

*Doc. No.: NR111125E*

## **Dainippon Screen Enters Market for Semiconductor Post-processing Exposure Systems**

### ***Launch of Maskless Direct Imaging Exposure System Offering Both Improved Yield and Productivity***

Kyoto, Japan – November 25, 2011 – Dainippon Screen Mfg. Co., Ltd. has developed the DW-3000 direct imaging exposure system designed for next-generation semiconductor packaging technology. This system is able to handle the exposure of complex 3D multilayer substrates while adjusting for warping and distortion of individual wafers. It will be released in December 2011 and Dainippon Screen will enter the semiconductor post-processing exposure system market.

With increases in the miniaturization and capacity of smartphones, tablets, and other electronic devices in recent years, the wiring of circuits for semiconductor devices has become increasingly fine. At the same time, the implementation of high-density semiconductor packaging with three-dimensional layering of multiple chips has been progressing quickly. Meanwhile, the wafer used as the substrate in the layering process for semiconductor chips has been cut down so it is extremely thin. This means minute warping and distortion occurs very easily and improving the precision of the wiring patterns bridging the chips has become a key issue.

With these industry trends as a background, Screen has begun development of exposure systems for the previously unentered semiconductor post-processing market. This is being undertaken as part of the FRONTIER project for promoting the development of new fields for Screen's semiconductor manufacturing equipment business. By integrating the image processing and optics technology built up over many years of experience in the printing and prepress equipment business with the exposure technologies established in the PCB manufacturing equipment business, Screen has now developed the DW-3000 exposure system, which can image wiring patterns directly onto wafers.

The DW-3000 provides very high precision control of high output laser beams thanks to Screen's popular laser control technology and GLV™\* device. In contrast to the conventional method of using a mask to expose a circuit pattern on a wafer, it is possible to freely image a high resolution pattern. Wafer warping and distortion are also recognized with proprietary imaging technology, allowing corrected exposure to be performed while actually adding compensation to the exposure data. In addition, as it is possible to number



**DW-3000**

Please download the photo from  
[www.screen.co.jp/eng/press/nr-photo\\_2009-2011.html](http://www.screen.co.jp/eng/press/nr-photo_2009-2011.html)

individual chips, this system is also meets the traceability needs of fields requiring high reliability such as vehicles or medical equipment.

Under the third point of the FRONTIER project, the DW-3000 Screen has developed this time enhances the product lineup targeting a new field. It also further expands Screen's area of business and at the same time, contributes to the further development of the semiconductor industry.

\* GLV™ (Grating Light Valve™)

A display element which employs semiconductor technology used in MEMS (micro-electric-mechanical systems) sensors, and the fields of communications and biology, as well as the coherency of light to control the direction and intensity of a light beam. Comprising reflective ribbons arranged in parallel on a semiconductor device board, it enables to split an exposed light beam into multiple channels.

Note: This system will be introduced at SEMICON Japan 2011 to be held at Makuhari Messe in Chiba from December 7 (Wednesday) to 9 (Friday).