Government of India
Bhabha Atomic Research Centre
Laser & Plasma Technology Division
Trombay, Mumbai -85

REF: WORKS/LPTD/DRB/2021/ 122583 Date: 21/09/2021

NOTICE INVITING TENDER

Design fabrication testing supply and installation of Electron Beam deposition system with chamber, diagnostics and automation as per specification.

Start of tender: 24-09-2021
Due Date: 5-10-2021

1. Sealed Quotations are invited on behalf of the President of India by Director BTDG, Bhabha Atomic Research Centre, Trombay, Mumbai-400085 for the "Design fabrication testing supply and installation of Electron Beam deposition system with chamber, diagnostics and automation as per specification.", at L&PTD, BTDG, BARC, Mumbai as per the scope of work described in "Annexure B" of Tender document.
2. **Quotations are to be in printed letterhead / quotation format, which should consist of GST Registration Number registered with local ST authority / GST authority, PAN Number of the firm, etc. Quotations that are received in computer-generated form are to be construed as invalid and rejected.**
3. The quotations are to be submitted only through Registered / Speed post through Indian Postal Service.
4. The price part shall be submitted with taxes and duties quoted separately.
5. The quotations must reach, **Director BTDG** by **16:00 hours on due date** and must be sent in a sealed envelope ***superscribed*** with the above reference number and due date given above.
6. The address on the envelope should read: K.

   Director BTDG,
   Beam Technology Development Group
   Bhabha Atomic Research Centre,
   Trombay, Mumbai - 400 085.
   (Attn.: Devendra Bhale)
7. Income Tax @2%, surcharge, cess on Income Tax as applicable will be deducted from the payment made to the contractor.
8. Payment will be made after satisfactory completion of work. Payment will be released only through ECS.
9. Associate Director, BTDG, BARC, reserves the right to accept/reject any or all quotations without assigning any reason.

Yours faithfully,

Archana 20-9-2021

Dr Archana Sharma
Director BTDG

डॉ. (श्रीमती) अर्चना शर्मा / ARCHANA SHARMA
निदेशक / Director
किरणपुंज प्रौद्योगिकी विकास वर्ग
Beam Technology Development Group
भारत सरकार / Government of India,
भा.प.अ. केंद्र / B. A. R.C.
ट्रॉम्बे, मुंबई / Trombay, Mumbai - 400 085.

Annexure-B

Scope of the work:

1. Fabrication and installation of following as per specifications

SR	Description	Quantity
1.1.	Electron beam chamber, 1.1.1 The chamber should be compatible with existing gun and power supply 1.1.2 The gun shall be bottom mount 1.1.3 The gun has six crucible 1.1.4 The guns has pocket hardware that should be accommodated in the chamber. 1.1.5 The chamber should be integrated with existing Turbo molecular pump at site. 1.1.6 The chamber should be integrated with existing rotary pump at site. 1.1.7 The chamber should be integrated with valves available at site. 1.1.8 The chamber body and door should be water cooled 1.1.9 The chamber should allow mounting of QCM based deposition controller integration 1.1.10 View port from both sides and front with 250mm or larger toughened glass window 1.1.11 all necessary ports to integrate roughing and high vacuum 1.1.12 vendor shall provide clamps, O-ring etc. for connecting vacuum gauges and pumps to chamber 1.1.13 Should have shutters for control of coating 1.1.14 Should have arrangements for deposition controller and gun rotation 1.1.15 The chamber should have extra ports for future upgradation 1.1.16 The chamber ports, cooling line and should have adequate sensors for automation and safety of the system.	01
1.2.	Chamber top mounted Sample heater for 6" substrate for up to 600 degree Celsius The temperature controller should be full fledged temperature controller. With support for temperature ramp, dwell and preprogrammed recipes. The vendor has to supply spare heater components. The heater should be SCR based and transformer etc. shall be copper core and shall be properly earthed. The heater should work based on interlocks of vacuum and cooling water etc.	01
1.3.	Plasma cleaning electrode for substrate for DC power supply The vendor has to provide arrangement for DC plasma in situ cleaning of substrate. The vendor has to integrate the user provided power supply.	01
1.4.	Supply of control panel 1.4.1 interlocks integration with vacuum system 1.4.2 the control panel shall read status of vacuum valves, cooling water and door closing 1.4.3 the control panel shall provide user interface for vacuum valve operation 1.4.4 The control panel should have the computer based system for system operation	01

	1.4.5 The control panel should allow the	
1.5.	Gas mixing and supply arrangement 1.5.1 Test and integrate user provided MFC 1.5.2 Interconnecting lines with solenoid valves for gas manifold 1.5.3 solenoid valve for argon purge in chamber 1.5.4 Four port gas manifold for gas supply to chamber 1.5.5 The vendor shall automate this system so that EB is not operated when gas pressure is high 1.5.6 The plasma cleaning of substrate should be possible from the control panel	
1.6.	Mounting frame Steel frame powder coated with aluminum panels has to be supplied. This will be mounted on existing frame with some extensions provided by vendor	
1.7.	Graphite inserts for the EB gun 30cc The vendor has to supply the crucibles suitable to the user provided gun	15 no
1.8.	Development of automation and instrumentation of multilayer coating system 1.8.1 Vendor has to supply all computer and software required for up to 100 layers of multilayer deposition. 1.8.2 The vendor has to develop the software in the computer to allow data logging 1.8.3 The vendor shall provide the system with compatible to EB gun operation	1 set
1.9.	Cables and accessories The vendor has to commission the HV power supply with compatible EB gun and accessories in the box coaters system The vendor has to provide all support for installation, Powering, Earthing and safety aspects Vendor has to supply basic tools required for servicing of the power supply.	1 set
1.10.	Vendor has to supply any other accessories and consumables required for safe operation of system for one year	1 set
1.11.	Diagnostics to be used in the chamber. The vendor has to provide arrangements to mount on these on the chamber 1.11.1 Langmuir probe: The vendor has to provide a KF 25 port with a 4 pin feedthrough. The rating of the contacts should be 500V, 1A. 1.11.2 Token current: The vendor has to provide a suitable feedthrough for to measure token current. The size of port should be KF 25 port with a 8 pin feedthrough. The rating of the contacts should be 500V, 1A 1.11.3 Faraday cup: The vendor has to provide a suitable feedthrough to measure Faraday current. The size of port should be KF 25 port with a 8 pin feedthrough. The rating of the contacts should be 500V, 1A 1.11.4 Pyrometer: The vendor has to provide a suitable port to measure crucible temperature via pyrometer or thermal camera. The port should be protruding out of chamber by 100mm. The line should have arrangement for separate pumping.	1 set
1.12.	Integration with existing system of electron beam gun and power supply	1 set