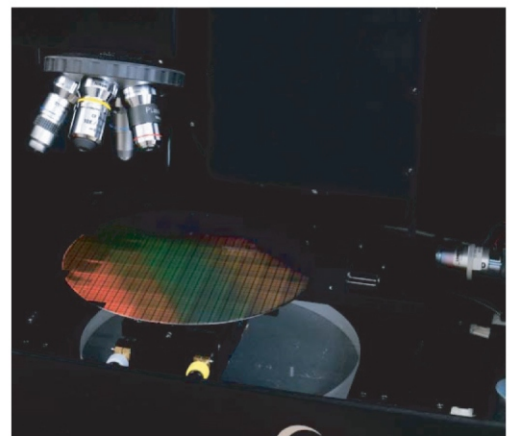
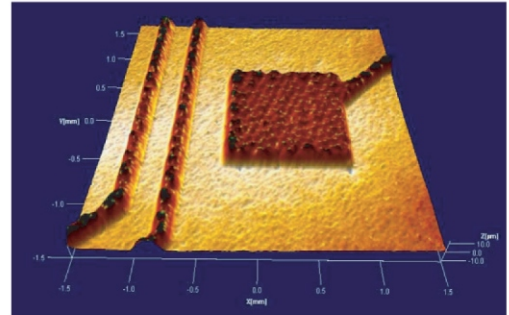
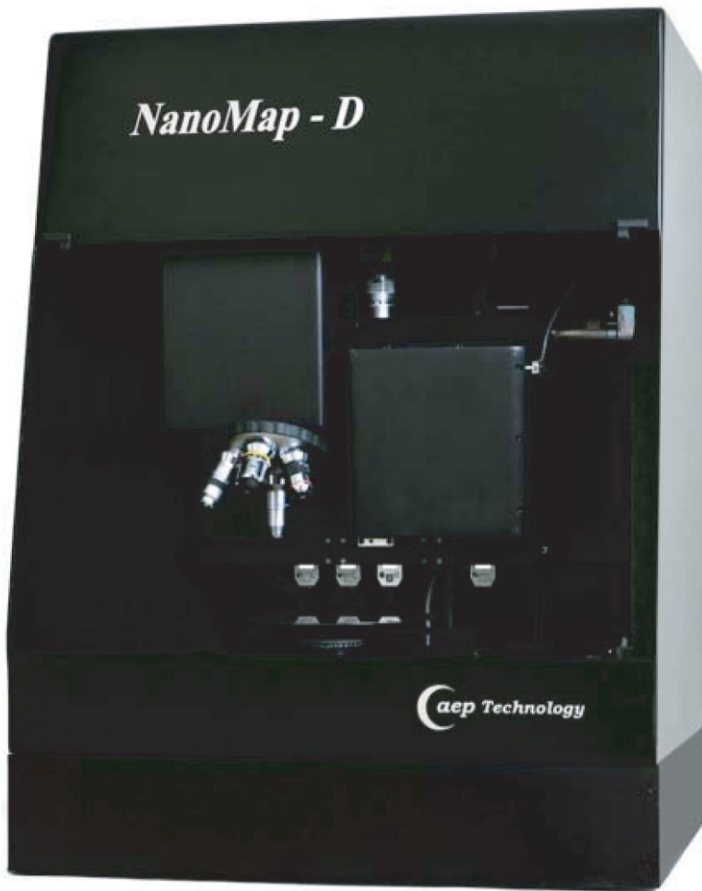


NanoMap-D

Dual 3D Surface Profilometer



Optical and Stylus Dual Mode 3D Surface Profiler

- Unique combination of optical and stylus surface profiling technology with the capability of cross calibration.
- Sub-angstrom measurement accuracy for a wide range of materials.
- High speed image acquisition with the latest multi-core processor enables fast 3D profiling.
- Up to 4 million pixels of digital sensor provides the leading edge image resolution.

aep Technology



INTRODUCTION

Optical Profiler

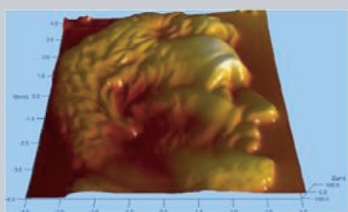
- White light interferometry and phase shifting techniques enables sub Angstrom measurement with millimeter range.
- World leading image processing system with up to 4 million pixel digital sensor for ultra high digital resolution
- Fast processor allow for 10 times faster measurement speed than current industry standard
- Capable of measuring both rough and smooth surface
- High brightness, computer controlled LED illumination.
- Large dynamic measurement range (10mm) with high resolution
- Measurement Array: user-selectable, maximum array: 2048 x 2048
- Standard 100mm XY motorized stage (150 mm optional)

Contact Profiler

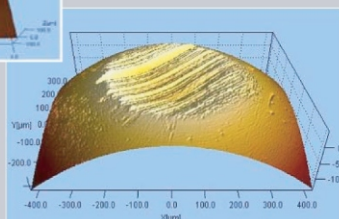
- Dual mode operation (tip scan and stage scan) optimized for small area 3D mapping as well as long range profiling.
- Precision piezo tip scan mode provides high resolution local area scan.
- Stage scan mode provide maximum scan distance of 100mm
- Integrated color optical camera for direct sample viewing during scanning. Both bright and dark field illumination are provided.
- Constant contact force settable by software.

Calibration Standard

- NIST (National Institute of Standards and Technology, USA) Certified Step Height Standards available



Lincoln Head on US Penny



3D surface of steel ball tested by tribometer

Optical Objective Specification Table

Objective	Digital Magnifier	Field Size	NA	Working Distance	Optical Resolution	Pixel Sampling
2.5X	1X	2000µm	0.08	10.3 mm	2.85 µm	2 µm
2.5X	2X	1000µm	0.08	10.3 mm	2.85 µm	2 µm
5X	1X	1000µm	0.13	9.3 mm	1.75 µm	1 µm
5X	2X	500µm	0.13	9.3 mm	1.75 µm	1 µm
10X	1X	500µm	0.3	7.4 mm	0.76 µm	0.5 µm
10X	2X	250µm	0.3	7.4 mm	0.76 µm	0.5 µm
20X	1X	250µm	0.4	4.7 mm	0.57 µm	0.25 µm
20X	2X	125µm	0.4	4.7 mm	0.57 µm	0.25 µm
50X	1X	100µm	0.55	3.4 mm	0.41 µm	0.13 µm
50X	2X	50µm	0.55	3.4 mm	0.41 µm	0.13µm

Optical Mode Performance Specifications

RMS repeatability	< 0.008 nanometers
RMS precision	< 0.08 nanometers
Step height accuracy	< larger of 0.75% or 0.75 nm
Vertical scan range	0.1nm - 10 mm

Contact Mode Performance Specifications

Category	Item	Specification
General	Step height repeatability	0.6 [nm]
	Vertical resolution	0.1 [nm]
Tip Scan (Piezo)	Measurement height range	0.5 [mm]
	XY scan resolution	0.1 [µm]
	Scan speed	10 to 50 µm/sec
	Scan range	Up to 500µm
	Data point per scan	100 – 1000 points
Stage Scan (optic flat)	XY stage movement range	100mmx100mm
	Scan range	50mm
	Scan speed	0.1 to 5 mm/sec
	Manual rotation stage range	360 degree
	Manual tilt stage range	+/-2 degrees