



IND-1000

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NANOINDENTATION ON A WIDE RANGE OF SPECIMENS

Nanoindentation is your key to unlocking quantitative mechanical properties of small volumes of materials. This technique is now a well-established method for determining elastic, plastic and visco-elastic properties of materials like hard thin films, multi-phase metals, ceramics, soft films, semiconductors, biological materials, plastics on a micron to nanometer scale. The technology is based on Fischer-Cripps Laboratories' successful nanoindentation system.

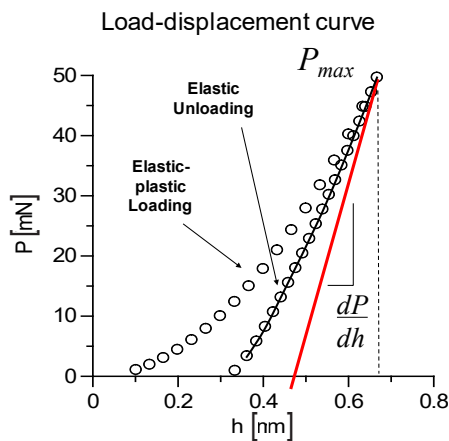


Technology & Features

- Precise sample positioning is ensured by video microscope and automated X, Y, Z movement.
- Measured material properties:
Elastic Modulus, Hardness, Yield Strength, Storage and Loss Moduli, Fracture Toughness, Scratch and Wear properties (depending on the sample).
- Closed loop force/depth feedback
- Easy indenter tip changeover
- Low compliance load frame, enclosure and mountings
- Traceable calibration
- Choice of staging and microscope to suit budget

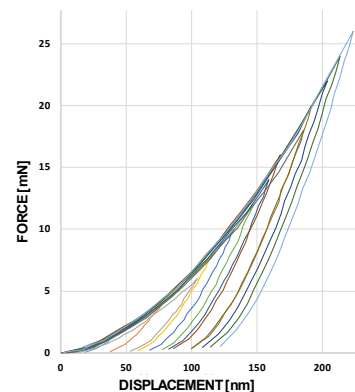
Optional features:

- Lateral force (Scratch Testing Module)
- Atomic Force Microscope
- Integrated Finite Element Analysis Module



$$H = \frac{P}{A}$$

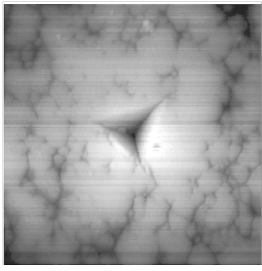
$$E^* = \frac{1}{2} \frac{dP}{dh} \frac{\sqrt{\pi}}{\sqrt{A}}$$



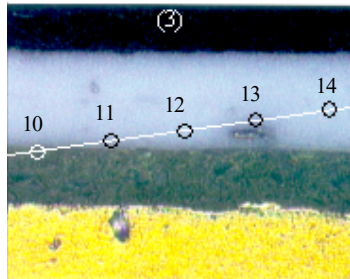
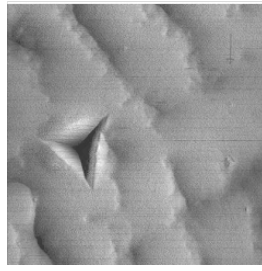
This material is for information purposes only. Equipment acceptance is based on contracted specifications.



Applications & Benefits



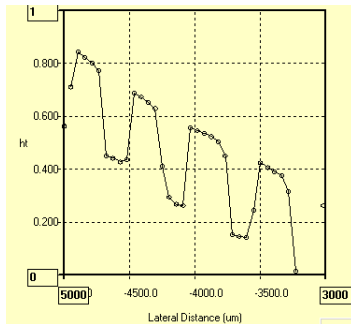
**Modulus & Hardness
Superhard Thin Film**



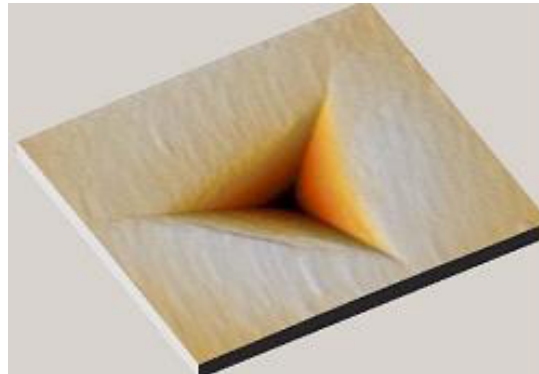
Polymer (Paint) Film



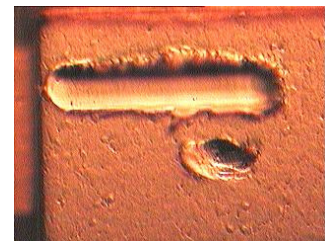
**Minerals
Coke Wall Strength**



Surface profiling



**Residual Berkovich Indent
Impression AFM**



Scratch testing

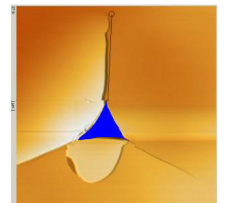
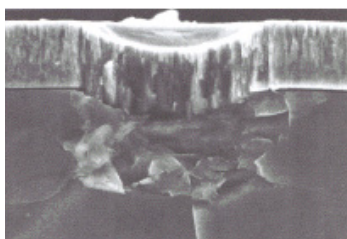
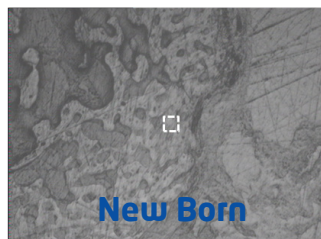


Image analysis

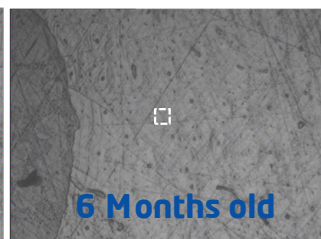
- Sub-nm depth resolution and extremely linear response LVDT
- High quality PZT expansion element, no heat generation
- Real time feedback control over application of load or depth
- Independent force and displacement measurement
- Robust design can withstand significant abuse
- Reliable performance for many years
- Almost immune to mechanical breakage unlike competitor's instruments
- Periodic calibration is not required



Damage investigation

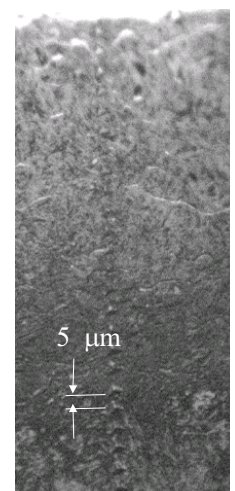


New Born



6 Months old

Biology - Bone growth analysis



**Surface
modifications**

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