2D & 3D Imaging

Imaging Options with the NanoTest Vantage

In order to target/ avoid specific structures on samples, the NanoTest Vantage is equipped with several imaging options. These options are also useful for reviewing residual damage post indent/ scratch/ impact.

The system is equipped with a multiple objective microscope and side-view optics as standard, and the user can then choose to add additional capability such as high temperature optics, an in-situ 3D profiler, or an AFM.

How it works

The sample stage features five pre-set positions:

- 1: High temperature optics
- 2: NanoTest (Low Load Head)
- 3: AFM
- 4: MicroTest (High Load Head)
- 5: Multiple Objective Microscope

The sample (6) automatically moves between the loading heads and the imaging modules via software control. The high accuracy stages used by the NanoTest Vantage guarantees a repositioning accuracy of 200 nm.

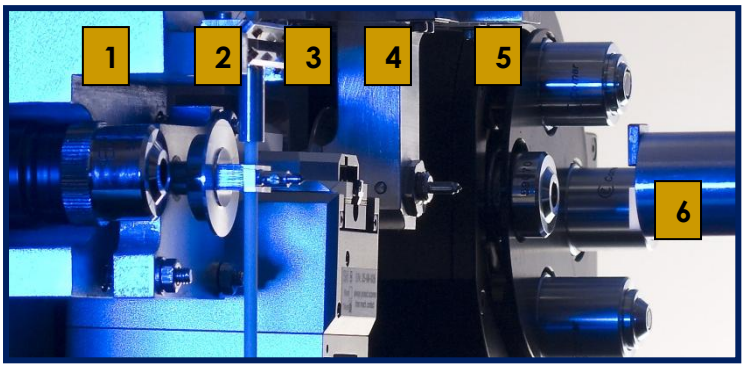


***Figure 1**: Positions of imaging options on the NanoTest Vantage*

Included with your NanoTest Vantage

Multiple Objective Microscope

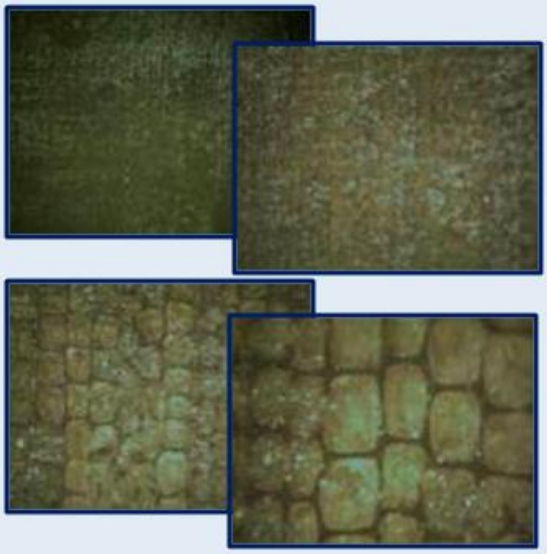


Figure 2 shows images of wood cells taken using the different lenses available on the multiple objective microscope. All four lenses are mounted on a precision turret and are selected remotely via the software.

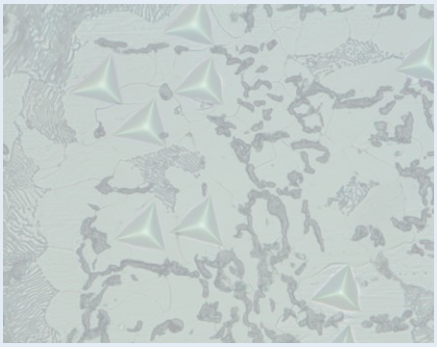


Figure 3 shows indents on a cast iron sample. Indents were precisely placed in order to avoid the ferrite/pearlite structures seen on the sample.

Side view optics

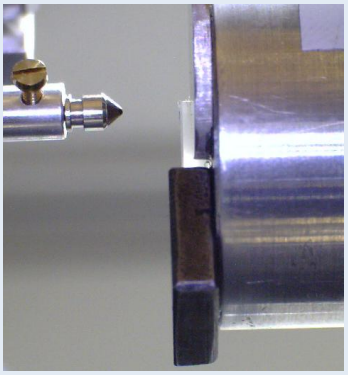
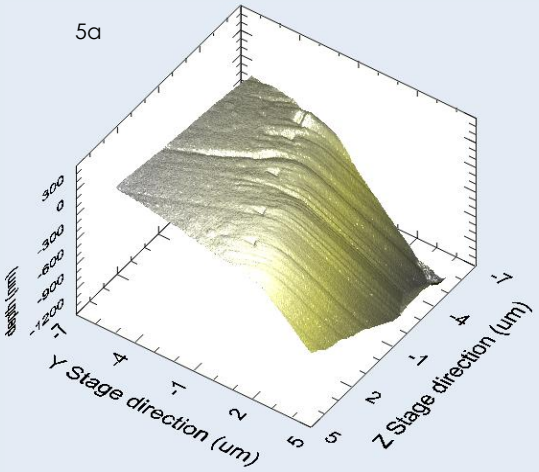


Figure 4: The view from the side-view optics, which allow visualisation of probe-sample contact.

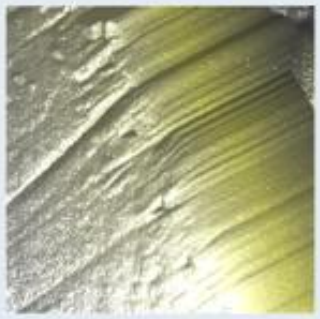
Additional Options:

1.In-situ 3D profiler

5a



5b



5c

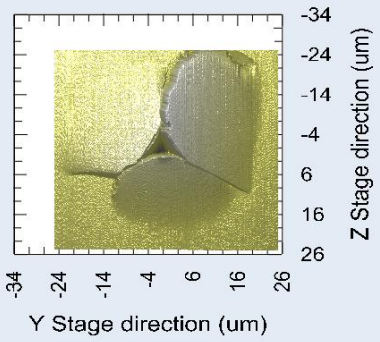
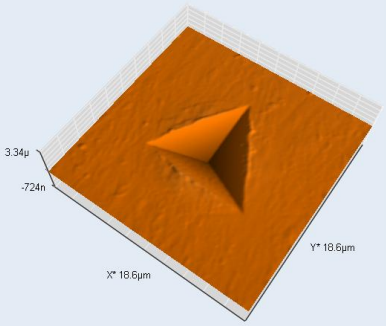
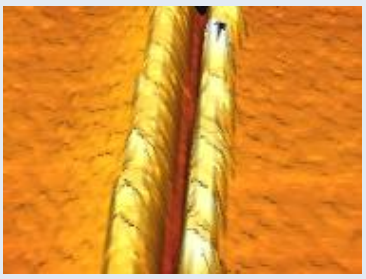


Figure 5a,b show five indents positioned on AlTiSiN with nm accuracy and positioning and 5c shows cracking in Fused Silica. (Scan range 200 µm x 200 µm, stage Resolution 2 nm).

2. Single or Dual mode AFM





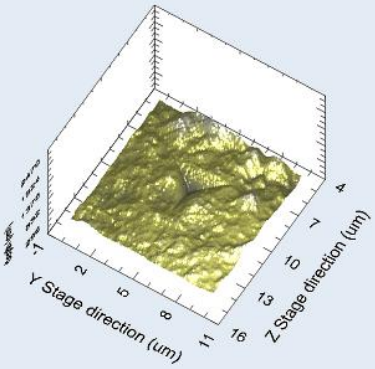


Figure 6 shows an AFM image of an indent in a polished bearing steel sample. (Scan Range 110 µm x 110 µm). Available in contact only or contact/non-contact modes.

3. High temperature optics

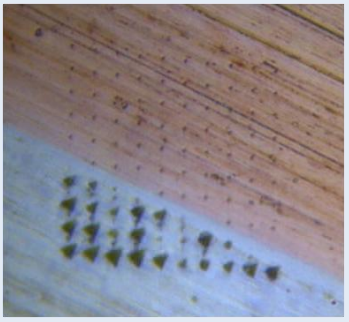


Figure 7shows a grid of indents taken across a Sn/Cu solder joint at elevated temperature.

- **Nanometre precision in range of 2D & 3D Imaging options**
- **All-in-one nanomechanical testing centre**

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NanoTest Vantage