

**DEPARTMENT OF PHYSICS  
INDIAN INSTITUTE OF TECHNOLOGY DELHI  
HAUZ KHAS, NEW DELHI- 110016**

Date: 27/1/2012

**NOTICE INVITING QUOTATION**

**Sub: THERMAL VAPOUR DEPOSITION SYSTEM AND ACCESSORIES**

Please send your quotation for purchase of above said item(s) as per specifications given below. Your quotations should reach latest by 13/2/2012. Quotations are solicited only for the item manufactured by reputed company with proven past record of sales, supply and after-sale service.

<b>S. No.</b>	<b>Components</b>	<b>Specifications</b>
<b>I.</b>	<b>Bell Jar</b>	
(i)	Material	Metal/Stainless Steel (Copper coils should be soldered to the bell jar body for cooling water circulation. Outside Surface of bell jar should be properly finished and with proper high vacuum sealing)
(ii)	Typical Dimensions	Approx. 300 mm (inner dia) & 450 mm (height)
(iii)	Lifting mechanism	Manual operation
(iv)	Base Plate	Stainless Steel SS 304 (ground & electrochemically polished)
<b>II.</b>	<b>Chamber Components</b>	
(i)	LT Feedthroughs	1 No. of LT electrical feedthrough for evaporation with 200 amps current carrying capacity.
(ii)	LT Power supply	10V/ 200A provided with suitable monitoring and control units.
(iii)	Evaporation Source Holder	1 set for Central evaporation source holder should be provided that can accept filaments / baskets/ boats as evaporation sources.
(iv)	Source shutter	Manually operated source shutter with rotary shaft seal, to cover the evaporation source depending on requirement
(v)	Substrate Holder	To support adequate number and different sizes of substrates
(vi)	Substrate Heating	Uniform heating up to 500 deg C
(vii)	Quartz Film Thickness Monitor	Quartz crystal based thickness monitor, 0 to 999 $\text{\AA}$ , 4 digit thickness display.
<b>III.</b>	<b>Vacuum Pumping System</b>	
(i)	Rotary pump	Double stage with typical pumping speed of 250 lit/min
(ii)	Diffusion pump	Approx. 300 lit/Sec. or better with an appropriate heater

(iii)	Liquid Nitrogen Trap	Should be provided above Diffusion Pump
(iv)	High Vacuum Valve	Manually operated butterfly valve mounted above the diffusion pump.
(v)	Combination Valve	Consisting of both roughing & backing valves for carrying out roughing & backing operations
(vi)	Air Admittance Valve	Manually operated air admittance valve to release vacuum by admitting air/dry nitrogen gas into the bell jar.
(vii)	Pirani Guage	To independently monitor the roughing & backing pressure on the Pirani gauge controller (digital display) from 1000 m.bar to 0.001 m.bar range.
(viii)	Penning Guage	One Digital penning gauge having a measuring range from $10^{-3}$ m.bar to $10^{-7}$ m.bar
(ix)	Vacuum Plumbing Lines	Vacuum Plumbing Lines made of Stainless Steel with necessary bellow adaptors to connect the vacuum system.
(x)	Ultimate Vacuum	An ultimate vacuum equal to or better than $1 \times 10^{-6}$ m.bar in clean, cool, empty degassed condition with Liquid Nitrogen filled in to Liquid Nitrogen Trap.
<b>IV.</b>	<b>Housing Cabinet</b>	All the above components should be housed in an MS cabinet with a front panel for mounting Digital Pirani & Penning Vacuum Gauges, Diffusion Pump controller, controls for L.T operation and accessories such as Deposition Controller, Substrate Heater control etc, are also mounted on the same front panel to enable operational comfort. The unit should be mounted on strong wheels for mobility and easy maneuverability.
<b>V.</b>	<b>Safety Measures</b>	(a) Overload Protection (b) Power cut-off switches to be provided in the cabinet doors (c) All necessary circuit breakers (d) Interlocking of gate valve with power to avoid oil admittance in bell jar
<b>VI.</b>	<b>Optional Items</b>	(a)A list of recommended spares (e.g. boats, helicals, gauge heads, quartz crystal, orings, oil and vacuum seals etc.) along with their price should be provided. (b)HT Supply and Controller
<b>VII.</b>	<b>Warranty</b>	Minimum 1 year

## **TERMS & CONDITIONS COVERING SUBMISSION OF QUOTATIONS**

### **1. ESSENTIAL REQUIREMENTS**

- 1) Technical and financial bids **must** be put in separate sealed envelopes.
- 2) A compliance chart supported by relevant technical literature should be attached with the technical specifications.
- 3) If the items are of proprietary nature, please provide proprietary certificate from the manufacturer.
- 4) All INDIAN agents must provide agent certificate, IEC and central sales tax certificate.

**2. DELIVERY:** The rates quoted must be for FOB Delhi

**3. TERMS OF PAYMENT:** **100% post- payment** on delivery and satisfactory installation

**4. INSTITUTE'S RIGHTS :** IIT Delhi reserves the rights of acceptance or rejection of any or all quotations.

**5. VALIDITY OF QUOTATIONS:** Quotations should be valid at least for a period of 3 months.

**6. SUBMISSION OF QUOTATIONS:** Both **technical** and **financial** bids sealed separately must be kept together in a **sealed envelope**. **Item** and **due date** should be marked at the top of the envelope.

Quotations should be submitted/sent to the following address:

**Dr. G.V. Prakash**  
**Department of Physics, IIT Delhi, Hauz Khas,**  
**New Delhi 110 016, India.**