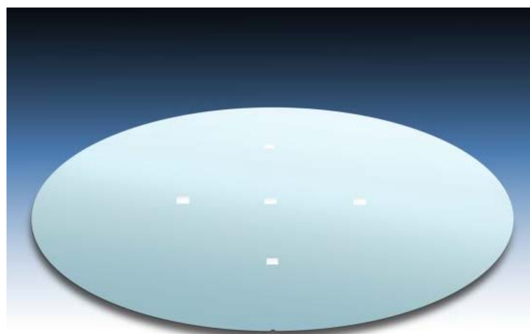
DIMENSIONAL

VLSI Standards

AutoLoad Surface Topography Standards

3D SPM MEASUREMENTS THAT STAND OUT. The AutoLoad Surface Topography Standard (ALSTS) uses a combination of step height and pitch to enable three-dimensional calibration of optical interferometric microscopes and AFMs. Multiple pitch gratings take calibration further, allowing characterization of scan linearity. On high resolution tools such as the Atomic Force Microscope, NIST-traceable calibration can be achieved, driving your equipment to its full potential.

On the left is the Autoload Surface Topography Standard, with 5 distinct pitch clusters.



PRODUCT DESCRIPTION

The ALSTS consists of 5 pitch clusters of varying dimension patterned in a layer of silicon dioxide and coated with Chromium for optimum contrast. The center cluster is certified and traceable to NIST, while the remaining clusters are for daily use monitors to extend the life of the standard.

Each pitch cluster contains three distinct grid patterns spaced 100 µm apart. Each grid pattern measures approximately 270 µm x 270 µm and consists of an array of alternating bars and spaces with pitch in both X and Y directions. Each model comes standard with 3 pitch clusters, and is available in vertical step heights of either 18 nm, 44 nm, 100 nm, or 180 nm. Our manufacturing technique utilizes advanced lithography methods to obtain a very regular topographic pattern, and statistical sampling to allow accurate measurement Product Specifications across the entire working area of the standard. The Surface Topography Standard is certified and traceable to NIST for both pitch and step height.

PRODUCT SPECIFICATIONS

- **SEMI Specification Silicon Wafers**
  200 mm and 300 mm
- **Materials**
  Silicon Dioxide on Silicon coated with Chromium
- **Nominal Pitch Values (X and Y)**
  3 µm, 10 µm, and 20 µm (all on one standard)
- **Available Nominal Heights (Z)**
  18 nm, 44 nm, 100 nm, 180 nm
- **Traceability**
  Pitch and Step Height: Traceable to NIST

Revision ALSTS1042607
Specifications subject to change.

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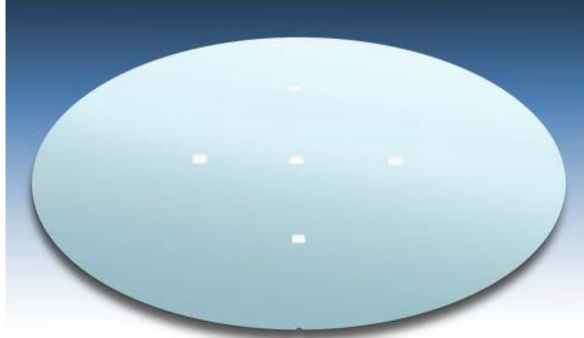

ALSTS AutoLoad Surface Topography Standard

Application: 3-Dimensional Calibration
Equipment: Optical inteferometric microscope and Atomic Force Microscope (AFM)
Features: Silicon Dioxide Coated with Chromium
Traceability: NIST
Product Range: Pitch (X and Y): 3, 10 and 20 µm
Height (Z): 180 Å – 1,800 Å

Feature Dimension			Wafer Diameter	
Z (Å)	X (µm)	Y (µm)	200 mm	300 mm
180	3, 10 and 20	3, 10 and 20	ALSTS8-180	ALSTS12-180
440	3, 10 and 20	3, 10 and 20	ALSTS8-440	ALSTS12-440
1,000	3, 10 and 20	3, 10 and 20	ALSTS8-1000	ALSTS12-1000
1,800	3, 10 and 20	3, 10 and 20	ALSTS8-1800	ALSTS12-1800

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