

UMF Equipment – Multisource Thin Film Deposition System

Kurt J. Lesker PVD 75

Thin film deposition is an important process in the opto-electronic and semiconductor devices fabrication. Physical Vapor Deposition (PVD) is a group of techniques which vaporizing or sputtering solid source material under high vacuum and then redepositing thin film of material onto a substrate surface. The two most common techniques of PVD are Sputtering and Thermal Evaporation.

Magnetron sputtering uses magnetron to generate a plasma within a vacuum chamber. Ionized gas atoms collide with the target material and sputter atoms or molecules from the target surface and condense a thin film on the substrate. Sputtering allows high-quality and highly adherent thin film deposition with precise thickness control.

Thermal evaporation uses resistive heat source to heat the target material until it reaches the vaporization temperature. The vapor stream traverses the high vacuum chamber and coats the substrate, forming the thin film. This process may not be suitable for materials with high melting points or materials that are prone to degradation at high temperatures.

The KJLC PVD 75 has robust and versatile chamber design with good system base pressures and short pump down time. The software control system provides intuitive and reliable recipe in deposition process control.

Features / Specifications:

- High-vacuum chamber, base pressure better than 5×10^{-7} Torr
- Substrate size: Up to 6"
- Substrate rotation: 0 – 20 rpm
- Substrate heating: N/A
- Sputtering source: 500W DC source
- Thermal source: 400A 2kW
- Mass flow controller: 0 - 100 sccm
- Thickness control: eKlipse deposition control
- Uniformity accords 6" wafer: better than +/-5%
- Sputter target: 2" diameter 0.375 thickness maximum, with TORUS® Mag Keeper™ and "elastomer" bond
- Sputter target available: Aluminum, Chromium, Copper, Gold, Silver, Titanium
- Resistive heat source: Tungsten pan trough boats 140A

Please refer to supplier information page for further details of the system:

<https://www.lesker.com/process-equipment-division/thin-film-systems/pro-line-pvd-75-deposition-platform.cfm>

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