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Nissin Electric Co., Ltd.

Nissin Ion Equipment Co., Ltd.

Nissin Ion Develops the iG8, an Ion Implanter for Flat Panel Displays

—To Handle Ultra-large Glass (Gen 8.6) Substrates in Response to Expansion of the IT Product Market—

Nissin Ion Equipment Co., Ltd. (Headquarters: Minami-ku, Kyoto; “Nissin Ion”), a group company of Nissin Electric Co., Ltd. (Headquarters: Ukyo-ku, Kyoto), which manufactures and sells ion implanters for the production of semiconductors and small- and medium-sized high-definition flat panel displays (FPDs), has announced that it developed the iG8, an ion implanter for FPDs capable of achieving productivity higher than that of the conventional model and handling Generation 8.6 (G8.6) glass substrates, and shipped the first product in response to the projected expansion of the use of organic light-emitting diodes (OLEDs) for mid-sized display products, such as in-vehicle monitors as well as notebooks and tablets.

Nissin Ion will launch full-scale sales in June 2025.

The iG6, Nissin Ion’s existing ion implanter for FPDs capable of handling Generation 6 (G6) glass substrates, is widely used in the LTPS and LTPO - TFT manufacturing processes for small- and medium-sized OLED display production lines mainly for smartphones, contributing to the manufacture of displays that achieve high performance and low power consumption.

With demand for in-vehicle displays and high-performance IT products expected to increase rapidly in the future, it is essential to meet such demand through manufacturing using G8.6 glass substrates, which are larger than G6 glass substrates. Currently, there are concerns about a decrease in efficiency when producing these products using G6 glass substrates. Specifically, for 15- to 17-inch displays, the utilization efficiency of G6 glass substrates is only about 70%, while the utilization efficiency of G8.6 glass substrates is over 90%, realizing more efficient production.

The spread of AI technology is likely to generate greater interest in reducing the power consumption of devices and thereby increase demand for LTPO technology. Display manufacturers are also studying the possibility of applying oxide semiconductor technology (including IGZO), which can further reduce power consumption. Although ion implantation was not used in the conventional oxide semiconductor TFT manufacturing process, the possibility of introducing the ion implantation process is being studied in the manufacture of next-generation high-definition displays. This is expected to further drive demand for implanters.

Nissin Ion remains committed to maintaining its global market share of 100% in ion implanters for FPDs capable of handling G8.6 glass substrates, as in the case of those capable of handling G6 glass substrates.

[Features of the iG8]

1. The only ion implanter capable of mass producing FPDs using G8.6 glass substrates
2. High reliability recognized in mass production factories around the world (retaining the concept of “the iG6”)
3. Capable of handling various ions and a wide implantation range



Ion Implanter for Flat Panel Display “iG8”

This is a business activity that contributes to three out of the six growth strategies in the Nissin Electric Group Medium-to-Long-Term Business Plan VISION2025, “Expansion of environmentally friendly products” “Response to renewable energy” “Adoption of DX to products and business” and the business foundation strengthening items “Enhancing manufacturing capabilities” “Improving productivity.”

The Nissin Electric Group has been stepping up its efforts to promote the SDGs through its business operations. This accomplishment is related to the following goals among the 17 SDGs.

9. Industry, Innovation and Infrastructure