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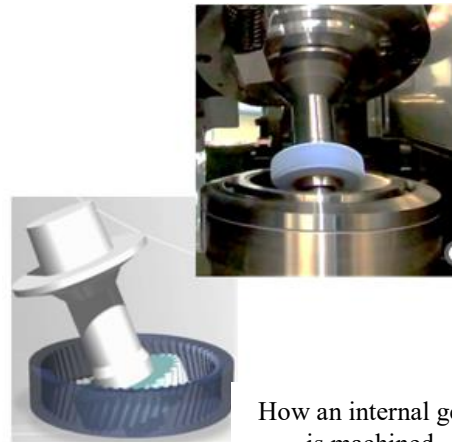
## **Nidec Machine Tool Adds to Its Product Lineup and Launches Sales of ZI25A, a Mass-production-type Internal Gear Grinding Machine, Which will Contribute to Improving Internal Surface Accuracy of Mid-size Gears (External Diameter of up to 250mm)**

Nidec Machine Tool Corporation (“Nidec Machine Tool” or the “Company”), a Nidec Group company, today announced that it has added ZI25A, an internal gear grinding machine, to its product lineup. The Company will launch this high-speed, high-precision equipment that can machine internal gears used for the planetary gear mechanisms of automobile drive units, reducers, robots’ joints, and other products. The market debut of this product is in response to the rising demand for larger gears amid the growing needs for better durability, transmission efficiency, and NVH (noise, vibration, and harshness) performance of gears.

Nidec Machine Tool will exhibit ZI25A and perform demonstration with gears that are 250mm in external diameter at this year’s Japan International Machine Tool Fair (JIMTOF2024) to be held from November 5 – 10, 2024. At this event, the Company will also showcase achievements from the “internal mass-production gear polishing processing method,” a joint research with Germany’s RWTH Aachen University.



Mass-production-type internal gear grinding machine ZI25A



How an internal gear is machined

Featuring the high-precision, high-efficiency, and low-cost-production characteristics of ZI20A, the world’s first mass-production-type internal gear grinder launched in 2009, ZI25A boasts a maximum external diameter of 250mm, up from 200mm, to accommodate larger gears.

To remove thermal treatment-caused distortion of ring gears (internal gears) used in cars, robots, etc., ZI25A can grind thermally processed internal teeth with high precision, high efficiency, and at low cost. In high-precision and high-efficiency machining, ZI25A is capable of performing generating grinding work based on a high-speed and high-precision synchronization with a grinding stone spindle (maximum rotating speed: 15,000min<sup>-1</sup>) and a work table (maximum rotating speed: 6,000 min<sup>-1</sup>). In addition, to avoid an axis-flank (tooth surface) interference, which impedes the flank-grinding process, ZI25A has a wide axis-crossing angle (the main axis’s tilt against the grinding work axis) of 20° - 35°, to achieve a better sliding (grinding) speed. Furthermore, with a screw-type grinding stone whose teeth’s central diameter enlarged to form a barrel-like shape, ZI25A can enjoy a wide axis-crossing angle between its grinding stone axis and work axis, enabling high-efficiency machining. Additionally, to realize an easy precision management in the dress process to shape a grinding stone, ZI25A adopts an on-board dressing system, which enables a high-precision dressing and mass production without removing the grinding stone from the machine.

To realize low-cost production, Nidec Machine Tool is in a joint research with Germany’s RWTH Aachen University to extend the lives of grinding stones. For ZI25A, the Company adopted general, clean-cutting and durable grinding stones that meet the high-load conditions of large-diameter work-pieces, to reduce tool costs from those for conventional grinding machines.

As the needs for high-precision gears spreads globally, Nidec Machine Tool stays committed to developing systems that perform crude and finish processing, and that can machine a variety of gears such as large-diameter and small-

diameter gears and internal and external gear teeth; and automatic systems, to offer gear-machining solutions that meet the needs of the times.

■ Internal gear grinding machine ZI25A

Specifications		ZI25A
Maximum work diameter	mm	φ250
Process-able module		1 to 3
Grinding stone's diameter	mm	φ50 to 120
Grinding stone's maximum rotating speed	min <sup>-1</sup>	15,000
Table's maximum rotating speed	min <sup>-1</sup>	6,000
Electric source's capacity	kVA	120
Machine mass	kg	12,000

\*1. For honing machining, the angle is usually 5 to 10°.

\*2. Module = the value to represent the size of a gear's teeth (*i.e.*, the pitch circle's diameter (mm) divided by the number of teeth).

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