



CENTRE FOR NANO AND SOFT MATTER SCIENCES

Prof. U.R. Rao Road, Jalahalli, BENGALURU 560 013.

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

INVITATION TO TENDER

No. PI/000101/19-20

12.07.2019

To

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

Thermal Atomic Layer Deposition Unit

The Tender Form in Annexure I to V may be submitted along with relevant Fees and Earnest Money Deposit (EMD). The terms and conditions may clearly be noted before submission of the tender.

The form in Annexure II 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, P.B.No. 1329, Prof. U.R.Rao Road, Jalahalli, Bengaluru – 560 013** 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 **15.30 Hrs. of 25 July 2019**, through Speed Post / Courier / Registered Post/hand delivery.

Yours faithfully,

Sd/

Encl: as above.

Administration and Finance Officer

Annexure – I
GENERAL INSTRUCTIONS

1. Definitions :

- a. The terms 'Purchaser' shall mean the Administration and Finance Officer, Centre for Nano and Soft Matter Sciences, Bengaluru-560 013.
- 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, P.B.No.1329, Prof. U.R.Rao Road, Jalahalli, Bengaluru – 560 013**. The tender reference number, due date and due time should be clearly mentioned on the outer cover.

The tender should be accompanied by Tender Application Fee of INR 2,000 and Earnest Money Deposit (EMD) as indicated in Annexure III. The application fee and EMD should be submitted separately by Demand Draft drawn in favor of "Centre for Nano and Soft Matter Sciences", payable at Bengaluru in a sealed envelope. Those firms which are eligible for claiming exemption in payment of EMD should furnish proper certificate in support of the exemption, having current validity.

3. **Receipt of tender:** The tender must reach this office by 15.30 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.
 - c) 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.

TENDER FORM

Tender Ref. No.

To

The Administration and Finance Officer,
Centre for Nano and Soft Matter Sciences
P.B.No. 1329, Prof. U.R.Rao Road
Jalahalli
Bengaluru-560 013

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 an 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 Demand draft		
		Demand Draft No. & Date	Bank	Branch
(i) Tender Application Fee (INR 2000/-)	Yes/No			
(ii) Earnest Money Deposit: (INR 1,25,000/-)	Yes/No			

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

Date:

Signature and Seal of Supplier
Name & Address

TECHNO-COMMERCIAL BID

1. Tender Ref. No. : PI/000101/19-20 dated 12.07.2019
2. Name of Tenderer:
3. Due date & due time : 25.07.2019 @ 15.30 hours
4. Opening date & time : **Will be notified in our website.**
5. The tender shall remain valid for acceptance for 120 days, from the date of tender opening.
6. Amount of EMD – 1,25,000/- } Demand Draft No. dtd.
7. Amount of Tender fee – Rs.2,000 } Bank Branch
8. Schedule of requirements:

Sl.No.	Description	Quantity	Destination	Technical Specifications
			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. Deviation, 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 principals 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 and abroad, 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:** The normal payment terms are:

A. For Imports:

- a. 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.
- b. 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. **Mode of payment:** Shall be through Letter of Credit/Wire Transfer/NEFT, through our Bankers. Advance payments will **not** be considered. Complete details such as the bank account number/IFSC/SWIFT/Bank Address, etc. shall be provided along with the price bid.

3. Duties, Taxes where legally leviable and intended to be claimed should be distinctly shown in the Tender.
4. **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 29 April 2016.**
5. **Delivery period:** The supplier should adhere to delivery schedule as indicated in the Purchase order, failing which Clause 7 of Annexure-I shall be enforced.
6. **Delivery terms:** Options should be indicated in the Price-Bid for **FOB/Ex-works** and for **CIF/CIP (Bengaluru Airport)** basis delivery with relevant charges for imports.
7. Mode of dispatch : By Air in case of Imports.
8. 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.
9. **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.
10. **Test certificate:** Wherever required, Test Certificate should be sent along with the relevant dispatch documents.
11. 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.

COMPLIANCE STATEMENT OF SPECIFICATIONS SHOULD BE SUBMITTED COMPULSORILY (IN ANNEXURE V).

PRICE BID

1. Tender Ref. No. : PI/000101/19-20 dated 12.07.2019
2. Name of tenderer :
3. Due date & due time : 25.07.2019 @ 15.30 hours
4. Opening date & time : **Will be notified in our website.**
5. The tender shall remain valid for acceptance for 120 days, from the date of tender opening.
6. 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				Rates should be shown separately for both FOB/Ex-works, freight & insurance and for CIF/CIP Bengaluru, INDIA
(ii)	Duties / Taxes				
(iii)	Packing & Forwarding				
(iv)	Freight & Insurance				
(v)	Handling charges, if any				
(vi)	Any other (please specify)				
(vii)	Total cost (in figures & words)				

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 29 April 2016.
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.

Annexure – V

Technical Specification for thermal atomic layer deposition unit

Proposed use of the equipment: To deposit ultrathin films on planar substrates, e.g., Si wafer, glass, PET, etc.

Material	System should be capable of depositing metal oxides, metal sulfides, metal oxysulfides, etc.
Process Chamber	<p>Process chamber should be capable</p> <ol style="list-style-type: none"> i. Process chamber can be made of SS316 or aluminum ii. to handle wafer size up to 4 inches in diameter iii. to handle porous material, materials with high aspect ratio features, and 3D substrate up to 10 mm height iv. sample temperature can reach a maximum of 330 °C v. temperature uniformity over the entire wafer ± 1.0 °C vi. Kalrez “O” ring for chamber sealing
Reactor Pumping	<ol style="list-style-type: none"> i. Reputed company (e.g., Edwards) dry pump with fore line trap ii. Pumping capacity at least 300 L/M iii. Base pressure better than 5×10^{-3} mbar iv. heated chamber isolation valve for high exposure, high conformality process (static process) – controlled by software v. Vacuum pumping line should include SS flexible bellows, vent valves, KF clamps, and O rings, etc. vi. Pirani or capacitance manometer gauge to monitor the chamber pressure
Process gas, precursors lines and bottles	<ol style="list-style-type: none"> i. One inert gas purge line with MFC control ii. Reputed make MFC (up to 0 –200 sccm for N₂/Ar purge flow control) iii. One high vapor pressure precursor (such as H₂O, NH₃, H₂S etc.) line iv. Three precursor lines for solid/liquid precursors v. Temperature controlled heating jackets for precursor bottles (up to 150 °C) vi. Four numbers of three-way thermal ALD valves of reputed make (e.g., Swagelok) with opening and closing time of 10 ms and valve body should be sustain up to 150 °C. (if additional precursor line possible, please quote separately) vii. All source lines should be electro-polished SS tubes and should have metal sealed VCR fittings viii. Gas manifold heating up to 150 ± 2 °C. ix. Four SS precursor bottles of at least 50 CC volume with manual valves (optional) x. Fully automated temperature control system for precursor bottles, gas manifolds

Control Electronics	<ul style="list-style-type: none"> i. Fully automated temperature control system for precursor bottles, gas manifolds, process chamber, vacuum fore line ii. Fully automated control of all valves iii. Fully automated control of purge gas flow of MFC
Process Control	<ul style="list-style-type: none"> i. Programmable logic controller ii. Intuitive mimic based logic controller iii. Ability to create and store user-defined recipes iv. No limit on number of recipes and v. Maximum cycle numbers should be at least 1500 vi. Ability to create recipes for supercycles vii. Graphic display of parameters viii. Data logging and retrieval
Safety	<ul style="list-style-type: none"> i. Vacuum interlock to insure system in under vacuum during processing ii. Hardware interlock for overheating; two temperature sensors on chamber with one acting as the failsafe for the main control sensor iii. Overheat software interlocks iv. Emergency off button on front panel v. Normally closed pneumatic valves (all valves will be closed in the event of a system failure or emergency shut off)
Warranty	One year from the date of installation
Training	At least two-day training at the customer site
Other requirements	<p>Supplier must do process acceptance regarding uniformities, refractive index etc. on Al₂O₃ thin film</p> <p>Acceptance test for Al₂O₃ films</p> <ul style="list-style-type: none"> i. ALD temperature window 120 – 300 °C ii. Growth per cycle 0.9 – 1.2 Å/cycle iii. Thickness uniformity (150 nm film) <±1% iv. Refractive index at 532 nm 1.63 – 1.68 v. Breakdown voltage >7.5 MV/cm
	A list of users throughout the world if possible
Optional	
Ozone generator	<p>Ozone production range: 6-9 % by weight</p> <p>Oxygen/ozone flow: 0.03 – 3 L/M</p> <p>Integrated O₂ regulator</p> <p>Ozone destructor for off-cycle flow</p> <p>Air cooled</p>
QCM Mounting	<p>If the system can be upgraded to incorporate QCM at a later stage</p> <p>Quartz crystal for high temperature</p> <p>Reputed company make QCM</p> <p>Monitoring and data logging for the QCM</p>