

FSM 900TC-Vac, High-Temperature Wafer Stress & Bow Measurement System

Comprehensive Thermal Mechanical Characterization

Introduction

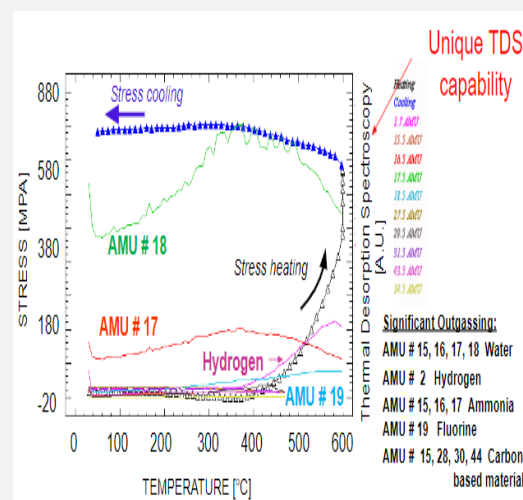
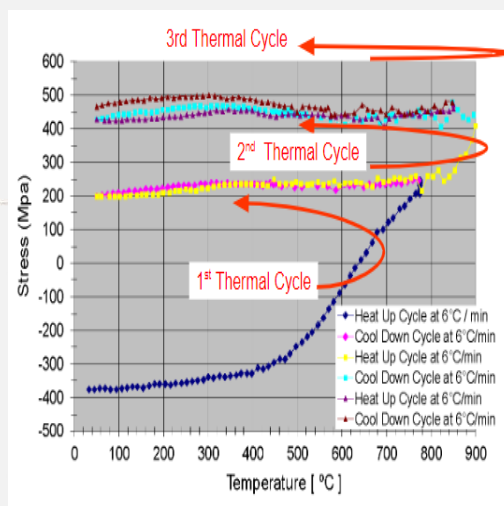
The FSM 900TC-Vac is a state-of-the-art system for wafer stress and bow height measurement at elevated temperatures. Utilizing a non-contact laser triangulation technique and a vacuum chamber capable of reaching 900°C, it supports wafers 50mm to 200mm/300mm. Designed for semiconductor, MEMS, solar, LED, and FPD applications, it features integrated Thermal Desorption Spectroscopy (TDS) for advanced metrology.

Key Features

- **Stress & Bow Measurement:** Reliable performance at high temperatures.
- **Thermal Cycle Capability:** Programmable for inert gas (up to 900°C) or vacuum (up to 1100°C).
- **Wide Bow Range:** Measures bow from sub-micron to millimeter scales.
- **Integrated Metrology:** Simultaneously analyzes stress hysteresis, TDS, shrinkage, resistivity, and reflectivity.
- **Advanced Optics:** Dual laser system adapts to reflective and translucent films.
- **Whole Wafer Monitoring:** Trend analysis with up to 100 channels.
- **Software & Export:** Windows compatibility, JPEG exports, and CTE calculation.



FSM900TC



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Technical Specifications

- ❑ **Temperature Range:** Room temperature to 900°C (optional 1100°C).
- ❑ **Ramp Rate:** 1–50°C/min, programmable with ramp and hold cycles.
- ❑ **Wafer Size:** 50mm to 300mm (round or square).
- ❑ **Vacuum:** Turbo molecular dry pump, up to 5×10^{-6} Torr.
- ❑ **Inert Gas Options:** Nitrogen, Argon, Forming Gas.
- ❑ **Chamber Design:** RTP-type with tungsten halogen lamps, gold-plated reflective walls, and water cooling.
- ❑ **Sample Loading:** Quartz susceptor for smooth operation.
- ❑ **Footprint:** Main Unit: 26" (W) X 58.24" (D)
Accessory Cart (Resistivity): 20" (W) X 20" (D)
- ❑ **Weight:** 400 lbs.
- ❑ **Power:** 208V, 30A, 3-phase, 5 wires (neutral and ground).

Optional Capabilities

- **Film Thickness Measurement:** Accurate for films $\geq 3000 \text{ \AA}$ at up to 600°C.
- **Reflectivity Measurement:** Spectrometer-based, with adjustable wavelengths up to 600°C.
- **Sheet Resistivity:** 4-point probe measurement up to 400°C.
- **Thermal Desorption Spectrometry (TDS):** Quadruple mass spectrometer for outgassing analysis during heating.

Why Choose the FSM 900TC-vac?

Advanced Vacuum Annealing Chamber

The system supports precise process simulations in a sealed RTP-type chamber, operating in high vacuum or inert gas environments to prevent oxidation and monitor material changes during heating.

Integrated Metrology for New Material Characterization

Incorporates multiple probes for comprehensive data extraction, overcoming tool-to-tool and sample-to-sample variations. By correlating stress hysteresis, thermal desorption, film shrinkage, and reflectivity data, the FSM 900TC-vac accelerates new material screening and process integration at various technology nodes.

Configurations

Feature	Standard/Optional
Film Stress Measurement	Standard
Vacuum Annealing Oven	Standard
Thermal Desorption Analysis	Standard
Film Thickness Measurement	Optional
Reflectivity Measurement	Optional
Sheet Resistivity Measurement	Optional
Temperature Range (900°C)	Standard
Temperature Range (1100°C)	Optional



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