NEWS RELEASE

SCREEN
DAINIPPON SCREEN MFG. CO., LTD.

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High-end photomask inspection system released
Capable of ultra-fine 12.5 micron line width pattern inspection

Kyoto, Japan, October 26, 2004 - Dainippon Screen Mfg. Co., Ltd. (Headquarters: Kyoto, Japan/ President: Akira Ishida) will commence sales of the MI-8500, a high-end photomask inspection system for ultra-fine 12.5 micron line width patterns, in November 2004.

Due to the trend towards smaller, higher performance notebook computers, cellular telephones, and other electronic equipment, the patterns on the printed circuit boards that drive electronic devices continue to become smaller and finer. All over Asia, from Japan to Taiwan and Korea, the demand for high definition circuit boards and prototype circuit boards is extremely high, and there is demand for line widths below 15 microns as well. As a result, the need for higher performance and higher reliability inspection systems is increasing as well. High-precision inspection systems are becoming an indispensable tool in the semiconductor manufacturing field.

The MI-8500 is a system that is a step ahead in meeting the needs of the continuously advancing printed circuit board photomask industry. It is suitable for today's ultra-fine circuit patterns, and can be used to inspect patterns with line widths as fine as 12.5 microns. In addition to improving on traditional system design and mechanisms, it offers the same speed as 20 micron systems, while inspecting at a much higher resolution, and features highly sensitve DRC inspection[*1] and auto-focus.

The MI-8500 features several functions that used to be available only as add-on options, including CAM data conversion software and a verification unit for defect detection. This makes it easier to construct an affordable high-end inspection system. The mask loading mechanism (option) makes the operator's job easier and helps prevent damage to photomasks.

The MI-8500 features an ergonomic design and easy-to-use operation software. It follows in the footsteps of Screen's existing lineup of next generation inspection systems, including the PI-8000 series of printed circuit board inspection systems. Sales of the MI-8500, which Screen hopes will become a global standard, are expected to increase Screen's presence in the market.

* This inspection system if scheduled to be exhibited for the first time at TPCA Show 2004, which will take place in Taiwan between November 11 and 13, 2004.

Sales start date

November 2004

Expected total sales in Japan (without sales tax)

50,000,000 yen

No. of sales expected per year (first year)

10 sets

MI-8500

Please download the photo from
http://www.screen.co.jp/press/nr-photo/indexE.html

[Characteristics]

1. **Can be used for ultra-fine mask inspection**
   The MI-8500 features a high-resolution optical system and extremely fast image processing unit that enable it to inspect ultra-fine 12.5 micron line width patterns. It is particularly well suited for the inspection of today's increasingly high definition, high density glass and film masks.
2. **Includes indispensable functions for high definition mask inspection**
   The MI-8500 can detect the pinholes that are so critical in mask inspection using different binary levels. Detection of extremely small pinholes is even more precise as a result.
3. **Highly sensitive DRC inspection function (*1)**
   While significantly reducing checking oversights with DRC (design rule checking), the MI-8500 also features a greatly improved violation defect detection function for design defects, including extremely small shorts and circuit gaps.
4. **Includes CAM data conversion and verification unit**
   The MI-8500 features software that converts CAM data for use by the MI-8500, as well as a verification unit that displays defects on a monitor for visual verification. This makes it easier to create an affordable high-end inspection system.
5. **Dynamic screening function**
   The MI-8500 automatically corrects for the difference in dimensions between the CAM data and the actual circuit board. This eliminates the need for complex screening factor calculations.
6. **Improved inspection/forbidden area resolution**
   The inspection/forbidden area resolution for comparison inspection and DRC inspection has been improved. After the comparison positions are matched up, the MI-8500 determines which area should be inspected, which enables high-precision inspection.
7. **Inspection of multiple circuit boards using a single good circuit board.**
   If the same pattern is printed onto multiple areas, a single good example of the pattern can be designated as the OK pattern, and the MI-8500 can automatically inspect the other patterns to see if they are OK or not. This means that even if there is no CAM master data available, as long as there is one good example of the pattern, high-precision inspection is possible.
8. **Multi-value image loading function**
   The MI-8500 can load in multi-value images from the designated position and display them on the monitor. This enables fast determination of the optimal binary level.
9. **High-definition complete comparison method**
   The high-definition complete comparison method allows the MI-8500 to find defects that are difficult to detect using DRC inspection, including defects in SMT pads, lands, power source ground patterns, and analog patterns.
10. **Display of defect positions**
    The positions of any defects found using the comparison or DRC detection methods are displayed on the verification unit's video monitor.
11. **Mask loading function (option)**
    A manual loading mechanism that can be adjusted for different mask sizes reduces the amount of work the operator has to do while setting masks in place. It also prevents the damage that sometimes occurs when masks are set in place manually.