NanoSpec®/AFT 4000 and 4150

WHY PAY FOR FEATURES WHICH YOU DON'T NEED?

The NanoSpec/AFT 4000 Series of tabletop film thickness and mapping systems saves you money, while optimizing performance and ease of operation, as the tool can be configured to match the application.
Upgrade kits allow the equipment to be expanded as your needs change.

The NanoSpec/AFT Model 4000 and 4150 use the same high resolution spectrophotometer scanning system, the same thickness measurement programs, and produce identical measurement data. Differences lie in peripheral hardware and software. These differences are illustrated on the Specification Comparison Chart to the right. The 4000 series was designed to allow the maximum flexibility in configuring individual systems, while still allowing easy upgrade as required. Nanometrics wants to meet your needs.

Designed to Increase Yields

Equipped with mapping stage, autofocus, programmable measurement algorithms and optional cassette wafer loader, a 4000 series tool can rapidly characterize even the most complex semiconductor thin film processes. The advanced software platform provides the process engineer ultimate freedom and flexibility in creating custom measurement programs to meet the demanding needs of today's wafer fabs, especially during process startups. The OS/2 software platform allows the creation of unique single and multiple layer programs for the proprietary films and film stacks utilized in modern semiconductor processes. With the ability to select film constants, scan ranges and substrate types, an AFT 4000 series system provides the ultimate tool for rapid measurement program development. The 4000 series, with optional UV, provides continuous scanning from 200 to 900nm, can measure single-layer films, such as oxide, nitride and photoresist, as well as multiple layer film stacks such as oxide on polysilicon. These measurements can be made on a wide variety of substrates, including silicon, aluminum and gallium arsenide.

The Statistical Process Control (SPC) software package consolidates the collection, storage, retrieval and analysis of process control data in real-time. Data may also be stored and retrieved from off-line or host computer systems. Color-coded contour and 3D maps, together with a wide variety of SPC charts, immediately alert the operator to out-of-spec processes.

Strong Back-up

The 4000 series automatic film thickness measurement tools, as with all Nanometrics' products, is supported by a strong applications and service organization. These support services include technical applications, periodic software updates, field service, and operation and maintenance training. NanoSpec/AFT's have shown the largest time between failures of any equipment in the fab.

NANO metrics

310 De Guigne Drive, Sunnyvale, California 94086
1-800-955-6266 Fax: 408-720-0196

SPECIFICATION CHART - AFT 4000 SERIES

Performance	Model 4000	Model 4150
Absolute Accuracy[1]:	Within ±1% of certified range of NIST traceable oxide standards	Same
Precision[2]:	1 Å, 25 - 500 Å with UV option	Same
	2 Å, 500 - 50,000 Å visible	Same
Stability[3]:	0.5% or 5 Å or whichever is greater	Same
Hardware		
Wavelength Range:	Visible 400-900nm	Same
	200-900nm with UV option	Same
Standard Wafer Sizes:	100, 125, 150, 200mm	Same
Computer:	486-based, 33 MHz	Same
Data Storage:	345 Mb internal hard drive, 1.44 Mb removable floppy	Same
Camera/Monitor:	Single 15-inch color monitor	Same
Printer:	Cleanroom compatible high resolution color inkjet (option)	Same
Programmable Stage:	No	Yes
Automatic Loader:	No	Option
Autofocus:	No	Yes
Spot Size Range:	3 - 60 µm	Same
Data Analysis		
Mapping, Contour, 2D and 3D color:	No	Yes
Statistical Process Control (SPC):	Histogram	Same
	X-bar/R	Same
Data Communications		
Standard ASC II data dump to floppy:	Yes	Yes
SECS/GEM per SEMI Standard Doc.2049B:	Option	Option

Space Requirements 41" W x 41" D x 36" H

Power Requirements 117 VAC ±5%, 50/60 Hz, 5A

Shipping Weight 150 lbs.

[1] Absolute Accuracy: On oxide standards 500, 1000 and 2000 Å thickness
[2] Precision: One sigma based upon measurement of the same spot 15 times in successsion on standard semiconductor film
[3] Stability: Standard deviation of the means of the precision test taken daily on the same wafer over a period of 5 days