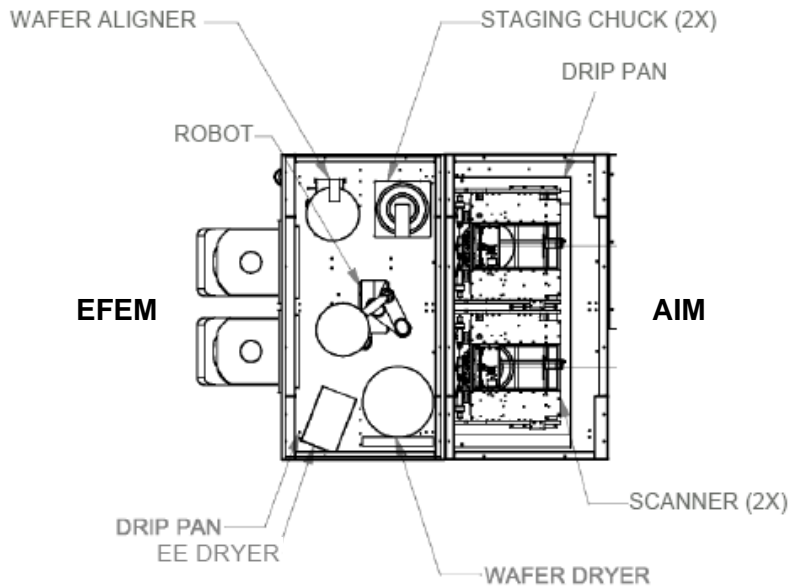


AW300™ Series C-SAM®

Automated Wafer Bond Inspection



EFEM – Equipment Front End Module

AIM – Acoustic Imaging Module

Operator-Free Inspection, Analysis and Sorting

The AW300™ Series is an advanced instrument specialized for wafer bond applications. It delivers a better than 5 micron sensitivity, a throughput that is approximately two times faster than competitive systems, and a non-immersion scanner that eliminates false positives due to DI water ingress.

The AW300 Series automatically handles, inspects and sorts bonded wafers based on user-defined accept/reject criteria.

Features

- Sonoscan® Waterfall™ transducer provides non-immersion scanning which minimizes risks of contamination and false bond indications
- Dual vacuum assisted stages to maximize total throughput by efficiently automating the entire inspection process—including aligning, delivery, drying and sorting
- Single or Optional Dual loadports for larger batch capacity
- Loadports for 300 mm FOUP or FSOB carriers available
- Sonoscan automated analysis software accurately determines percent bond/nonbonded, void size and count, and automatic accept/reject based on user-defined criteria
- 500 MHz bandwidth pulser/receiver and ultra-high resolution transducers are designed and manufactured by Sonoscan for optimum performance and to generate superior images
- Class 1000 clean room rated



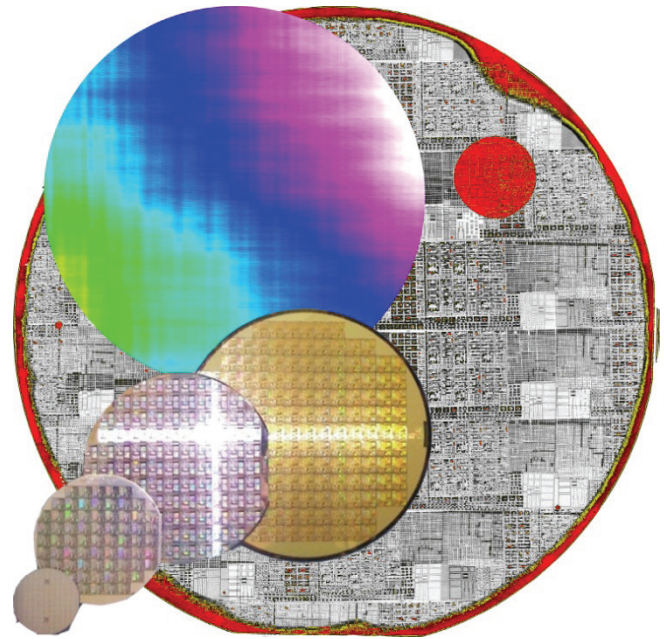
Dual Non-Immersion Imaging
via Sonoscan's Waterfall™ transducer reduces contamination and false bond indications



AW300™ Series C-SAM®

The AW300™ Series is a high-capacity, high-throughput automated C-SAM® system designed to deliver maximum sensitivity for the evaluation of bonded wafers in applications such as SOI, MEMS and others. Since the materials used in these applications are very transparent to ultrasound, Sonoscan uses proprietary high acoustic frequency transducers, which are designed in-house, to obtain the most detailed images. The AW300 Series can detect voids smaller than 5 microns in diameter between two wafers and delamination with the separation between the wafers as thin as 200 Angstroms.

The system is designed to handle wafers bonded by virtually any method, including direct fusion, anodic, glass frit and epoxy bonding. For direct bond techniques, users of the system have found that yields can be significantly improved by inspecting at three production stages—after initial bonding by Van der Waals forces, after annealing and after thinning.



The AW300 Series delivers fully automated inspection. 300mm wafers are loaded via an EFEM with wafer carrier loadport(s). A robotic arm transfers the wafer first to the aligner and then to one of the two vacuum assisted scan stages for acoustic inspection. The entire wafer area is scanned using Sonoscan's proprietary Waterfall™ transducer, which provides non-immersion scanning and reduces the risks of contamination and false bond indications. If inspection is performed after metallization has been applied, the acoustic image can be overlaid with an optional wafer map. This method relates void, bond and other defects to the individual die.

After completing the scan of each bonded wafer pair, the wafer is placed in the wafer dryer to remove excess water. While drying, Sonoscan's automated analysis software analyzes the data. Based on your chosen accept/reject criteria, the bonded wafer is either categorized as "acceptable" or "rejected". At the same time this is occurring, thanks to the staging areas, a second wafer pair is already being processed in the same way. By minimizing time between scans and with the dual scanner, the AW300 Series helps maximize throughput.



Sonoscan®
Sound Technology With Vision

Leaders in Nondestructive Internal Inspection

Since its inception, Sonoscan has focused on developing superior Acoustic Micro Imaging (AMI) technologies to help our customers build higher quality products. Sonoscan remains the most trusted authority on the application of AMI for nondestructive internal inspection and analysis. Sonoscan patented systems span the laboratory and production environments and are regarded as the standard for accuracy and throughput.

Sonoscan Delivers:

- **Superior Image Quality** ensured by the designs originating from our own transducer/lens development lab and fabrication facility
- **Extraordinary Data Accuracy** through our proprietary signal-processing algorithms, analysis functions and digital image/data formats
- **High Throughput Rates** by developing the most advanced integrated features, automation and analysis functions within our instruments
- **Unsurpassed Technical Expertise** with more than 20 dedicated and highly experienced AMI applications engineers on staff

For a complete list of Sonoscan's products, please contact Sonoscan at 847.437.6400 or visit our website (www.sonoscan.com).

Rev 12-1