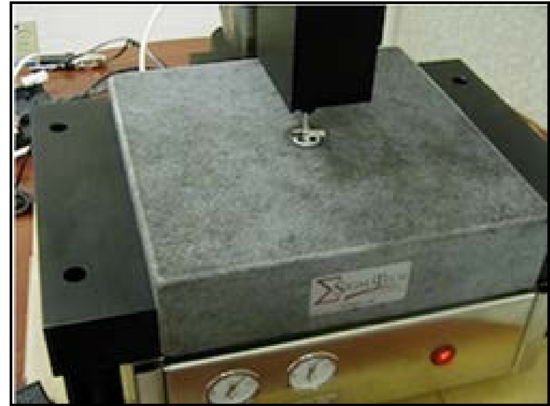
MicroSense

UltraMap UMM-BP2

Thickness Measurement System

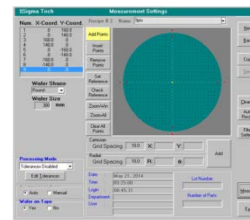


Precision Wafer Thickness Measurement

MicroSense's UltraMap UMM-BP2 manual wafer dimesnional measurement system utilizes MicroSense proprietary auto-positioning backpressure probe technology to accurately measure thickness, TTV, bow and warp of wafers of any material up to 200 mm in diameter (350mm with extended base). The system provides an accurate measurement regardless of wafer surface finish, resistivity or optical characteristics.

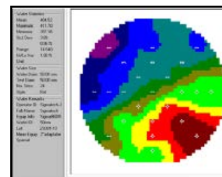
This version of the system is designed to measure rigid wafers and substrates, and uses a two sided, dual probe measurement technique which is compliant with SEMI standards. The system includes a fixed lower probe and an auto-positioning upper probe. This provides very versatile measurement capability, since the system can measure wafers ranging from 100µm to 20mm thick without mechanical adjustment of the upper probe position. The system accommodates wafers with maximum warp or bow of 100 microns. Alternate systems are available for highly warped wafers, or thin flexible wafers.

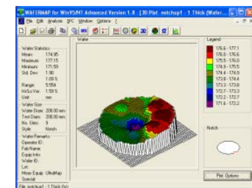
By combining manual wafer positioning with an automated measurement, the system achieves lowest-possible cost while maintaining high accuracy and flexibility.



Flexible Recipe Setup

NIST Traceable Verification Standards





2D / 3D Wafer Mapping

Precise, Accurate Measurements

- 0.5µm absolute accuracy
- Available verification standards
- Available reference standards for high-thickness samples
- Wide measurement range - 100µm to 20mm thickness
- Warp range 100µm

Production Friendly

- Sawn, Lapped and Polished wafers
- Non clean room environment
- Easy data export

UltraMap UMM-BP2 Measurement System

Measurement Parameters	Accuracy[1]	Repeatability[2] One Sigma	Resolution
Thickness: Flat Wafers (<100um Bow) Thickness: Center, Minimum, Maximum, Average	0.5µm	+/- 0.15 µm	0.1µm

1 Accuracy to a known standard. Multiple UltraMap-BP metrology systems will match to within the accuracy spec.
2 Repeatability one sigma specification using flat, polished wafers, operator positioning uncertainty excluded.

Measurement Technology

The UltraMap-BP systems use exclusive patented backpressure sensing probes for precise measurement of all materials, whether conductive or non-conductive. The advantages of this sensing probe technology include:

- Auto-calibration of backpressure sensors (no need for master wafers)
- No need to adjust for different materials
- Automatic adjustment to material thickness over a 2000µm range

Wafer Specifications

Wafer Size: Any, including, and Custom and Saw-frame mounted.
Wafer Thickness Range: 100µm - 3000µm

Surfaces: Wafers - As Sawn, Lapped, Polished

System Configuration

Wafer Handling: Manual
Wafer Measurement Location Positioning: Manual
Calibration: Automated
Wafer Measurement: Automated
Reliability (MTBF): 50,000 Samples

Mechanical – UMM-BP2 measures rigid wafers with no more than 100 microns warp/bow.
Alternate models are available for highly warped wafers, or thin flexible wafers.

Facilities Requirements

Dimensions: 18” width, 16” depth, 20” height. Separate PC, Monitor, Keyboard, and Mouse
Weight: 100lbs
Voltage: 110V for US, 200 – 250V options available. Single phase grounded polarized outlet required.
Frequency: 50/60 Hz
Current: 2A nominal, 10A peak
Circuit Breaker: 10A UL489A certified breaker
Air supply: Clean dry air or Nitrogen 40 – 60 PSI
Fittings: ¼” compression fitting

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