

Yale West Campus Cleanroom

Introduction

The West Campus Cleanroom is a Class 1000 Cleanroom, with 2500 ft^2 space including 2 dry labs and 2 wet labs. Our instruments provide state-of-the-art nanofabrication capabilities for microfluidic devices, electronics, photonics, and energy devices, supporting the rapid development of nanoscience, engineering and nanotechnology at Yale.

Process Bench & Spin Coater

There are Solvent, Acid, Base, and HF fume hoods, which meet the needs for the wafer cleaning, photoresist development, chemical etching and treatment.

Three spin coaters are dedicated for positive photoresist, negative resist, and SU8 resist coating, respectively. The wafers size varies from 1mm to 4 inches.



SUSS MJB4 Mask Aligner

MJB4 mask aligner uses UV light (365nm) to transfer a geometric pattern from a photomask to light-sensitive photoresist on the substrate.

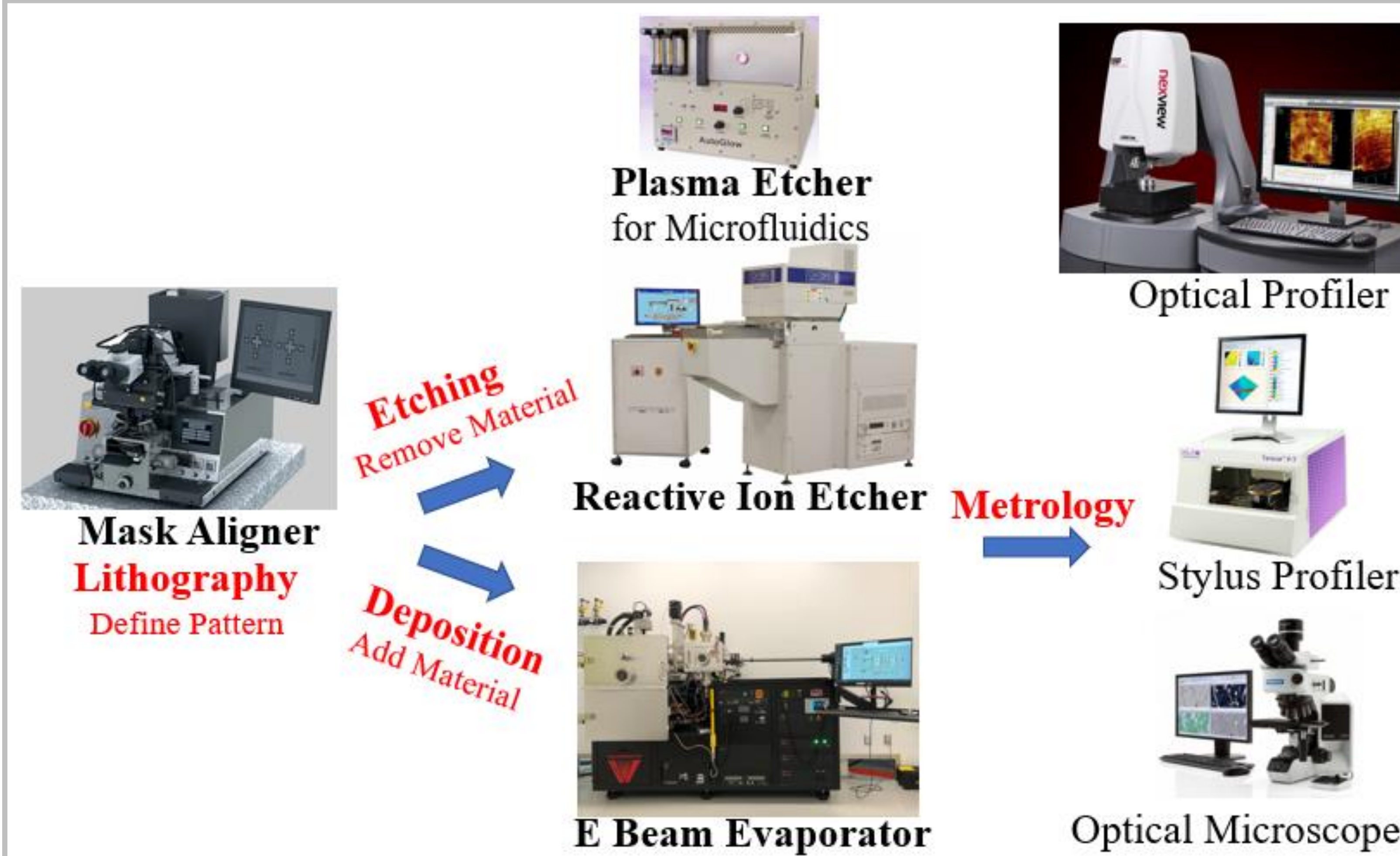
- The wafer size is up to 4 inches.
- The smallest feature size to fabricate is 0.6 μm .
- High precision X, Y and rotation Θ alignment.
- Two high-resolution splitfield microscopes.



Autoglow 200 Etcher

Autoglow 200 etcher is a benchtop and powerful plasma etcher. It can be used for surface treatment, plasma cleaning, SU8 treatment, PDMS activation prior to bonding.

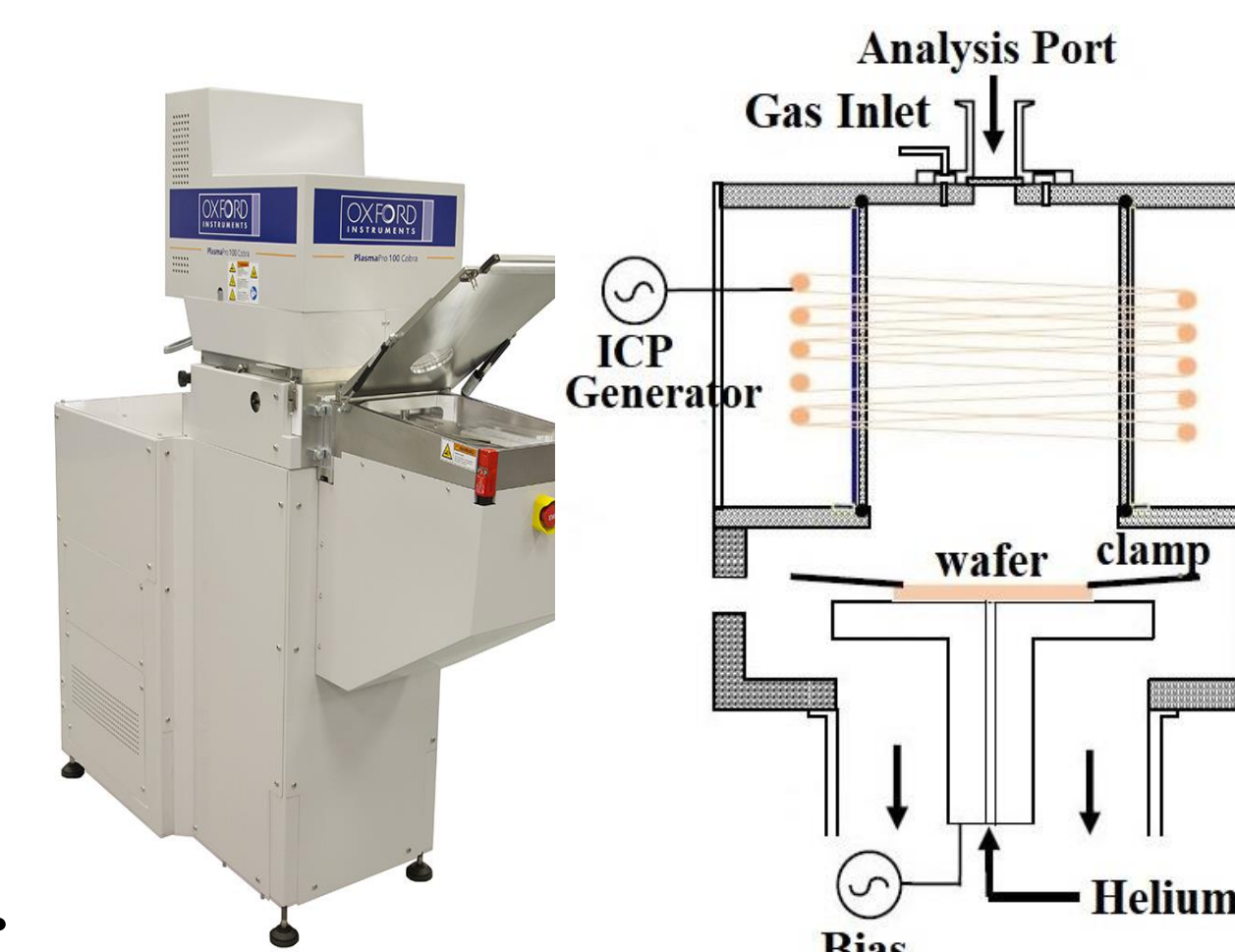
- 1 to 300 W RF power at 13.56 MHz.
- Includes O_2 and Ar as process gases.
- Able to treat up to 6 inch wafer.



Oxford Reactive Ion Etcher

Oxford PlasmaPro 100 RIE is a powerful dry etching tool using chemically reactive plasma to remove materials.

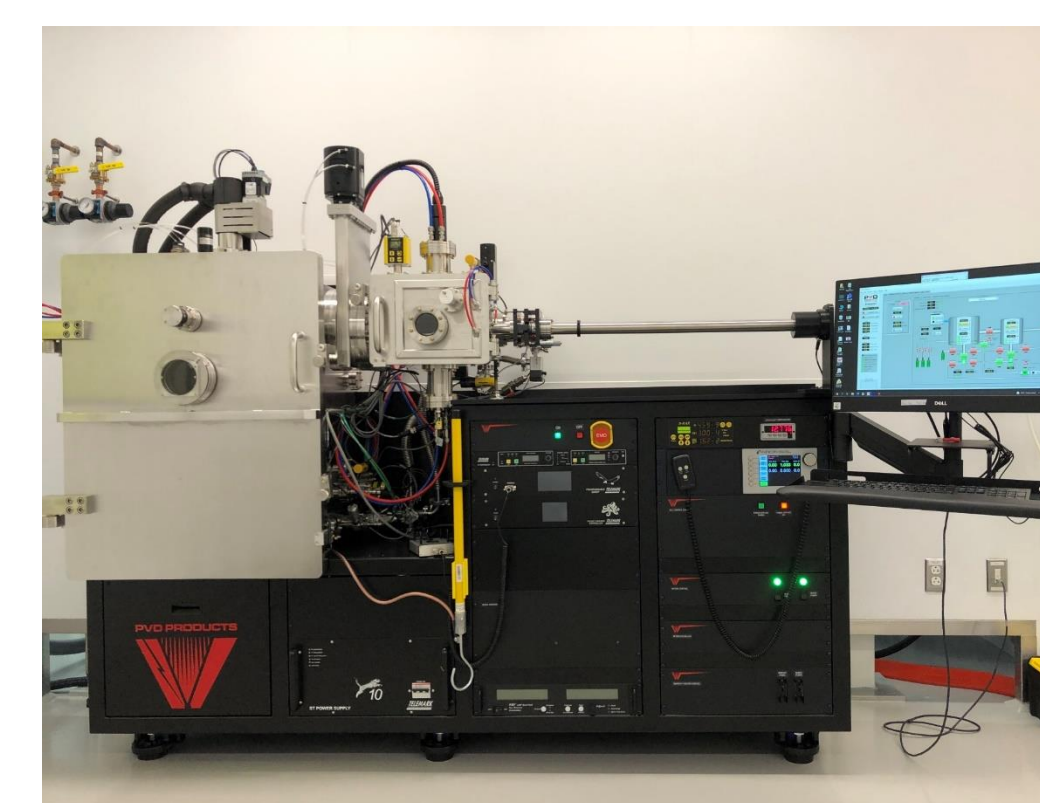
- The high-density plasma is generated by Inductively Coupled Plasma (ICP) power at low pressure.
- The ion energy is controlled by a Radio Frequency (RF) generator at 13.56 MHz.
- Able to etch different materials such as graphene, GaN, AlN, Si, and SiO_2 .
- The process gases include non-toxic CF_4 , SF_6 , CHF_3 , Ar, O_2 , H_2 , CH_4 and toxic Cl_2 and BCl_3 .



UHV Electron Beam Evaporator

UHV Electron Beam Evaporator from PVD Products can produce extreme pure films by melting the target material using electron beam.

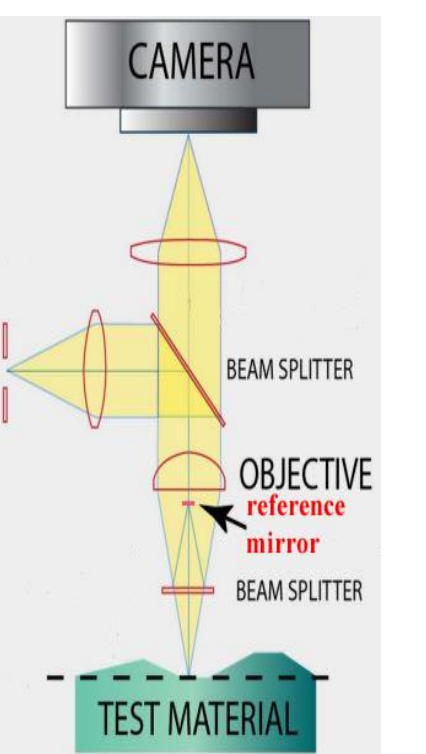
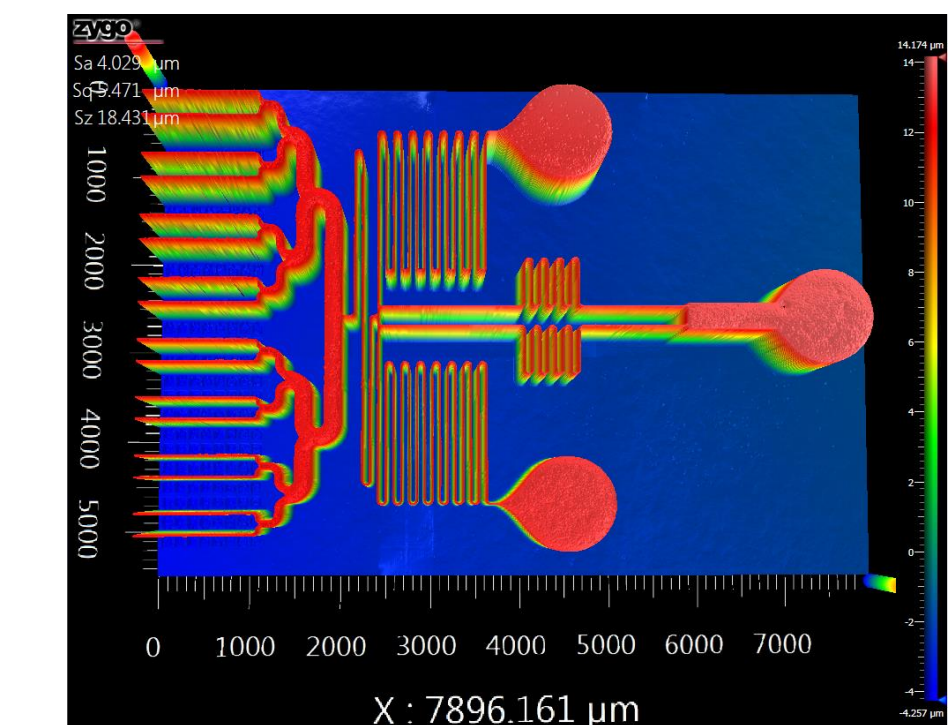
- Load lock system, with main chamber at ultra high vacuum $\sim 10^{-9}$ Torr using a cryo pump.
- Water cooled substrate stage.
- Six pockets for Au, Ti, Al, Cu, Cr and Ni.
- Ion beam cleaning before deposition using Ar, O_2 , and H_2 .
- Vacuum annealing up to 500 $^{\circ}C$.



Zygo 3D Nexview Optical Profiler

Zygo optical profiler is an interference microscope to measure the height variations of surface using the wavelength of light as a ruler.

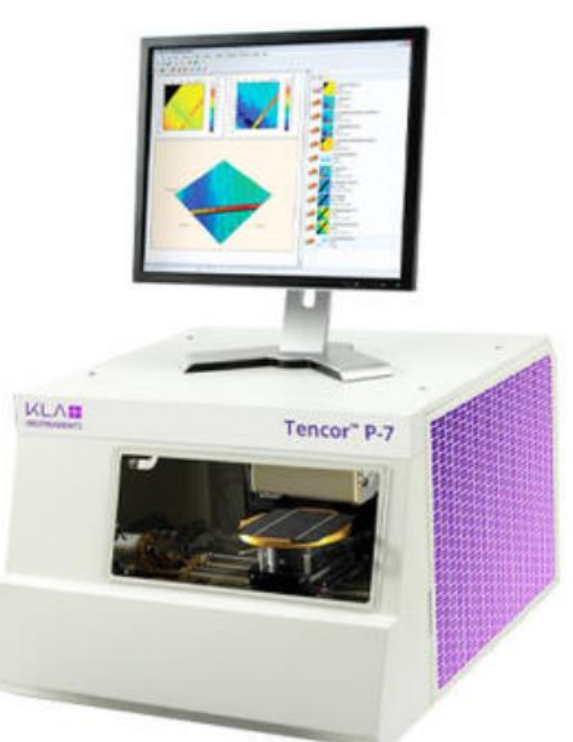
- Excellent for all surfaces from super-smooth to very rough, with sub-nanometer resolution.
- Measurement types include roughness, flatness, large steps, segments, thin films, and steep slopes, with feature heights ranging from nm up to mm.
- Non-contact profiling, no damage to samples.
- Stitching allows large sample measurement up to 6 inch wafer.



KLA Tencor P7 Stylus Profiler

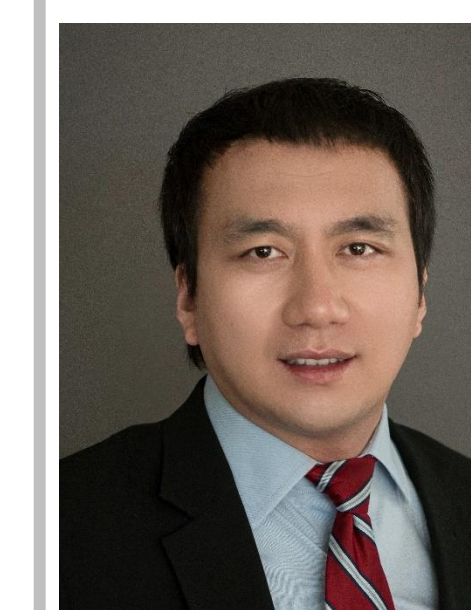
Tencor P-7 stylus profiler supports 2D and 3D measurements of step heights, defect surface topography, roughness and waviness, bow, and thin film stress for scans up to 150mm.

- Step height scan from Nanometers to 1000 μm .
- Low force with constant force control from 0.03 to 50mg.
- Scan full diameter of the sample without stitching.
- Fully automated with sequencing and pattern recognition.



Contact

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