YieldStar S-1375F

Description

The YieldStar S-1375F is a stand-alone metrology system that measures in-device overlay and CD for after-etch applications.

By utilizing the YieldStar S-1375F's unique high-NA system, customers can measure device overlay and CD with speed and accuracy. This capability enables hyper dense sampling and faster feedback of after-etch data to the TWINSCAN and etchers.

Technical Specifications

Overlay (In Device Metrology, 10x10 μm ^{2} targets)	
• TMU:	≤ 0.45 nm
• MAM time:	≤ 0.4 s
CD (In Device Metrology, 10x10 μm ^{2} targets)	
• Dynamic precision:	≤ 0.15 nm
Overlay (In Device Metrology, 5x5 μm ^{2} targets)	
• TMU:	≤ 0.45 nm
• MAM time:	≤ 0.75 s
CD (In Device Metrology, 5x5 μm ^{2} targets)	
• Dynamic precision:	≤ 0.15 nm

Key Features and Benefits

Building on the proven YieldStar S-375F platform, the YieldStar S-1375F implements specific innovations to improve in-device overlay and CD measurements. The YieldStar S-1375F enables the following applications:

- On-product After-Etch Overlay and CD measurements for memory devices, using the actual device pattern
- On-product After-Etch Overlay and CD measurements for logic devices, enabled by the use of small 5x5 μm targets

Increased Sampling

The YieldStar S-1375F provides much denser sampling compared to current metrology tools, based on electron beam metrology, improving move-acquire-measure (MAM) time by more than 25x. This innovation feeds advanced overlay control loops, in conjunction with ASML's Overlay Optimizer 3 and Pattern Fidelity Control enhancements.

Accuracy and Process Robustness

The YieldStar S-1375F re-uses the continuous wavelength concept from the YieldStar S-375F platform, enabling faster switching time, improving multi-wavelength acquisition move-acquire-measure time. Further improvements in the detection optics improve signal-to-noise of the measurement signal, increasing the accuracy and robustness of the YieldStar S-1375F measurement recipes.

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