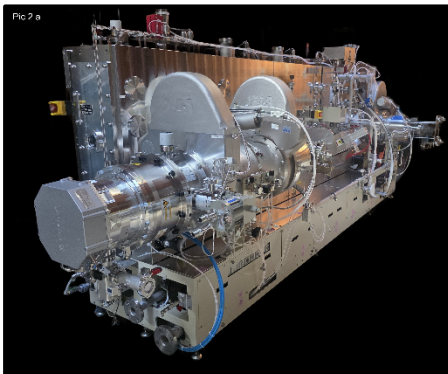


Ulvac SIV 500 ITO Sputtering System – Technical Specification Sheet

The Ulvac SIV 500 is a compact, high performance magnetron sputtering system designed for depositing transparent conductive oxides (TCO) such as Indium Tin Oxide (ITO). ITO is a clear conductive material widely used in touch screen displays (ex. cell phones, laptops, ATMs). OLED displays, sensors, photovoltaics, thermal windows, EMI shielding, and many other applications.

Engineered for R&D labs, Universities, small scale production, and device prototyping, the SIV 500 provides quick and stable vacuum conditions, uniform thin film deposition and versatile process control. The unit supports metallic and dielectric sputtering and is known for exceptional reliability and low operating costs.



System Specs:

- System is optimized to deposit transparent conductive oxides (TCO) specifically ITO.
- System includes one process station for traditional metal deposition (configured for Al)
- The SIV 500 can process substrates that fit on 500 x 500 mm carriers.
- System uses side sputter technique to minimize particle generation. Carriers are set on edge with the cathodes and targets perpendicular to the floor
- System utilizes a L/L and a vacuum system with 12" conductance to quickly achieve a low base and crossover pressure, increasing throughput
- The process module features a pump stack with a 12" turbo/water pump and a cryo pump.
- System uses process cooling water to keep the cathode/targets, pumps and power supplies at a constant temperature.
- System uses both a pulsed DC and Rf magnetron. The magnets are driven by a worm drive mechanism that allows various speeds to evenly distribute the magnetic field.

Advantages of both Pulsed DC and Rf Magnetron Design:

- ITO deposition requires pulsed DC or Rf magnetron sputtering to prevent charge build-up and arcing at the target. While DC delivers excellent film quality (especially for large substrates) it can be unstable at startup and must be slowly ramped. RF provides a stable plasma and enables faster, higher-power DC ramping without arcing. It also cracks O₂ to maintain precise ITO stoichiometry for optical performance.
- Unmatched flexibility for advanced ITO process development
Coupling DC and Rf magnetron enables a stable plasma ignition (Rf) and low-arc reactive sputtering across a wide range of pulsed (DC) ITO process conditions
- Enhanced uniformity and extended target life
The SIV-500's moving magnetron, driven by a precision worm-drive mechanism, sweeps the erosion zone across the target surface. This minimizes localized wear and nodule formation while delivering highly uniform ITO films over large substrates.

Hardware Specs

- ULVAC SIV 500 Inline reactive sputter
- Configured for Al & ITO Deposition

