MYCRONIC

Display mask **metrology system**

Mycronic Prexision™-MMS



Setting a new standard for registration measurement for display photomask

Mycronic Prexision-MMS
To ensure high end display photomask quality up to generation 11

Mycronic has supported the display technology evolution for more than a decade by supply state-of-the-art mask writers. To ensure photomask quality meeting display requirement, metrology system supporting high end mask writers is essential. Mycronic Prexision MMS will be a critical component supporting the development of future displays and supports the trend producing advanced displays in larger generation fabs.

SETTING A NEW STANDARD FOR REGISTRATION MEASUREMENT

The Prexision MMS is a registration measurement system for advanced display photomasks. The system can also be used for CD measurements. The Prexision MMS takes registration measurements to a new level, meeting the requirements of the latest and coming generation photomasks. The system is available in two models, Prexision MMS Evo G8 model and Prexision MMS G10 model targeting G8 and G11 display generation respectively.

INNOVATIVE AND IMPROVED PLATFORM

By adopting our latest innovative platform, Prexision MMS ensures superior performance in registration and overlay measurement. This is enabled by a complete re-design of the X-carriage and the optical head and a new Y-movement concept, all controlled with new servos. The system is enclosed in a climate chamber to eliminate errors caused by variations in temperature. The stage is made of Zerodur, a highly temperature stable material, which reduces the effects of any remaining temperature variations.

To further improve registration performance, the system is also equipped with different new features, such as new optic head and new electronics together with other improvements. The innovative improvements enable much more accurate and trustable 1st round measurement results. This enables not only better measurements but also turnaround time, which simplifies planning at the mask shop operation.

LARGE FLEXIBILITY AND AUTOMATION POSSIBILITIES

The system is capable of measuring crosses, star shape but also any general pattern shapes that fit into the measurement window. It also has scripting capabilities to allow automated measurements. The results can be displayed graphically in grid graphs. Extensive post processing and analysis functions are included to assist in interpreting the measurement results. The measurement data can be exported for use in external software.

IMPROVED REGISTRATION MEASUREMENTS WITH TWO UNIQUE TECHNIQUES

The system offers two unique techniques enabling improved registration measurements, which are system registration calibration and Z-correction. System registration calibration will deliver the absolute registration reference. Z-correction ensures outstanding performance in placement measurement regardless of mask flatness and presence of particles or loading stress. These two unique techniques in combination with Mycronic's Mask Writers will become the industry role model to create the most advanced photomasks.

KEY SPECIFICATIONS PREXISION MMS	G8 EVO MODEL	G10 MODEL
Registration (3σ)	65 nm	
Overlay mask-to-mask (3σ)	40 nm	
CD repeatability (3σ)	50 nm	
CD linearity (range/2)	30 nm	
Max. mask size (mm)	1100x1660 & 1400x1620	1700x2000

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