Nidec Machine Tool Corporation

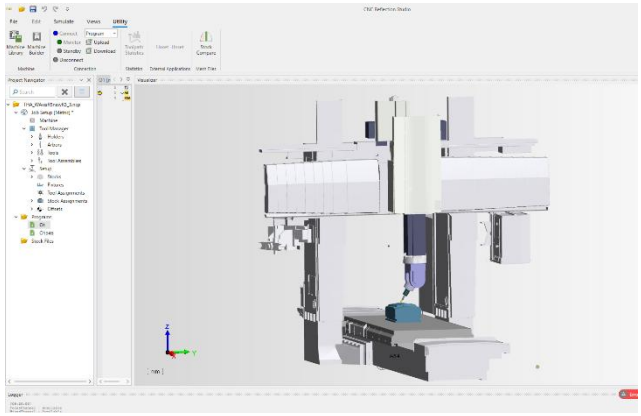
July 01, 2026

Nidec Machine Tool Launches "Nidec NC Twin", a Digital Twin Platform

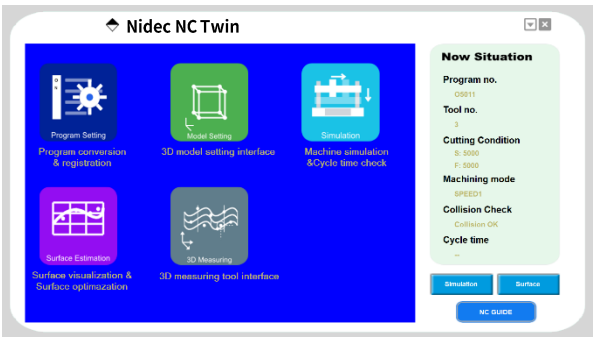
— Virtual machining platform helps manufacturers increase productivity and machine utilization. —

Nidec Machine Tool Corporation ("Nidec Machine Tool" or the "Company") today announced the launch of Nidec NC Twin, a digital twin platform for its MVR Series [*1] double-column machining centers.

Nidec NC Twin recreates machine movements and processes in a virtual environment, allowing manufacturers to validate programs before production begins. By replacing traditional machine prove-outs with high-precision simulation, operators can complete setup and verification remotely on a PC while keeping the machine available for production. The result is higher machine utilization and improved factory throughput.



Operation is reproduced in a digital space.



Nidec NC Twin's screen

■ Manufacturing Challenges

Manufacturers continue to face significant challenges, including severe labor shortages and the transfer of skilled machining know-how to the next generation. Large-component machining often requires considerable time for NC program verification, interference checking, dry runs, and trial machining. These activities are time-consuming and keep production equipment out of service.

These challenges are often greater when production is spread across multiple facilities. In these cases, machining quality and efficiency can vary depending on operator experience and local conditions.

Following the announcement of the platform's development completion at JIMTOF 2024 [*2], the Company validated the system on production machines to refine its simulation accuracy prior to commercial release.

■ Key Features

Nidec NC Twin provides the following three simulation functions to help solve challenges faced on today's manufacturing floor:

(1) Machine Operation Simulation

By executing the same NC program used on the actual machine within a PC-based virtual environment [*3], Nidec NC Twin accurately reproduces complex machine movements and workpiece conditions, including various attachments. Without requiring users to build a simulation environment, the platform visualizes potential interference between the spindle, workpiece, and machine structure with high precision.

(2) Machining Time Simulation

Highly accurate cycle-time verification improves the accuracy of production cost estimation and process planning.

(3) Surface Quality Simulation

Operators can predict machined surface quality by evaluating machining parameters before cutting. This minimizes trial machining and helps achieve target surface quality at an earlier stage.

■ **Typical Applications**

Manufacturing Need	Challenge	Nidec NC Twin Benefit
Verify machine-workpiece interference using NC data.	Dry runs interrupt production and reduce machine utilization.	Recreates actual machine motion in a virtual environment for highly accurate interference checks.
Verify complex operations such as 5-axis machining and on-machine measurement.	Conventional simulators may not accurately reproduce complex macros, conditional branching, or measurement cycles.	Uses a genuine FANUC NC environment to accurately verify even highly complex machine operations.
Improve the accuracy of machining time estimation.	Commercial CAM simulations may differ from actual cycle times by more than 10%.	Uses the same machine configuration as the actual machine, keeping cycle-time error within 1% *4.
Eliminate post-machining surface adjustments.	Trial machining increases machining time, material consumption, and rework.	Predicts surface condition, tool-path deviation, acceleration, and surface roughness (Sa/Sz).
Verify NC programs without relying on multiple CAM systems.	Simulation accuracy varies depending on the CAM software used.	Performs standardized NC program verification using a genuine FANUC NC environment, independent of the source CAM system.

■ **Looking Ahead**

Nidec NC Twin will be exhibited at the Japan International Machine Tool Fair 2026 (JIMTOF 2026) at Tokyo Big Sight beginning on October 26, 2026.

Visitors will see practical applications of how Nidec NC Twin helps manufacturers reduce setup time, improve machine utilization, and increase productivity through digital twin technology.

*1. Applicable models: MVR-Ax and MVR-Hx double-column 5-face milling machines
*2. JIMTOF: Japan International Machine Tool Fair
*3. Uses a genuine FANUC NC control environment
*4. Excludes motion errors associated with auxiliary equipment, including automatic tool changers (ATC) and automatic attachment changers (AAC).

Double column five-face milling machine MVR-Hx

For inquiries on the above product, please use Nidec Machine Tool's inquiry system.

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