TOMOEGAWA ’s Air-Permeable Heater Adopted for Nikon’s Semiconductor Lithography Systems

– Enabling Highly Precise Temperature Control –

TOMOEGAWA CORPORATION (Head Office: Chuo-ku, Tokyo; President and Representative Director: Yusuke Inoue) is pleased to announce that its air-permeable heater component, “iCas MCT,” has been adopted for semiconductor lithography systems manufactured by Nikon Corporation (Head Office: Shinagawa-ku, Tokyo; Representative Director, President and CEO: Yasuhiro Ohmura).
This system is scheduled for release in December 2026.
This marks the first time that TOMOEGAWA’s air-permeable heater component, “iCas MCT,” has been adopted for semiconductor lithography systems.

■ Background

Nikon NSR-S215D

Nikon Website: Lineup

In the semiconductor industry, responding to rapidly growing demand while reducing manufacturing costs has become a critical challenge. Semiconductor lithography systems, which lie at the core of semiconductor manufacturing processes, are therefore required not only to form increasingly complex and minute circuit patterns on silicon wafers with high precision, but also to enhance productivity and energy efficiency.
Because even minimal temperature fluctuations can affect pattern accuracy, extremely precise and high-speed temperature control — on the order of millikelvin (mK) — is essential inside lithography systems. In such high-precision thermal control, shortening temperature response time is critical, directly contributing to improving the productivity and energy efficiency of equipment.

[Inquiry] **TOMOEGAWA CORPORATION**, **Office of the President, Business Strategy Team**
7th Floor, KYOBASHI TRUST TOWER 2-1-3 Kyobashi, Chuo-ku, Tokyo, Japan
Website：https://www.tomoegawa.co.jp/english/

About iCas MCT

"iCas MCT" is a newly developed heater component designed specifically for this application. This marks the first time that "iCas MCT" has been adopted for semiconductor lithography systems.

"iCas MCT" uses a paper-like, porous Stainless Fiber Sheet as its heating element. By adopting this porous structure, the heater component itself is air-permeable, allowing air to pass vertically through the heating surface while efficiently transferring heat. This structure reduces the thermal mass of the heater component, enabling high temperature responsiveness and rapid temperature rise. In addition, it contributes to the downsizing and weight reduction of components, thereby supporting enhanced performance in semiconductor lithography systems.

TOMOEGAWA Website: **Flexible Planar Heater**

Future Outlook

Under its solution brand "iCas," which focuses on controlling heat, electricity, and electromagnetic waves, TOMOEGAWA continues to develop products and technologies tailored to specific applications and expand its lineup.
Through ongoing product development that contributes to improved energy efficiency and higher-performance equipment, TOMOEGAWA will continue to support the advancement of the semiconductor manufacturing industry and other cutting-edge industrial fields.

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