



Development Series

METROLOGY

# Alpha-Step D-100 Stylus Profiler

The KLA-Tencor Development Series of benchtop stylus profilers offer the most complete range of stylus measurement features to meet the needs of the engineering and research communities. These research-grade products merge capability and value with the tool performance expected from KLA-Tencor's metrology products.

The Alpha-Step® D-100 profilometer rapidly and quantitatively measures the 2D topography of surfaces with a 30mm scan length. The Alpha-Step D-100 system includes a Z-sensor range up to 1.2 millimeter, sub-angstrom resolution, 6Å or 0.1% step height repeatability, 140mm manual x-y theta sample positioning stage, and many other features.

The graphical user interface has a multi-document interface that allows a user to continually acquire and display scan data. This permits the user to analyze the data while acquiring additional measurements. The profiler software controls support scans to be automatically leveled, scan features measured, and displayed in a Windows compatible format on the screen. All of the windows are independent which mean the control panels and data display windows, real-time scanning window, the data results window can float or be docked anywhere on the screen. This feature gives the user a fully flexible environment in which to acquire and analyze data.

## APPLICATIONS

The D-100 is capable of addressing a wide range of measurements and applications:

- Surface Texture
- Precision step height
- Surface form
- Thin film stress
- Biological
- MEMS
- Material Characterization
- And many more

## BENEFITS

Up to 30mm scan length

Faster measurement cycle — load sample, focus, and then measure

Load up to 10 profiles into a single axis view for analysis

Open as many profile analysis windows as a user needs

Auto step level and step detect functions simplifying the users experience

Dynamic results table that supports standard Windows copy and paste and is exportable to any spreadsheet

Re-analyze any data set at a later date without having to repeat any measurements

# Alpha-Step D-100 Stylus Profiler

## PRODUCT DESCRIPTION

The D-100 system provides the widest range of application specific capabilities available to a research grade stylus profiler. A variety of options are available to enhance the capabilities of the standard system:

### Stylus Profiling

The 140mm sample stage supports scan lengths of up to 30mm in a single scan and up to 80mm utilizing the stitching function standard with each system. In addition, the D-100 low force sensor measures 800um z-range standard and up to 1.2mm optional. The precision scan stage and low force technology ensure the highest level of measurement quality on the most sensitive thin films and soft samples.

### Step Height Repeatability

A sub-Angstrom resolution optical lever sensor translates into the most repeatable low mass extremely low noise sensor design enabling step height measurements as low as 1nm with a repeatability of 6Å or 0.1% (1σ), a noise floor below 1nm RMS, and sensitive ultra-thin film step measurements.

### Software Features

A multi-document interface enables a user to continually acquire and display scan data permitting data analysis while acquiring additional measurements. Each window is independent. The control panel, the data display windows, the real-time scanning window, and the data results window can float or be docked anywhere on the screen. This feature gives the user a fully flexible environment in which to acquire and analyze data. The new multi-document interface also allows scan measurement results to be displayed in a Windows® Excel compatible format on the screen.

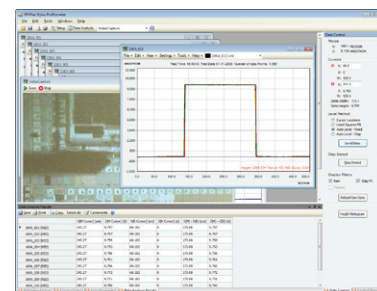
## POWERFUL OPTIONS

### 2D Stress Analysis

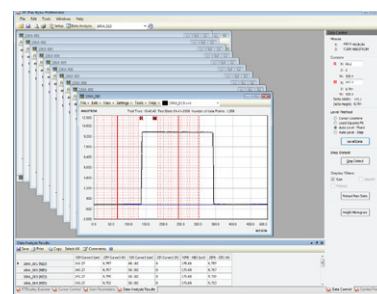
Calculate the stress on substrates by comparing substrate bow before and after processing. Use polynomial curve fit models to calculate average, minimum, and maximum stress in MPa.

### Advanced Analysis and Offline Software

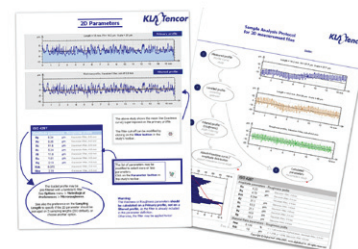
Provides a wide range of filtering and leveling algorithms, additional analysis parameters, and many more features. The advanced analysis package can be added on a remote computer.



Easy-to-use full featured user interface



Data format enables 'on screen' data analysis with various math functions that can be exported into Microsoft Office



Defineable user-specific custom reports & templates

### KLA-TENCOR SERVICE/SUPPORT

Customer service is an integral part of KLA-Tencor's portfolio that enables our customers to accelerate yield. Our vast customer service organization collaborates with worldwide customers to achieve the required productivity and performance at the lowest overall cost. K-T Services includes comprehensive contracts, time and materials, spares, asset management, customer training, and yield consulting.

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