Nidec Machine Tool Corporation

October 20, 2026

Nidec Machine Tool Launches the MVR-5X, a New Double-Column Five-Axis Milling Machine

- Newly developed compact two-axis contouring attachment delivers approximately 20 times the spindle torque of the previous model

- Consolidates machining operations for large workpieces while maximizing shop-floor productivity and component design flexibility

Nidec Machine Tool Corporation announced today that it will begin sales of the MVR-5X, a double-column five-axis milling machine, on October 26, 2026. The new machine comes standard with an advanced, compact two-axis contouring attachment engineered to deliver exceptional torque and rigidity.
On the same day, Nidec Machine Tool will host the global unveiling of the MVR-5X at JIMTOF2026 (the 33rd Japan International Machine Tool Fair), held at Tokyo Big Sight (East Exhibition Halls, Booths E3011-E3013).

Newly Developed
"Two-Axis Contouring Attachment"

Newly Launched
"MVR-5X" Double-Column Five-Axis Milling Machine

■ Background and Challenges

In recent years, global demand for large metal components used in energy infrastructure, semiconductor manufacturing equipment, and other applications has been increasing, driven by the construction of new data centers associated with the growth of AI, the expansion of semiconductor manufacturing, and infrastructure development. In addition to being made from difficult-to-cut materials such as cast iron and steel, many of these components feature complex geometries and fine angular features, creating a strong need to consolidate machining processes.
To address the challenges of conventional two-axis attachments for Nidec Machine Tool's double-column milling machines—including insufficient torque and rigidity, limitations in indexing at small angular increments, and reduced machining space caused by the larger attachment size—Nidec Machine Tool developed the MVR-5X with a newly developed attachment that combines high torque, NC-controlled two-axis positioning, and a compact design.
The MVR-5X expands the machining range from light to heavy cutting and from simple geometries to complex and free-form surfaces, contributing to highly efficient machining and process consolidation for large components.

■ Key Features and Benefits

1. Spindle Torque of 341 N·m (Approximately 20 Times the Previous Model) Enables Heavy-Duty, High-Efficiency Machining

Through structural optimization, the MVR-5X delivers 341 N·m of spindle torque, an increase of 323.5 N·m over the previous model. This enables high-efficiency machining of materials such as steel and cast iron that could not be adequately machined using conventional two-axis attachments.

2. Continuous Rotary Axis Control Supports Arbitrary Angular Machining and Full Five-Axis Contouring

Continuous control of the rotary axes (B-axis: ±100°, C-axis: ±270°) enables machining at arbitrary angles, including fine angular increments below one degree, as well as simultaneous five-axis contouring. This reduces the need to adjust the workpiece angle and consolidates multiple machining processes—such as vertical, horizontal, and angled machining—that previously required different processes or machines into a single setup.

3. Compact 790 mm Attachment Projection Expands Usable Work Envelope and Maximizes Rigidity

The compact design limits the projection length from the ram end face to the spindle nose to just 790 mm, 300 mm shorter than the previous model. By increasing the vertical clearance between the table surface and the cross-rail, the MVR-5X expands the machining area for large workpieces while maintaining high rigidity to suppress vibration during machining.

4. Proven High-Rigidity Platform with Thermal Displacement Suppression

The MVR-5X inherits the high-rigidity, high-precision machine structure proven in Nidec Machine Tool's high-end models. The machine incorporates internal spindle cooling within the ram and Thermo-Stabilizer Columns, which are filled with a temperature-controlled medium, to minimize the impact of thermal displacement on machining accuracy during extended continuous operation.

5. Seamless "Nidec NC Twin" Digital Twin Integration Maximizes Machine Utilization[1]

The MVR-5X enables users to simulate machine movements, interference, machined-surface quality, and cycle time in advance within a virtual environment on a PC, with cycle-time simulation achieving an error of less than 1% and speeds up to 20 times faster than actual operation. This reduces the time and effort required for trial machining and interference checks on the actual machine, helping maximize machine utilization.

■ **Main Specifications of the MVR-5X**

Specification	MVR-5X
2-Axis Contouring Attachment Overall Length	790 mm (300 mm shorter than previous model)
Spindle nose taper	BBT50
Spindle speed	20–6,000 min^{-1}
Spindle output	15 kW / 420 min^{-1}
Allowable spindle torque	341 N·m (+323.5 N·m vs. previous model)
B-axis tilting range	±100°
C-axis swiveling range	±270°
B/C-axis indexing increment	0.001°
Distance between columns	2,050–4,250 mm
Table Working Area (W × L)	1,500 × 3,000 to 3,500 × 10,000 mm
Maximum distance from ram end face to table surface	2,010–2,150 mm

■ **Examples of Machining Applications**

Energy / Shipbuilding: Cylinder blocks, large casings, propellers, pump components
Semiconductor Manufacturing Equipment: Large vacuum chambers, precision frames
Precision Components / Dies and Molds: Large bevel gears, various large dies and molds

■ **JIMTOF2026 Exhibition Information**

Dates: October 26 (Mon.)–31 (Sat.), 2026
Venue: Tokyo Big Sight, East Exhibition Halls
Booths: E3011–E3013

*1: Link to the release page for the digital twin platform "Nidec NC Twin"
https://nidec.g.kuroco-img.app/v=1782966480/files/topics/19354_ext_2_en_0.pdf

For inquiries about this product, please use Nidec Machine Tool's inquiry system