



CENTRE FOR NANO AND SOFT MATTER SCIENCES

Arkavathi, Survey No. 7 Shivanapura, Dasanapura Hobli,
Bengaluru North 562162

Autonomous Institution under the Dept. of Science & Technology, Govt. of India

INVITATION TO TENDER

No. P12/000062/22-23

Date: 29 August 2022

To

The Centre invites sealed tender/bid from your firm for supply, installation and commissioning of the following scientific equipment.

Deposition System for Pulsed Laser Ablation

Tender document has been uploaded in GEM PORTAL, BID No. GEM/2022/B/2481370 dt. 29.08.2022, registered vendors can participate through GEM bidding.

- **Registered GEM vendors** can participate through the Bid no. GEM/2022/B/2481370 dt. 29.08.2022 and submit online bid in GeM portal.
- **Non-Registered vendors**, tender document is uploaded both in CPP Portal and CeNS website, link <https://www.cens.res.in/en/tenders> may duly be completed and submitted in a **sealed outer cover**, containing two **separate sealed envelopes**, clearly marked as “**Techno-Commercial Bid (Annexure III)**” and “**Price Bid (Annexure IV)**”, for identification.

The tender shall be addressed to **The Administration and Finance Officer, Centre for Nano and Soft Matter Sciences, Arkavathi, Survey No. 7, Shivanapura, Dasanapura Hobli, Bengaluru North 562162** marked with our tender reference number, due date and due time with stamp. The completed tender bids must reach this office in the combined sealed cover on or before **14.00 Hrs. of 19 September 2022**, through Speed Post / Courier / Registered Post/hand delivery.

Yours faithfully,

Sd/

Administration and Finance Officer

Encl: as above.

GENERAL INSTRUCTIONS

1. Definitions :

- a. The terms 'Purchaser' shall mean The Administration and Finance Officer, Centre for Nano and Soft Matter Sciences, Arkavathi, Survey No. 7, Shivanapura, Dasanapura Hobli, Bangalore North 562162.
- b. The term 'Supplier' shall mean the person, firm or company with whom or with which the order for the supply of Items/Equipment is placed.
- c. The terms 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an officer duly authorized intimating the acceptance on behalf the Purchaser on the terms and conditions mentioned or referred to in the said communications accepting the tender or offer of the supplier for supply of Items/Equipment.

2. **Delivery of tender:** The offer in response to the tender invitation shall be made in two separate envelopes, the first envelope containing Annexure III along with Compliance Statement. The second envelope shall contain only Annexure IV. The two envelopes shall be super scribed with "**Techno-Commercial Bid**" and "**Price Bid**" respectively. The two envelopes may be put in one outer cover, sealed and addressed to **The Administration and Finance Officer, Centre for Nano and Soft Matter Sciences, Arkavathi, Survey No. 7, Shivanapura, Dasanapura Hobli, Bengaluru North 562162.**The tender reference number, due date and due time should be clearly mentioned on the outer cover.

The tender fee and Earnest Money Deposit (EMD) is **NIL**

3. **Receipt of tender:** The tender must reach this office by **14.00 hours** on the due date. Late and delayed Tenders will be liable to be rejected.
4. **Validity of the offer:** (a) The quotation should be valid for a minimum period of 120 days from the date of opening of tender. If the day up to which the offer is to remain open is declared a closed holiday, the offer shall remain open for acceptance till the next working day.

(b) Quotations qualified by vague and indefinite expressions such as 'Subject to immediate acceptance', 'subject to prior sale' or any other riders will not be considered.

5. **Opening of tenders:** The firm shall be at liberty to authorize a representative to be present at the opening of the tender at the time and date as specified in the schedule. The name and address of the representative who would be attending the opening of the tender on behalf of the firm should be indicated in the tender or a proper letter of authority be produced before the meeting.

6. **Right of acceptance:** This Centre does not pledge itself and reserves to itself the right of accepting the whole or any part of tender or portion of the quantity offered and the firm shall supply the same at the rate quoted. In case any MOQ (Minimum Order Quantity or MOU (Minimum Order Unit) is applicable, the same should be mentioned specifically.
 - (a) No correspondence /discussions /visits whatsoever will be entertained on the subject unless specifically called by this office after opening the tenders for technical discussions/ price negotiations. Any violation of this will render the quotations invalid and the firm is liable to be blacklisted.
 - (b) The Purchaser reserves the right to call for techno-commercial/price negotiations. The firm should depute competent representative for such discussion / negotiations whenever called for and he shall be competent to take on the spot decisions.
 - (c) The firm may give any of their commercial terms, if required in their techno-commercial offer only, and price quotation should contain only price.
 - (d) Office stamps of tenderers must be affixed below their signatures.
 - (e) Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail.
 - (f) The firm shall provide Banking information for payment or any other purpose

7. **Delayed supplies:** In case of delayed supplies, liquidated damages at the rate of 0.5 percent per week or part thereof of delay with a maximum of 5 percent of the value of supply order/contract will be levied.

8. **Extension of delivery time:** As soon as it is apparent that supply dates cannot be adhered to, an application shall be sent by the Supplier to the Purchaser. If failure, on the part of the Supplier to deliver the Items/Equipment in proper time shall have arisen from any cause which the Purchaser may admit as reasonable ground for an extension of the time (and his decision shall be final he may allow such additional time as he considers it to be justified by the circumstances of the case). In case of

Letter of Credit the banking charges for the LC amendment will be on suppliers account.

9. **Guarantee and replacement:** The Supplier shall guarantee that the Items/Equipment supplied shall comply fully with the specifications laid down, for material workmanship and performance. The Guarantee should be as mentioned in the specification.

10. **Acceptance of items/equipment:**

a) Items supplied are subject to inspection and acceptance and the supplier should collect/replace the rejected items at his cost and risk.

b) The Items/Equipment shall be tendered by the Supplier for inspection at such places as may be specified by the purchaser at the Suppliers own risk, expenses and cost.

It is expressly agreed that the acceptance of Items/Equipment is subject to final approval by the Purchaser, whose decision shall be final.

11. **Banking charges:** All banking charges applicable outside India will be on **suppliers account**.

12. Please note that faxed/email quotations shall not be accepted under any circumstances.

NOTE : Preference will be given to 'Class-I local supplier' as per the Government of India Notification No. P-45021/2/2017-PP (BE-II) dated. 04 June 2020. Accordingly relevant documents should be submitted.

A statement showing local content is Mandatory

TENDER FORM

Tender Ref. No.

To

**The Administration and Finance Officer,
Centre for Nano and Soft Matter Sciences,
Arkavathi, Survey No. 7, Shivanapura, Dasanapura Hobli,
Bengaluru North 562162**

I/We agree to furnish required supplies/services as detailed in the Techno-Commercial Bid or such portions thereof as you may specify in the Acceptance of Tender/Supply Order at the prices given in the Price Bid in accordance with the General Terms and Conditions governing the contract/supply order enclosed hereto duly accepted on receipt of order for the same.

I/We agree to hold this offer open until _____ and shall be bound to supply/commission/erect the equipment and dispatch the same within the specified period.

I/We agree to supply and commission/erect the equipment and complete the whole of the work and hand over to the purchaser within the period of _____ weeks, from the date of receipt of intimation from you regarding acceptance of this tender/receipt of supply order.

I/We have understood the specifications and have drawn up the Techno-Commercial Bid in accordance with the requirements and have accordingly submitted the Price Bid.

I/We understand that CeNS reserves the right to reject any or all offers without assigning any reasons. It is also understood that the offers may be accepted either in whole or in part.

The details of remittance of Tender Application Fee and EMD are as under:

Details	Demand draft enclosed	Details of EMD Remittance		
		SBI Collect Ref No & Date		
(i) Tender Application Fee NIL	Yes/No			
(ii) Earnest Money Deposit: NIL	Yes/No			

If (ii) above is 'No', details of Certificate of exemption:

Date:

Signature and Seal of Supplier

Name & Address

TECHNO-COMMERCIAL BIDTender Ref. No. : **PI2/000062/22-23 dated 29 August 2022**

1. Name of Tenderer:
2. Due date & due time: **19 Spetember 2022 @ 14.00 hours**
3. Opening date & time : **Will be notified in our website.**
4. The tender shall remain valid for acceptance for 120 days, from the date of tender opening.
5. Amount of EMD – **NIL**
6. Amount of Tender fee – **NIL**
7. Schedule of requirements:

Sl. No.	Description	Quantity	Destination	Technical Specifications
			Split rates should be shown separately for (i) FOB/Ex-works, freight & insurance and for (ii) CIF/CIP Bengaluru, INDIA	

CONDITIONS FOR TECHNO-COMMERCIAL BID**TECHNICAL**

1. a) All available Technical Literature(s), Catalogue(s) and other data in support of the specifications and details of the item(s) should be furnished along with the offer.
- b) Approximate net and gross weight of the items offered shall be indicated in the offer. Packaging dimensional details should also be indicated in the offer.
- c) Insurance against all the transit and handling risks on a 'WAREHOUSE to WAREHOUSE' basis for a sum equivalent to 110% of C & F Cost shall be separately indicated.

d) SPECIFICATIONS:

Items/Equipment offered should strictly conform to our specifications indicated in Annexure V. Deviations, if any should be clearly indicated by the Supplier in their quotation. The Supplier should also indicate the Make/type and provide catalogue(s), Technical literature(s) and sample(s), wherever necessary along with the quotations. Test certificates wherever necessary should be forwarded along with the supplies.

2. Any firm representing the principal supplier should submit authorized dealership certificate in original from the principal company.
3. Full details of supplies of the same equipment(s) made to users in India, if any shall be enclosed.
4. Full details of facility of service after sales available in India for the period covered by warranty and thereafter shall be furnished.
5. A complete set of instruction and operation manual should be supplied at the time of installation.
6. Final performance should be guaranteed at the site.
- 7. Compliance Statement for the point-wise specifications in the format (Annexure-V) should mandatorily be enclosed.**
8. The Centre reserves the right to make its own assessment on any of the technical details provided and decide on the suitability of the equipment offered.

COMMERCIAL

1. Terms of payment:

A. For Imports:

- i. 90% through Letter of Credit with usance period of 30 days on proof of arrival of consignment OR through Wire Transfer against delivery. The balance 10% payment will be released after expiry of the applicable Warranty period.
- ii. The balance 10% can be considered for payment earlier, provided, a Performance Bank Guarantee for an equivalent amount of 10% of the Invoice value, having validity up to three months from the date of expiry of the applicable Warranty period, is submitted soon after installation and commissioning the equipment.

B. For Domestic Suppliers:

The payment in INR shall be made through NEFT/RTGS after successful installation and against submission of Performance Bank Guarantee equal to 10% value of the equipment, having validity up to a period of 3 months after expiry of Warranty. Complete details such as the bank account number/IFSC/SWIFT/Bank Address, etc. should be provided along with the price bid.

2. Duties, Taxes where legally leviable and intended to be claimed should be distinctly shown in the Tender.
3. **Duty Exemption** :Please note that the Purchaser is eligible for concessional Customs Duty, under the Govt. of India Notification **No. 11/280/1993-TU-V dated 28 April 2022**
4. **Delivery period** :Delivery is the essence of the contract. The supplier should adhere to delivery schedule as indicated in the Purchase order, failing which Clause 7 of Annexure-I shall be enforced.
5. **Delivery terms** : Delivery should be upto customs Bangalore Airport in case of CIP (Bangalore) incoterms.
6. Provide List of user details in India.
7. In case Items/Equipment offered requires maintenance after the expiry of the warranty, the approximate charges for comprehensive as well as on-call basis

maintenance should be indicated. Details of availability of local support should also be given.

8. **Packing, forwarding and insurance:** The supplier will be responsible for the stores being sufficiently and properly packed for transport by air, to withstand transit hazards and ensure safe arrival at the destination. The packing and marking shall be done by and at the expenses of the supplier. The Purchaser will not pay separately for transit insurance, all risks in transit being exclusively of the Supplier and the Purchaser shall pay only for such Items/Equipment as are actually received in good condition, in accordance with contract.

9. **Test certificate:** Wherever required, Test Certificate should be sent along with the relevant dispatch documents.

10. Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.

PRICE BIDTender Ref. No. : **PI2/000062/22-23 dated 29 August 2022**

1. Name of tenderer :

2. Due date & due time : **19 September 2022 @ 14.00 hours**
3. Opening date & time : **Will be notified in our website.**
4. The tender shall remain valid for acceptance for 120 days, from the date of tender opening.
5. Rates for items given in Techno-commercial offer at Schedule of Requirements are as follows. (Adhering to the Format given below is a pre-requisite for considering the quotations):

Sl.No.	Description	Product / Catalogue No.	Qty.	Unit Price	Total Cost
(i)	Brief description, basic price, without duties / taxes if any, of complete Items/Equipment with all accessories				
(ii)	Duties / Taxes				
(iii)	Packing & Forwarding				
(iv)	Freight & Insurance	CIP Bangalore			
		Ex-works			
(v)	Handling charges, if any				
(vi)	Any other (please specify)				
(vii)	Total cost (in figures & words) in INR				

OTHER CONDITIONS FOR PRICE BID

1. The price should be indicated on unit basis only. No unilateral revision in price will be admissible.
2. In case any of the subheads are included in the total cost, the same should be specified. Any exemption of duties / taxes / any other should be indicated. The Centre is eligible for concessional Customs Duty, under the Govt. of India Notification No. 11/280/1993-TU-V dated 18 March 2019.
3. Any optional item indicated in techno-commercial bids must be priced separately.
4. Currency in which the price is quoted must clearly be mentioned.

Technical specifications of 'Deposition system for pulsed laser ablation'

VACUUM CHAMBER:

- Non corrosive, Nonmagnetic SS 304 Metal is used to fabricate the Chamber, and electro polished.
- Cylindrical type vacuum chamber (water cooled) of dimension 350mm (Diameter) x 450mm (H) is made of stainless steel SS-304.
- A thin stainless steel liner fitted inside the chamber to prevent the deposition on the chamber wall.
- A vacuum pumping port is provided on the bottom side of the chamber to connect Diffusion pump based vacuum pumping system.
- Chamber top plate is provided with ports/feed throughs
- Base plate is provided with necessary feed throughs
 - Quartz window for the laser
 - Glass window for viewing

The following fabrication procedures and quality control measures are adopted to achieve specified performance.

- a) All the stainless-steel fabrication are argon arc welded for the leak tight joints. All welding will be TIG type using argon gas as per international vacuum welding standard.
- b) Chamber inner surface is electro polished for low out gassing rate from the inner walls.
- c) All the components, sub-assemblies and final unit are leak tested using Helium Mass spectrometer leak detector (MSLD) to an individual leak rate of 3×10^{-9} mbar ltrs/sec.

PUMPING SYSTEM: The chamber should be evacuated by a diffusion pump and backed by a rotary vacuum pump

Rotary Vacuum Pump------(1 No.)Capacity 250 LPM, Direct drive, Single phase, Double stage, Oil charge 0.75liters, Ultimate vacuum 6×10^{-3} mbar.

Diffusion Pump: ----(1No.)Size:4",Displacement 350LPS,Heater wattage 500watts,Oil charge 100ml DC 704 silicon oil. Ultimate vacuum 2.0×10^{-6} mbar.

4" Butterfly valve------(1No)A hand operated high vacuum valve is fixed to a base plate of 13" dia. This valve isolates the chamber from the pumping system so that the chamber can brought to atmospheric pressure without switching off the pumping system.

4" LN₂ Trap: Capacity 2liters, for better vacuum.

Vacuum lines & valves: plumbing lines are made of stainless steel. RP roughing and backing (1" Butterfly Valves-2Nos), DP to chamber (4" Butterfly Valves-1No)

Air admittance valve: (1 No.) is fixed to the chamber pipeline to release the chamber vacuum after each coating process cycle.

Vacuum Measuring gauges:

Pirani Gauge: Pirani Gauge head (2 No) with controller and cable to be provided and it is capable of measuring range 1000 mbar – 10^{-3} mbar.

Penning Gauge: Penning gauge head (1 No.) with controller to be provided and it is capable of measuring range from 10^{-3} mbar – 10^{-6} mbar.

Substrate Heater with Controller: Maximum Temp: 800°C, PID ON/Off Controller, K-Type Thermocouple, Heater Size: 3" Diameter, Heating Element: Super kanthal, Solid State relay and a Transformer.

Target : 4 target carousel, 1" Diameter, Manual target selection and up and down adjustment with rotation.

Substrate – Target should be positioned appropriate for PLD.

Flow controller : O₂ mass flow controller – 01 No.

Control console:

Control console is fabricated with mild steel and neatly powder coated. It is accommodating all the electrical control instrumentation, control switches and standalone control panel of the following switches;

ON/OFF switches for vacuum pumps and all valves vacuum measuring gauges controller Substrate rotation and substrate heater controls

The above control console is wired to operate on 230 V AC, 50Hz, Single phase power supply.

Support structure: should be made out of MS channel and angles, neatly painted and have castor wheels for mobility purpose.

Integration:

Integration of the PLD system with the pulsed laser needs to be done with suitable optics and mounts.