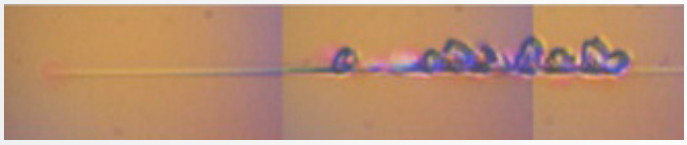
High Precision Scratch and Wear Testing

Scratch and wear testing are prominent measurement techniques when applications require contact and motion between two materials (e.g., brake pads, ball bearings, and automobile engines). Nanomechanics uses our ultra-high resolution nanoindenters to provide quantitative scratch results via measuring nanometers while moving millimeters.

Our capabilities for metals, ceramics, polymers, composites and films include characterizing scratch hardness, mar resistance, coating adhesion, failure modes, and film delamination with efficient results.

Scratch and wear testing is available on many Nanomechanics products, including the iNano, iMicro, and NanoFlip technologies. The Nanomechanics scratch kit is included with the testing method, along with a diamond indenter tip.

Features
Critical load
Mar resistance
Scratch depth, width, and cross-profile topography
Post-test material recovery
Pre- and post-scratch scanning
Multi-cycle scratching and wear
TipGuard™ feature
Scratch area and volume
Rotation of indenter (orientation)
Surface slope correction
Electromagnetic force controlled
High resolution capacitive displacement measurement
Constant or progressive loading with scratch distance
Compatible with NanoBlitz 3D surface topography
User specified scratch angle (x-y motion)
Multiple indenter geometries (cones, sphere, pyramids) and materials (diamond, tungsten carbide, sapphire, steel)



Spallation during scratching on a low-k thin film.

Specifications	
Minimum Normal Load	10 µN
Maximum Normal Load	50 mN (InForce50) 1000 mN (InForce1k)
Maximum Displacement	20 µm (InForce50) 40 µm (InForce1k)
Scratch Area Available	~800 mm^2
Maximum Scratch Speed	500 µm/s
Maximum Scratch Distance	2.5 mm

Contact Nanomechanics, Inc. today to find out how you can add the capabilities of nanoindentation to your lab in as little as 3 days.

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