



Filmetrics Profilm3D

Safety

- To avoid electrical shocks, do not use the system if it is missing panels and electrical equipment is exposed.
- Do not have your hands near the tool when the stage or optical head is moving.

Allowed Materials and Processes

- Max substrate size: 1mm to 100mm+ in diameter and up to 5 mm in height.

Restricted Materials and Processes

- Do not place wet or dirty substrates on the stage.

Important Equipment Notes

- Never bump the objective into anything.
- Do not change the zero position in the software.
- Verify that you will not hit the sample when rotating the objectives.
- Verify that you will not hit the sample if you enter a Current Position in the Focus tab or for X and Y in the X-Y Stage tab Move To box.
- The 50x objective working distance (WD) is 3.4 mm. The z-zero position is not set at zero from the stage to help avoid bumping the objective. Focusing with the 50x is more like 1.5 mm when using a normal Silicon wafer.
- 5x objective working distance (WD) is 7.4 mm. Do not turn the two silver knobs on the 5x objective. 5.5 mm is likely what will be the distance for the same zeroing reason stated above.
- You should not have to adjust the stage tilt very much if at all. If you find you need to, contact staff to get help.

Operating Procedures

1. Turn on/wake up this computer and login. The password for BZ-ECE-PROFILM\Operator1 is "filmetrics". You may also login using your NetID and password.
2. Turn on the Accurion vibration isolation table with the switch on the back. Make sure the blue ISOLATION LED is lit and stable. If it does not turn on or does not stop blinking after thirty seconds, press the START/STOP button. If it still does not turn on, request help from staff.
3. Turn on the Profilm3D using the power switch in the back.
4. Open the Profilm software from the Desktop and wait for the system to initialize. The measurement head will move up and down and the stage will move to the back left and then back to the center. Stay clear during these operations.
5. After ensuring that the stage is empty, click the Load/Unload button to move the stage out from under the objectives. Load your sample on the stage and verify that the objectives will not hit the sample when you move the stage back to the central position. Press the white circle in the center of the arrows in the X-Y Stage tab to bring the stage back to 0, 0.
6. Use the arrows in the X-Y Stage tab to navigate the objectives over a feature of interest.



7. Use the z-arrows in the Focus tab to bring the sample into focus. You will likely have to move the stage back and forth to find your features while you adjust the z height. The typical procedure is to focus the fringes on the lowest part of your sample.
8. Set up your scan.
 - a. Set the backscan to move down some number of micrometers from the focal length.
9. Click start. Avoid movement while the tool finishes measuring.
10. Finish
 - a. Click the Load/Unload button.
 - b. Remove your sample.
 - c. Enter 10000 um or 10 mm in the Current Position under the Focus tab and hit Move.

Troubleshooting

- Warning – Low Signal Intensity
 - Click “Okay”
- Error after running a baseline
 - Make sure you are using the sample and reference at the right time.
 - Accept the error and try your sample. Most often, you will get this error when someone else has used a different material for the reference.
- The thicknesses are not close to the expected value or the goodness of fit is too low.
 - Check that the thickness you expect is within the range in the “Film Stack” tab in the recipe editor.
 - Redo the baseline.