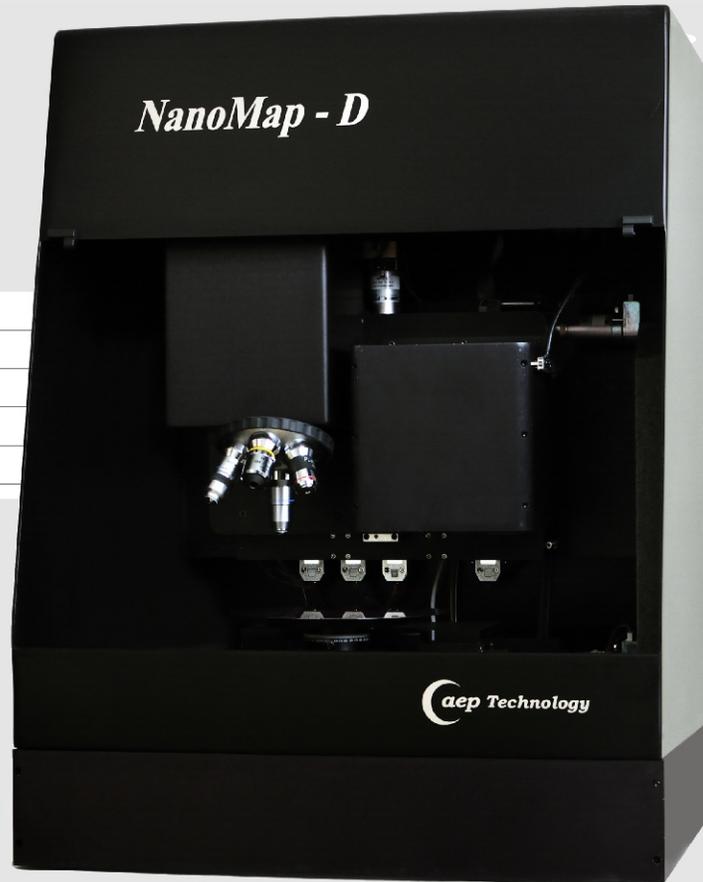




NanoMap-D Universal Surface Profilometer

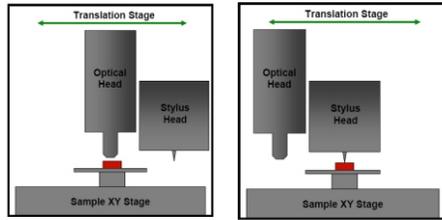
Industry-Leading Sensitivity, Unmatched Performance and Versatility



Dual Mode - Optical and Stylus
3D Surface Profilometer

Introducing AEP NanoMap-D

NanoMap-D is a dual mode surface profilometer that consists of a non contact optical interferometer and a stylus contact profiler on **same platform**. This system is capable of probing a variety of surfaces from soft plastic to hardened steel, from transparent glass to black anodization etc.

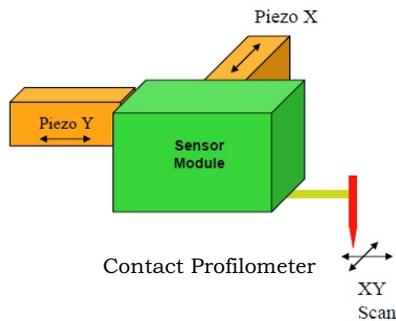


Two working head position

By exploiting the advantages of both contact and non contact based techniques for a comprehensive surface characterization NanoMap-D brings its user to a new level of measurement flexibility. The same tool can be used in both research and quality control or inspection environment.

Contact Profilometer

A contact profilometer uses a diamond stylus, which is moved vertically and laterally in contact with a sample for a specified distance. It precisely measures small variations in stylus displacement as a function of position. This technique is a real direct measurement of surface (no modeling etc.). It generates very high resolution 3D images of scanned area.



Contact Profilometer

AEP profilometer has a precision piezo stage with close-loop capacitance sensor for position feedback. It has a maintenance free flexure design for ultra low noise performance and long lifetime. It comes with a integrated color optical camera. The low noise and servo motor enables to generate ultra high resolution pictures for areas as long as 150mm X150mm.

Advantages

- Acceptance: Most of the world's surface finish standards are written for contact profilometers.
- No requirement of optical constants
- An advantage in dirty environments
- Works on non clean surfaces
- Direct Technique: No modeling required.

Optical Interferometer

An optical interferometer is utilizes an optical beam reflected from a surface to generate a profile of the reflecting surface. Measurements can be made quickly and without damaging the surface. The physical principle of optical interferometry exploits the wave properties of light.

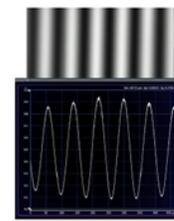
AEP optical profilometer has two working modes Phase shift and White light scanning mode. The combination of two modes provides a very powerful tool to measure the topography of both rough and smooth surfaces with precision. The low system and electronic noise, advanced controllers and high end lenses allows AEP optical profilometer to generates images with more than 2 million pixel resolution with accuracy in Picometer range.

Advantages

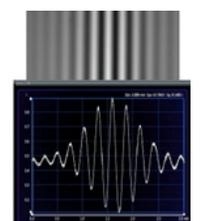
- Speed: the scan speeds are dictated by the light reflected from the surface and the speed of the acquisition electronics.
- Non Contact
- High Sensitivity

Phase Shift mode (PSI)

Light source is filtered into a narrow bandwidth illumination. Gives high resolution for smoother surface.



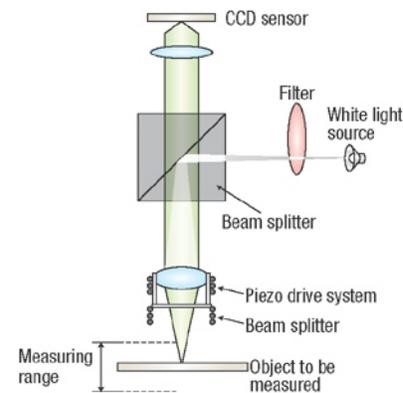
Phase Shift



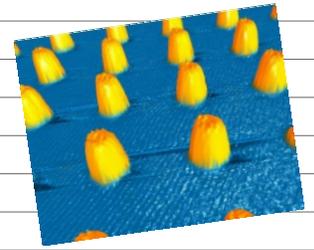
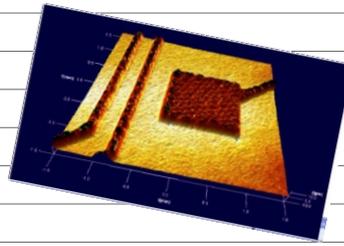
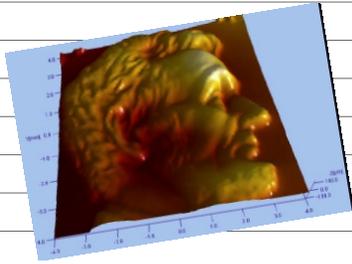
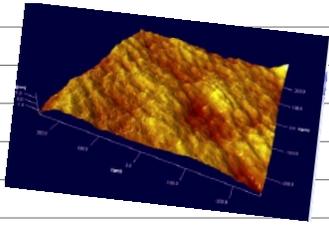
White Light Scanning

White Light Scanning mode (WLI)

Short coherence length is used to define the focus precisely. Elevation at each point on the image plane is determined based on the envelope of the broadband light fringe pattern. Used for surface with large Z range.



Optical Profilometer

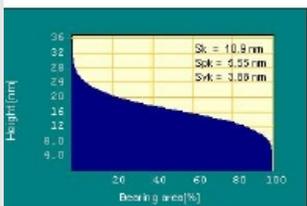
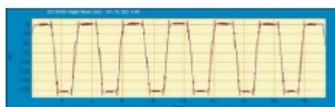
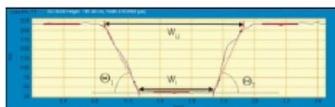
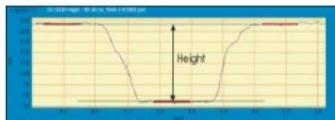
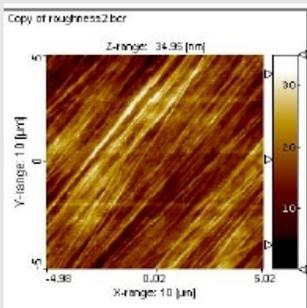


Tool Features

- **Modular design** allows both or one of the two profiler integrated on the tool.
- Combination of two modes makes it the most versatile profilometer in the world.
- **Large scanning stage**
- Contact and non contact image without taking sample out of tool.
- Fast effective real-time data monitoring, recording and a powerful **statistical analysis software**.
- Automated handling of multiple small and large samples.
- Very easy to learn and use.

Software Package

- **SPIP Software**
- 3d Virtualization software
- Movie and time series analysis
- Roughness and hardness analysis
- Particle and pore analysis
- Force curve analysis
- Extended Fourier analysis
- Filtering

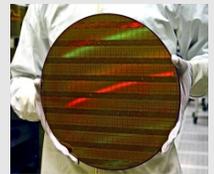


Applications

Wear-resistant coatings
TiN, TiC, DLC, WC
Cutting tools



Semiconductors
Low K materials
Interconnects
Passivation layers



Biomedical
Tablets and pills
Implants and Tissues



Thin films
CVD/PVD coatings
Solar cells, MEMS, fuel cells



Optical components
Window Glass
Lenses
Optical coatings

Decorative coatings

Hard disk industry
Disk and head overcoats
DLC coatings



Automotive & Aerospace
Paints and intermediate layers
Windows
Engine components

Please Contact us for for information or a free demo.

NanoMap-D Technical Specifications

Contact Head Specification

Vertical Resolution	0.1nm with fine range; 0.01um with coarse range
Vertical Dynamic Range	Up to 5um with fine range; up to 500um with coarse range
Step Height Repeatability	0.6nm at 0.1um step height
Scan Range	Up to 150mm x 150mm
XY Piezo Stage	Resolution: 0.1um; Repeatability: 0.2um
Stylus Loading Force	0.1mg to 100mg SW settable
Optical Camera	Color camera with 1.5 x 1.5mm FOV
Illumination	Bright and dark field illumination; SW settable intensity

Optical Head Specification

Repeatability of rms:	0.5nm for WLI mode and 0.02nm for PSI mode
Vertical Resolution	1 Picometer (0.001nm)
Field-of-view	100µm to 2mm
Pixels	Up to 2 Million pixels
Vertical scanning range	Up to 10mm

Specifications may be subject to change, please contact us for updates



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