

Zentura

Wafer Level Metrology System

High-precision measurements

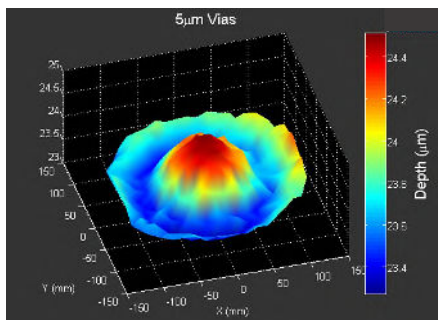
- TSV/TGV and etch depth measurement without aspect-ratio limitations
- Vision-based CD measurements of line width, diameter, alignment, and more

High-precision wafer maps

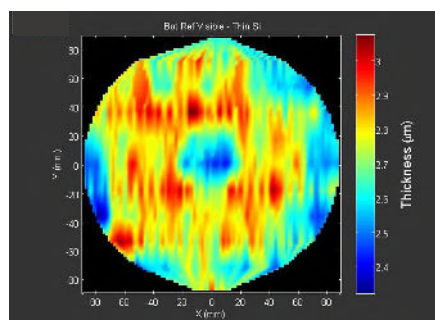
- Wafer & multi-layer thickness – 10 to 1200 microns
- Bonded wafer adhesive layer & photoresist – 1 to 50 microns
- Wafer shape – bow, warp

Key features

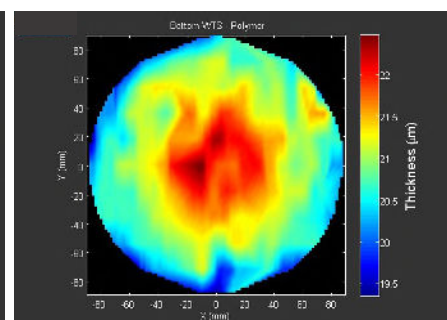
- Fast, repeatable measurements
- Vibration tolerant
- Multiple & selectable FOV options
- High precision measurement stage
- Available in manual load or fully automated
- Flexible wafer handling
- High Throughput, up to 60 WPH



Full Wafer TSV Etch Depth Map
5 µm diameter TSV, x 25 µm deep



Thin Si wafer 3µm nominal thickness



Adhesive layer nominal 20µm in
bonded wafer assembly



SPECIFICATIONS

PLATFORM DETAILS

PLATFORM

- 380mm X 380mm X 100 mm X-Y-Z Travel
- ISO 5 and/or ISO 4 Cleanroom compatible
- Semi S2 / S8 Compliant

SOFTWARE

- ScopeViewer3™ Software Application Suite
- Flexible Part-Programming
- Advanced Vision Tools & Metrology Features
- SECS-GEM factory Interface

WAFER HANDLING OPTION

- Manual or Automated loading
- 50mm to 300mm wafers
- EFEM Options - Cassette, SMIF, FOUP Load Ports

OPTICS

- Microscope with High-Resolution camera
- 5X, 10X, 20X, 50X Objectives
- Brightfield LED Light Source

SYSTEM DIMENSIONS (w/o Wafer Loader)

- 1.2m (W) x 1m (D) x 1.55m (H)
- Weight: 900 kg/1900 lbs (estimated)

FACILITY REQUIREMENTS

- Voltage: 120/240, 60/50Hz 15 Amp max

AVAILABLE SENSORS/OPTIONS

4000 – OPTICAL STYLUS

- Wafer Shape – Bow, Warp, Flatness, etc.
- Step Height/Depth measurements
- Multiple magnifications provide instantaneous changes to measurement range/resolution

5000 – WHITE LIGHT THICKNESS METROLOGY

- Ultra-thin silicon (1 to 50u) Thickness mapping
 - TTV, Avg, STD, TIR, Max/Min
- Thickness mapping of photoresist, adhesive

6000 - IR THICKNESS METROLOGY

- Silicon (10 to 1200u) Thickness mapping
 - TTV, Avg, STD, TIR, Max/Min
- Adhesive Thickness After Bonding
 - TTV, Avg, STD, TIR, Max/Min
- Etch Depth Measurement
 - any etch, including TSVs
 - independent of aspect ratio & vibration

	Profilometry	
	Range	Sensitivity
4000 Series	100 um	10 nm

		Thickness Metrology								Max Data Rate
		Min Thickness		Max Thickness		Sensitivity		Repeatability 3 Sigma		
		Glass	Silicon	Glass	Silicon	Glass	Silicon	Glass	Silicon	
5000 Series		1.2 um	0.45 um	75 um	28 um	6 nm	2 nm	< 18 nm	< 10 nm	1 KHz
6000 Series		17 um	7 um	3.3 mm	1.4 mm	6 nm	2 nm	< 18 nm	< 10 nm	20 KHz

1: Min Thickness is the minimum material thickness that can be reliably measured. It is also the minimum difference between two material layers that can be simultaneously measured.

2: Sensitivity is the smallest change in thickness/Surface that can be reliably measured

3: All performance specifications are application dependent.

