Karl Suss Printer

Daily Startup Checks & Operational Verifications

Roger Robbins 5/15/2008

Purpose

This document defines daily startup procedures and performance checks for the Karl Suss Contact Printer in the NSERL Clean Room. The purpose is to make sure the tool is operating properly so that a user can operate the tool without encountering operational problems.

Daily PM Tasks

Startup

This step involves starting up the tool and checking for problems.

- Sign in to the logbook
- Turn on the lamp power supply under the table
- Wait 5 min for warmup
- Turn off the main console electronics
- Fire the gun by pressing the Start button just under the off/on switch
- Turn on the main console electronics
- Wait 15 min for system warmup
- Hit “LOAD” on the table consol for the machine to run self-check programs
- Load a clear 5” test mask on the 5” mask holder and install
- Load a clean 4” wafer on the 4” wafer holder and load into the system - making contact between wafer and mask using the “Soft Contact” exposure mode.
- Press the “Lamp Test” button to check light intensity
- Press the “DISP” button once to display the light intensity – record in the logbook
- Press the “DISP” button for 5 sec to read the cumulative lamp life – record in the logbook
- Press the “DISP” button again momentarily to return the display to “power”

Operational Verification/Qual

This section deals with operating performance and making sure that the system is ready for users to process material. This does not verify spec performance of the tool process.

- Continue the process flow by pressing “F1” and “ENTER” to raise the microscopes

- Then press “Align/Contact” button on the console to cause the wafer to press against the mask in “Soft contact” mode
- Inspect the interference rings produced by the air gap between the mask and wafer.
    - The rings should be few in number and randomly wavy to indicate close contact.
    - If the rings are many in number and are close together, there could be a wedge gap between the mask and wafer which would create patterns “out of focus”
    - If the rings are dense and concentric about a point, there is probably a particle of many microns size between the mask and wafer, or between the holders and the backside of the mask or wafer.
    - If problems are encountered call the tool owner for resolution of the issue.
- If all inspections indicate that the tool is operating properly, then leave a note in the Logbook that the “System is ready for operation.”

Quarterly Qual Tasks

This level of performance checks involves verification of a full lithography process that assures that a user would receive spec performance from the standard process flow. The tool evaluation will be a part of a full lithography process involving mask making, and exposure of the pattern onto a wafer via the Karl Suss contact printer and then development via CPK processing. Evaluation of the results and interpretation of defects and faults will be required to identify which tool caused the problem.