

GENERAL PROCESS AND OPERATION SPECIFICATION

Dektak XT Profilometer

I. SCOPE

The purpose of this document is to describe requirements and basic operating instructions for the Dektak XT Profilometer. This tool is intended to measure thickness variation to complement deposition or etching processes.

II. SAFETY

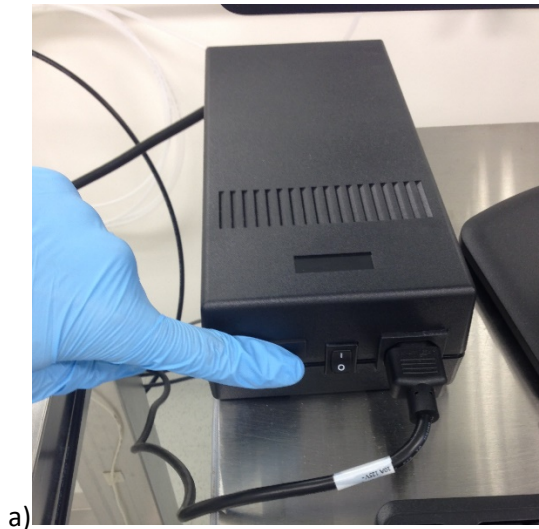
- A. This machine's detailed safety information can be read in the User Manual.
- B. Whenever possible, keep the protection hood down.
- C. In the unlikely case of a sudden breach of pressurized gas within the system, move away from the system promptly to avoid collisions from very high velocity particles.

III. APPLICABLE DOCUMENTS, MATERIALS AND REQUIREMENTS

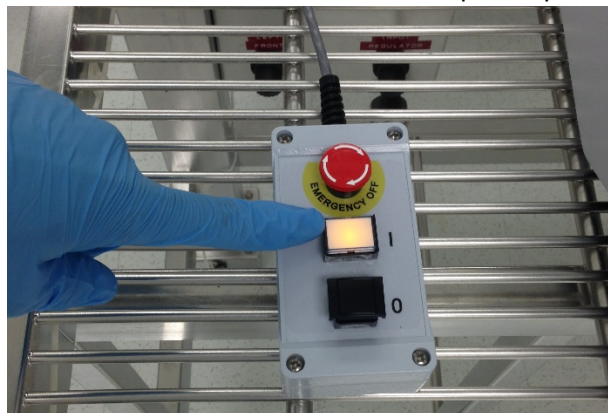
- A. For more information about the physical description and operation of the Dektak XT Profilometer, refer to the User Manual located next to the Dektak tool.
- B. Also see the Supplemental User Instructions located next to the Dektak tool.

IV. OPERATION

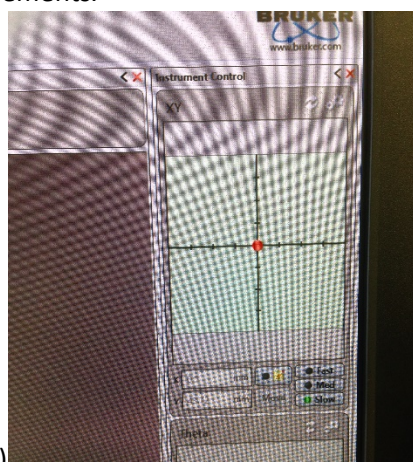
1. Switch on the black power supply



2. Press the on button on the machine's power panel



3. On the computer, open the Vision64 software
4. Click "Ok" when a message about initializing the XY directions appears and let the system initialize.
5. Click "Ok" when a message about the Theta initializing appears.
6. Load sample
 - a) Open lid if haven't already.
 - b) Click "Unload Sample" on the toolbar above the Live Video Display to move the scan stage forward.
 - c) Load sample carefully onto scan stage and press "Load Sample" to move the scan stage back.
7. Move the stylus down to the sample by clicking "Tower Down." This brings the stylus down to make momentary contact with the sample then it will pick up slightly leaving room for the sample to be adjusted as needed.
8. Adjust the sample by using the Theta control to set the proper angle desired if your sample is not placed perfectly the way you want it.
9. Adjust the sample by using the XY instrument control located on the top right of the program. You can control where the stylus is by clicking the red dot and dragging it in the direction you want to move. Set the cursor just below where you want to begin your measurements.



- a)
10. On the left window of the Measurement Setup screen, there are settings for length and time. Length should be somewhere between 500 and 2500 (longer for more area

covered) and time should be anywhere from 10 to 60 seconds. Shorter is usually good enough, but longer will give more precise data.

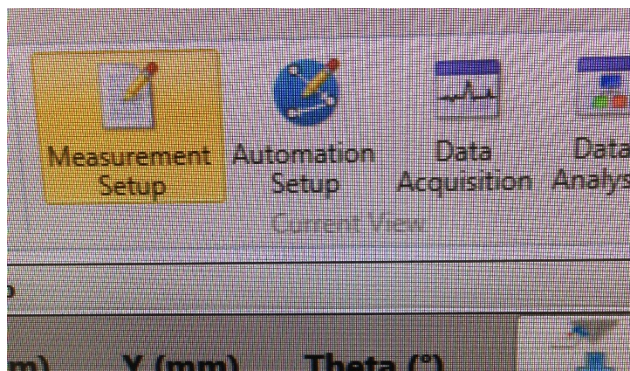
11. Run measurement

- a) Close lid if haven't already
- b) Click "Measurement" play button in the top left of the program and wait for measurement to happen.

12. Analyze your graph.

- a) To measure thickness with the software follow this procedure:
 1. Enter the 'Data Analysis' window (top, middle button)
 2. Move the R and M vertical guidelines on the data analysis window to positions that the graph should be level.
 3. Press the data leveling button to bring up 'Data Leveling Settings'
 4. Press Calculate. The graph should now be level excluding actual elevation changes.
 5. To easily measure this change from one step to the next, move R and M to positions on the graph that you would like to know height difference. At the bottom of the screen under 'Cursor Status', Total Profile lists this height difference.
- b) If you notice your graph is angled upwards or downwards, this means your sample is not level which is not ideal. This can be fixed the following way:
 1. Open lid
 2. Turn the stage leveling knob either clockwise or counterclockwise depending on sample's situation and run another measurement.
 3. Repeat this process until the graph displays a level sample.

You can toggle between the "Data Acquisition" tab and the "Data Analysis" tab to view different graphs of the same measurement. "Data Acquisition," by default, gives μm vs. μm and "Data Analysis" gives A vs. mm.



11. When finished measuring, click on the “Measurement Setup” tab and click “Tower Up” to raise the stylus back up.
12. Unload the sample carefully then click “Load Sample” to put the scan stage back into place.
13. Exit software and turn off the machine & power supply.

NORMAL OPERATION

SIGNATURES AND REVISION HISTORY

- a. Author of this document: Alex Shammai
- b. Author Title or Role: Student Worker
- c. Date:
- d. Revision: Original Issue

Approvals:

Technical Manager Signature: _____

Date: _____

Revision History:

Revision	Author	Date
Original Issue	A. Shammai	
Rev A	Evan Richards	
Rev B		
Rev C		