



# DektakXT

## Standard Operating Procedure

Operations highlighted in red are for  
Quick Start

# Loading the Sample

Click the **Unload Sample button**  on the toolbar above the Live Video Display to move the scan stage forward 55mm (two inches). You can now conveniently place a sample on the sample fixture remove it without risk of damage to the stylus or the sample. **DO NOT** load your sample if the stage is positioned below the stylus (see Figure 1).

Click the **Load Sample button**  to move the scan stage backward its home position. Use the manual stage controls to fine-position the area of interest on the sample beneath the stylus.

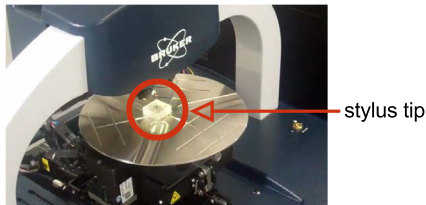



Figure 1: Sample Loaded on the Theta Sample Fixture (Chuck)

You must slowly lower the tower assembly to bring the feature that you want to measure into focus in the Live Video Display. To do this, click the **Tower Down button**  on the toolbar above the Live Video Display. The tower assembly will begin to lower towards the the stage. Use the X and Y coarse-adjustment levers (see Figure 2) to position your sample underneath the styus. **DO NOT** use your tweezers!

You can adjust ilumination with the slider bar at the bottom right of the Live Video Display.

## Adjusting the X-Y Position

To position a sample using the manual sample-positioning stage controls:

1 Ensure the stylus is not touching the sample surface. If it is, click the Tower Up button on the toolbar.

2 Position the scan start site by using the X-Y positioning levers.

- Pull the lever below the front of the platform for coarse X movement.
- Pull the lever below the left side of the platform for coarse Y movement.
- Use the respective knobs to finely position the sample.

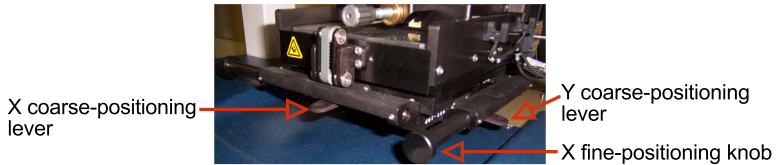


Figure 2: X-Y Positioning Levers on the Manual Sample-Positioning Stage

## Taking a standard measurement

The most common measurement performed on the DektakXT system is a Standard manual 2D measurement, which consists of a single trace along the sample in the Y direction (that is, along the front-to-back axis). Scans can range from 50um to 55mm.

- On the Measurement Setup window (see Figure 3), set your range, length, duration and stylus force.
- A range should be chosen that is just greater than the step height being measured. A range smaller than the step height being measured will result in the scan hitting an upper or lower limit. Too large of range will result in less resolution over the length of the scan.
- The stylus force depends on the surface of what's being measured. For scans along a softer surface like resist, a stylus force of 3-4mg should be used. Anything higher will scratch the surface. For harder metals a stylus force of around 10 should be used. Anything lower will result in lower resolution and more noise.
- Length refers to the length of the scan. Scans can range from 50um to 55mm.
- Duration is the time it takes to complete the desired scan length. As a general rule of thumb, it should take about 10s for every 1000um.

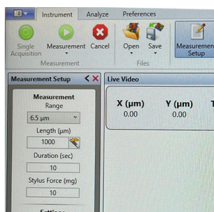



Figure 3: Measurement Setup window

- Click the **Single Acquisition** button 
- Observe the measurement in real-time in the Data Acquisition window. If the scan hits or exceeds the top or bottom border of the Data Acquisition window, increase your range parameter.
- At the end of the measurement, the Data Analysis window appears (see Figure 4). If desired, click Save> Dataset.
- **Level the graph by moving the M and R cursors to two positions you know to be on the same plane.**
- **Right click and select 'Level - Two Point Linear'.**

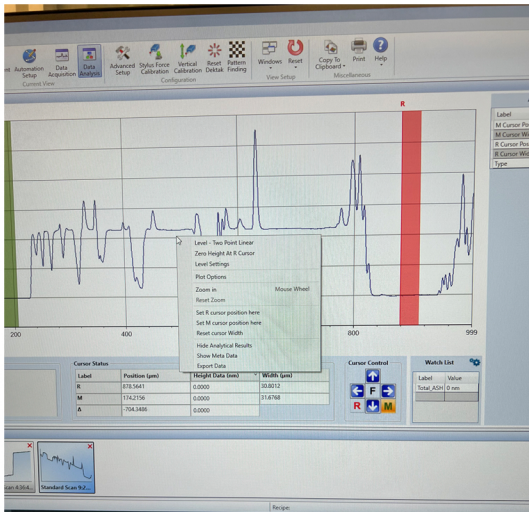




Figure 4: Data Analysis Window

- Measurement data will be displayed under the 'Cursor Status' box.
- Right click and click 'Export Data' to save the data as a csv file. Otherwise, click on the **Save** button. 

## Unloading a Sample

Click the **Unload Sample** button . Wait for the stage to stop moving before taking your sample.