Equipment Description

The Equipment – evolution-64

OpTool Nano Imprint Lithography Technologies

Evolution-64 Nano Imprint Lithography systems from OpTool is fully automatic manufacturing system equipped with polymer stamp manufacturing and final substrate imprint modules. The systems is full area imprint, using Polymer stamp as intermediate stamp. All process parameter will be saved and recall as recipes. The system will produce polymer stamp from indicated stamp and replicate the structure on final (coated) substrates.

Scope of the system configuration:

The system is two independent fully automatic stamp-making and imprint system for 4-iinch substrates with maximum throughput of 120 wafers per hour including the following list:

- Silicon master stamp delivered in cassette: 6-inch semi-standard silicon with single flat wafer in the cassette.
- Pre Coated Wafers to be imprinted: 4-inch sapphire wafer semi-standard with single flat, thickness 0.65 mm. The wafers delivered in cassettes to system.
- Two pre-coated PET carrier foil, one for each line, length of each foil will be at least 1000 m.
- Two Foil System to handle Foil handling with foil adjustment for feed the foil into the system.
- Stamp coater: One spin coater including chemical dispense arm, pumps and backside and edge-bid cleaning.
- Chemical feed: 3 container for Polymer stamp resin, Solvent for cleaning (Isopropanol alcohol 99%) and waste container, each as 10 litters can.
- Automation: included one Dual-arm robot and one pre-aligner and wafer scanner for mapping wafers in the cassettes for wafers and stamps alignment and transport between all stations.
- Two independent (copy exactly) process chambers each with integrated temperature, pressure, UV light, foil application and demolding parts and controllers. Effective imprint area: 100 mm-diameter circle.
- Mini-environment with HEPA filter, Di-Ionizers, exhaust and air-flow management for keeping the process and system in a class 10 condition.
- Automation:
    - The process is defined in Recipes. In each recipe all process parameters can be set including Stamp number, W/PS (NO OF WAFERS PER POLYMER STAMP).
    - There is system setting parameters e.g. Foil-feed length, HEPA filter air speed, and all other parameters that related to system and its safety.
- Record and Logging: There is one log as system LOG for error and system information.
- Other process LOG can be added.