, fixtures, tools and measurement as well as transfer units, peripheral equipment and production control systems available with a short delivery time.

4. Workability and maintainability

- Prevention of chip-causing machine stop with a tank structure where fine chips are unlikely to accumulate (chip conveyor specification).
- Lowered bottom end of the front door opening to improve access to the spindle and table and to reduce setup work load such as fixture adjustments.
- An opening space on the ceiling for easy setups of workpieces using a crane.
- Easier maintenance of the tool magazine with a magazine door and magazine steps.
- Units requiring a daily inspection centralized on the machine side for easy maintenance.
- A cartridge type spindle unit including the rear bearing to drastically reduce time required for replacing the spindle.

DMG MORI will continue to put products that are more reliable, highly functional and worthy of investment on the market in an utmost effort to meet customer needs.

Machine type	High-accuracy, high-speed vertical machining center
Model name	NVX 5060 2 nd Generation, NVX 5080 2 nd Generation, NVX 5100 2 nd Generation
Market	Die & mold, automotive, agricultural machines, hydraulic and pneumatic equipment
List price (excl. tax)	¥ 17,000,000 — (NVX 5080 2 nd Generation)
Order start	June 20, 2017
Sales target	40 units/month

■ Main specifications

Item		NVX 5060	NVX 5080	NVX 5100
X-axis travel	(mm)	600	800	1,050
Y-axis travel	(mm)	530		
Z-axis travel	(mm)	510		
Table size	(mm)	900 × 600	1,100 × 600	1,350 × 600
Table loading capacity	(kg)	800	1,000	1,200
Max. spindle speed	(min ⁻¹)	15,000 ^{*1} [12,000 (high-torque spec.) ^{*1}][20,000 (high-speed spec.) ^{*1}] 12,000 ^{*2} [12,000 (high-torque spec.) ^{*2}][16,000 (high-speed spec.) ^{*2}]		
Rapid traverse rate	(m/min)	X:30 Y:30 Z:30		
Tool storage capacity	(tool)	30[60][90] ^{*1}		
Spindle drive motor (25% ED/continuous)	(kW)	30 / 18.5 (15,000 min ⁻¹) ^{*1} 37 / 22 (12,000 min ⁻¹) ^{*2}		
Footprint (width x depth)	(mm)	2,337 × 2,971 ^{*1}	2,460 × 2,971 ^{*1}	3,018 × 2,971 ^{*1}
		3,168 × 2,971 ^{*2}	3,291 × 2,971 ^{*2}	3,604 × 2,971 ^{*2}

^{*1} No. 40 taper specification

^{*2} No. 50 taper specification

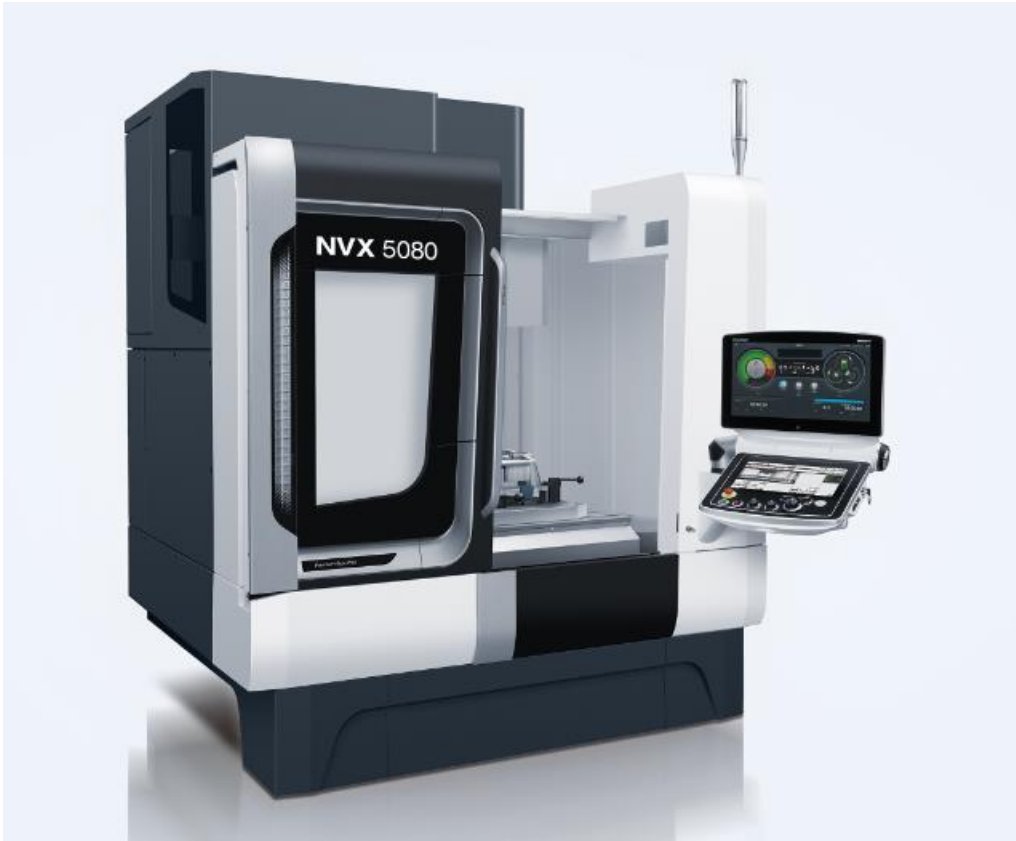


Photo 1. NVX 5080 2nd Generation



Photo 2. Machining



Photo 3. Modular robot system