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Nidec Machine Tool Expands AM Product Line with the LAMDA500, a Mid-size, Powder DED-type Metal 3D Printer

- **Product development and launch made in collaboration with Nidec OKK**
- **The new machine targets the world leading European and US AM markets**

Ritto, Shiga Prefecture, Japan - Nidec Machine Tool Corporation's President Kenichi Wakabayashi, announced today that it has launched the LAMDA500, a mid-size model of Nidec's powder DED-type*1 metal 3D printer series. To accommodate the diverse shapes of industrial metal components, LAMDA500's maximum additive manufacturing dimensions are 500mm x 500mm x 500mm, with standard five-axis functionality. The LAMDA 500 joins the smaller LAMDA200 and the very large LAMDA2000 in the lineup.

LAMDA500 performs stable and high-quality additive manufacturing by using the specially developed local shield nozzle and the monitoring feedback system – both unique technologies of Nidec's LAMDA series. Nidec Machine Tool is poised to promote this latest product aggressively to the European and US markets by first exhibiting the LAMDA500 at JIMTOF 2022, the Japan International Machine Tool Fair, held from November 08 – 13 this year.



LAMDA500 powder DED-type metal 3D printer

Designed for production of metal components used in aerospace, space, automotive products and construction equipment among others. A two-axis table is installed standard to enable fully five-axis additive manufacturing. By using a high accuracy and rigid five-axis machining center from Nidec OKK Corporation (formerly OKK Corporation), and integrating the functions required for a metal 3D printer, Nidec developed a flexible and capable system. In addition, a fully integrated closed loop monitoring system controls laser power for consistent build quality and thermal performance as well as providing documentation of the build quality.

Nidec developed and implemented two unique technologies for the LAMDA series. The local shield nozzle utilizes an inert gas shield to enable high-quality metal manufacturing without an environmental chamber, while the monitoring feedback system controls and optimizes the manufacturing conditions to enable high-accuracy, long-term, and stable manufacturing. The latest iteration of the Nidec-developed coaxial nozzle, the local shield area was expanded to 45 times its previous size to improve the manufacturing speed and metal quality. In addition, LAMDA machines are equipped with an AI (artificial intelligence) technology-based function to monitor additive manufacturing conditions. The system is capable of quickly detecting abnormalities during an additive manufacturing process – detecting and preventing errors before they occur.

Using the technology to continuously spray metal powder from a nozzle, the laser melts and solidify the powder with base materials to manufacture an intended shape. DED metal 3D printers are used for multi-layer materials and components composed of multiple different materials. With the optional second hopper providing powdered metal, LAMDA systems can switch materials during a manufacturing process producing functional gradient materials,

which are printed by changing the blend of materials during the manufacturing process.

- *1. DED (Directed Energy Deposition): A process of concentrating thermal energy to melt and coagulate metal materials for additive manufacturing.

LAMDA500's main specifications

Model	LAMDA500
Max. AM dimensions (mm)	500 x 500 x 500
Laser output (kW)	1-2-4-6
Number of powder feeder hoppers	1-2
NC axis table	2-axis table (standard)
Machine size (mm)	4,000 x 6,000
Machine weight (Kg)	11,000

LAMDA series product page

<https://www.nidec-machinetool.com/en/product/lamda/>

For inquiries on this new product, please contact

https://www.nidec-machinetool.com/en/global_contact_form/

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