

Technical Specifications for Electron Beam with Thermal Evaporation Deposition System - 01 No.

- **Vacuum Coating unit**
 - Chamber with water cooling of approx. 450mm (W) X 450mm (D) X 550mm (Ht) dimension
 - Front opening door for smooth loading and unloading of substrates
 - Toughened glass view port on front door compatible with high vacuum
 - Set of thin Stainless steel sheet liner to prevent the deposition on chamber wall
 - Chamber with proper number of ports for Oil Diffusion pump, Rotary pump, gauges, evacuation, gas feeding valves, vacuum monitoring gauge heads etc
 - Chamber having all stainless steel components and sub-assemblies must be electro-chemically polished
- Direct drive Rotary vacuum pump, 250 lit/min or more giving vacuum of 1×10^{-3} mbar or better under no load condition
- Oil Diffusion pump, 700 lit/sec or more giving vacuum of 1×10^{-6} mbar or more with Cryo trap
- Stainless steel Plumbing lines
- Provision for Turbo pump fixing
- Mechanically interlocked 3 way combination valve for backing and roughing operation
- Manually operated butterfly valve to isolate Oil Diffusion pump
- Pirani and Penning Gauge with 2 Nos. of Pirani sensors & 1 Nos. of Penning sensor for monitoring vacuum in combined range 1×10^{-3} to 1×10^{-6} mbar of chambers with analog display
- HT/IB Cleaning for an uniform glow discharge
- Manual operated source shutter to cover Thermal evaporation / E beam source
- Fine control needle valves for admittance of gas into the vacuum chamber
- Circular work holder of aluminum having min 300 mm or more diameter
- Digital panel meters for LT/HT primary current and LT secondary current
- Unit operation with 220 V A.C, 50 Hz, Single phase power supply, 15 amps supply
- Thermostat switch for protection of oil diffusion pump
- Safety panel switches to cut off HT/LT/RH power supply, if doors open
- Ultimate vacuum~ 1×10^{-6} mbar or better
- Housing Cabinet
 - With a front panel for mounting gauges, controls for thermal or E beam deposition operation, Substrate heater control, Rotary drive control for comfortable operation
 - Valve control knobs on front panel
 - Mounted on a 4 castor wheels for mobility and easy maneuverability
- **Thermal evaporation electrical feed through and evaporation source made of electrolytic pure copper, (LT and HT Evaporations) 200 amps or more current capacity delivering different power supply**
 - Thyristor controller for output power
 - Separate digital panel meter for LT Secondary current
- **Electron Beam Gun, four pocket with 180° - 360° E beam, 3 KW or more with single phase power supply**
- **Safety Devices**
 - Safety panel switches to cut off source power supply, if doors open
 - Vacuum switch interlocked with source power supply for avoiding switching-ON of power sources without vacuum
 - Electrical circuit breaker against Overload or Shorting
 - Overload protection for Rotary and Oil Diffusion pumps

Optional Accessories Required for Electron Beam with Thermal Evaporation Deposition System

- Compact Water Chiller Unit with Re-circulating pump, Storage tank, Valves gauge etc for closed loop water cooling

- 0.5TR or more Capacity, 1PH power supply, 1.55 KW or more Power, 9.7 amps Current
- 25 lit or more Storage tank
- 10/4 (LPM/BAR) or better Primary pump
- 70 kg or less Dry weight, ½” BSP Inlet/Outlet
- Quartz Film Thickness Monitor with water cooled Crystal holder
 - 3 digits LED Rate display, Auto-ranging from 00.00 to 999 Ang./sec for rate display
 - 4 digits LED Thickness display, Auto-ranging from 0.000 to 999.9 k Ang.
 - Static thickness resolution of 1 Ang at minimum update rate
- Cold Finger
- Substrate heater with temperature min. 500°C or more with controlled rotation
- Tungsten helicals
- Tungsten baskets
- Molybdenum boats, 200 amps or more
- Graphite crucibles
- ‘O’ Rings & Gaskets
- Rotary pump oil, min. 5 lit/pack or more
- Diffusion pump oil, min. 200cc or more
- Pirani Gauge head
- Set of Oring gasket, oil seal, Exhaust button, Inlet & Oil filter for Direct drive Rotary pump listed above
- Penning Gauge head
- Necessary Spares and Consumables
- Additional Warranty after completion of one year Standard Warranty: 2 years or more
- Installation free of charge
- **Payment condition: On bill basis on installation of instrument**