

TECHNICAL SPECIFICATIONS OF THE EQUIPMENTS TO BE PROCURED

A. Specifications for Thin Film Coating System that has RF-DC Sputtering and Thermal Evaporation are as follows:

1. RF-DC sputtering:
 - a. Vacuum Chamber:
 - Should be made of SS-304 material with provision for water cooling.
 - Dimensions not less than 40 cm Dia X 40 cm Width X 50 cm height.
 - Chamber should be suitable for magnetron mounting, thermal source and source shutter
 - Should have provision to prevent debris to go into the vacuum valve and electrodes.
 - Easily cleanable
 - Built to hold a vacuum level lower than 10^{-6} mbar.
 - Provision to rotate the targets and fixing suitable metal masks
 - b. Vacuum generation:
 - Should have dry scroll pump with displacement capacity of atleast 10 m³/h and turbo molecular pump with pumping speed of 400 lt/s for nitrogen
 - Should have liquid nitrogen trap
 - All the vacuum lines and valves should be made of stainless steel (non-corrosive) materials.
 - Vacuum generation should be better than 10^{-6} mbar
 - Appropriate vacuum gauges should be provided
 - c. Sources for Magnetron
 - Provision to hold two numbers of 2" diameter sputter sources
 - High power Nd-Fe-B magnets
 - d. Power Supply
 - For DC sputtering, suitable power supply should be provided
 - For RF magnetron, atleast 300W RF power at 13.56 MHz should be provided
 - e. Substrate holder
 - Should be able to accommodate 4" substrate
 - Motorized rotation controllable from outside.
 - Temperature upto 800°C with controller
 - f. RF/DC selector switch with 2-in-2-out RF/DC switch box to direct the RF/DC power in between two magnetrons.
 - g. Mass flow controllers for Oxygen/ Nitrogen and Argon
 - h. Thin film deposition monitor
 - i. External water chilling unit
 - j. Built-in but independent Thermal evaporation facility with separate controls and power supply system
 - k. Should have very low leak rate less than of 3×10^{-9} std. cc/sec.
2. Thermal Evaporation:
 - a. Glass Chamber with Vacuum generated by TurboMolecular pump with pumping speed of 400 lt/s for nitrogen – with liquid nitrogen trap – backed by Scroll pump with displacement capacity of atleast 10 m³/h
 - b. Must have substrate heating arrangement

- c. Boats/ holders for the evaporation sources
- d. Thin film deposition monitor
- e. All required accessories, cooling systems etc. should be supplied

3. General Terms

- a. Installation and Standard, Additional warranty for 2 years must be Quoted on yearly basis.
- b. Should provide complete set of operating manual should be provided & training for our personnel
- c. The Tender should provide onsite support service.