

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. CeNS/2023-24/Tender CMWFR

Date: 27 October 2023

To

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

Customized continuous microwave flow reactor

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, 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 **17.30 Hrs. of 30 November 2023**, 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 should be accompanied by Tender Application Fee of INR 2,000 and Earnest Money Deposit (EMD) of Rs. 34,000/- through SBI Collect (link : onlinesbi.com/sbicollect).

Procedure for paying through SBI Collect :- For EMD Please Select State : Karnataka/Type: Govt. Department/ Name: Centre for Nano and Soft Matter Sciences/Category : MISC Fee/ Purpose : Earnest Money Deposit. For Tender Application Fees (TAF) same procedure as above but choose purpose as TAF. The EMD will be refunded to unsuccessful bidders without any interest thereon. A copy of the SBI Collect receipt should be attached with the quotation in proof of remittance of EMD. Overseas bidders may remit an equivalent EMD to the Centre's Bank A/CNo.10838600274, Bank Name : State Bank of India, Jalahalli branch, IFSC Code : SBIN00963 SWIFT Code: SBININBB177.

A copy of the payment transaction shall be enclosed with technical bid.

3. **Receipt of tender:** The tender must reach this office by **17.30 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.

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.

13. 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 i.e. a statement showing percentile of local content with respect to manufacture of the item, spares, service and assembling, if any, are 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 (INR 2000/-) | Yes/No | | | |
| (ii) Earnest Money Deposit: (INR 34,000/-) | 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. : **CeNS/2023-24/Tender CMWFR** Dated **27 October 2023**

1. Name of Tenderer:
2. Due date & due time: **30 November 2023 @ 17.30 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 – INR 34,000/- } SBI Collect Ref No.
6. Amount of Tender fee – INR 2,000 }
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 | |

Discount: special discount for educational institutions shall be mentioned in the price bid.

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. Provide List of user details in India.**
5. Full details of facility of service after sales available in India for the period covered by warranty and thereafter shall be furnished.
6. A complete set of instruction and operation manual should be supplied at the time of installation.
7. Final performance should be guaranteed at the site.
- 8. Compliance Statement for the point-wise specifications in the format (Annexure-V) should mandatorily be enclosed.**
9. 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. 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.

7. **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.

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

9. 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 BID

Tender Ref. No. : CeNS/2023-24/Tender CMWFR dated 27/10/2023

1. Name of tenderer :
2. Due date & due time : **30 November 2023 @ 17.30 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 | | | | |

Discount: special discount for educational institutions shall be mentioned in the price bid.

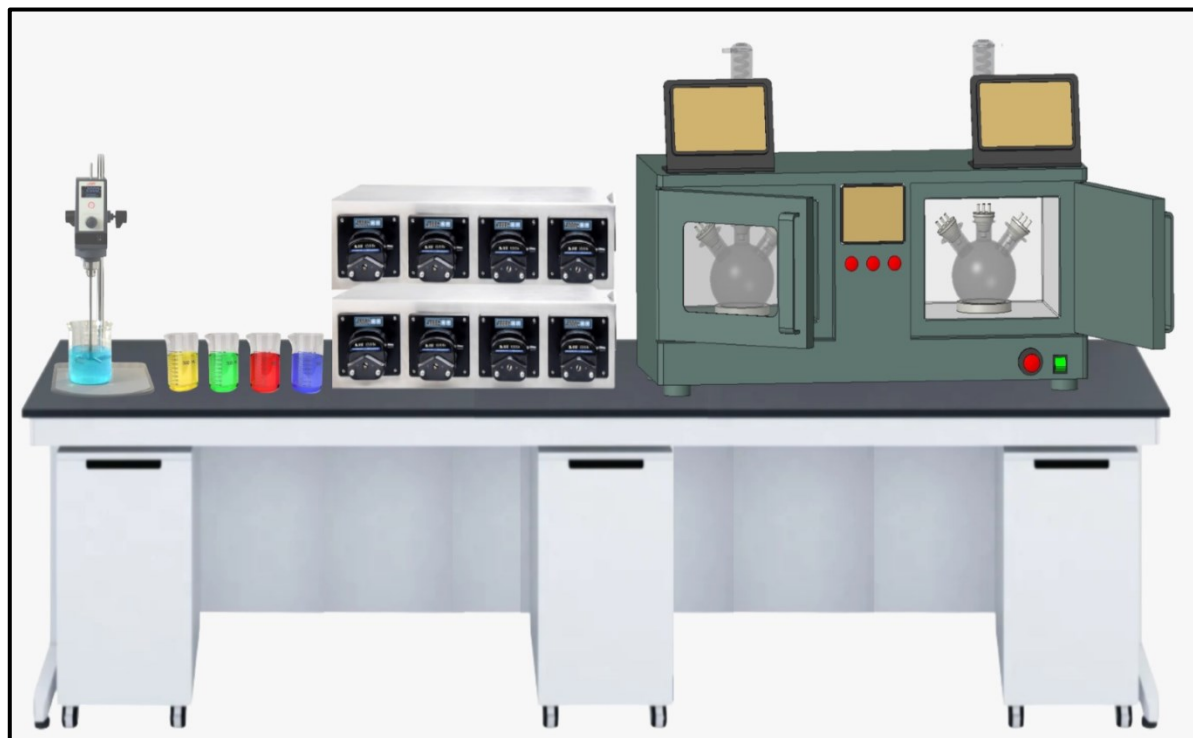
OTHER CONDITIONS FOR PRICE BID

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.
5. **Applicable PAN, GST & MSME certificates etc. should be enclosed.**

Specification details of items

Technical specifications for customized continuous microwave flow reactor

The schematic representing the layout of the customized continuous microwave flow reactor is included below for reference:



| Technical specifications for customized continuous microwave flow reactor | |
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| Customized continuous microwave flow reactor | OBJECTIVE: The customized microwave reactor should be designed for continuous batch synthesis experiments. |
| | CHAMBER DESIGN: The reactor should have two microwave chambers with dual magnetron for each chamber i.e., the reactor should have total 4 magnetrons. The reactor must be capable to perform two different synthesis experiments by using two microwave chambers individually or simultaneously. |
| | CONTROLLER: Both microwave chambers should be controlled or programmed by single 10.1" or larger touch screen controller. |
| | INTERFACE: The microwave reactor should be capable to interface with, control, and program other connected devices such as Peristaltic pumps (8 nos.) , over-head stirrer (1 no.) and magnetic stirrer with hot plate (2 nos.) as per user requirements, allowing any set of combinations of these |

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| | devices. |
| | MATERIAL OF CONSTRUCTION (MOC): Inner chamber should be of SS-316L with non-reactive coating and outer body should be of SS-316L with powder coating. |
| | DOOR: Both microwave chambers should have SS 316L door with shatter – proof toughened glass window. |
| | PORTS: The reactor should have built-in gas purging ports and inlet/outlet ports for peristaltic pumps for both microwave chambers. |
| | HD CAMERA: Each microwave chamber should feature an integrated HD camera with display to monitor reactions. |
| | THERMAL CAMERA: The reactor should have Thermal imaging camera with display for individual microwave chambers. |
| | CAPACITY: Size of each microwave chamber should be more than 25Ltrs capacity. |
| | SENSORS: Both microwave chambers should have 1 PT sensor and 1 IR sensor each. |
| | COOLING SYSTEM: Both microwave chambers should be equipped with a forced air cooling system. |
| | REACTOR KIT: Both microwave chambers should be designed to accommodate a vessel with a condenser setup. |
| | SAFETY: Both microwave chambers should have the following safety features; |
| | - An alarm with automatic microwave power cutoff system for open door detection. |
| | - The door should only be opened only when the temperature inside the chamber is within a safe range. |
| | - An emergency STOP switch. |
| | - Automatic cutoff in case of chamber overheating. |
| | - Detection and cutoff for exothermic reactions. |
| | - Instrument login protection through either biometric verification or password authentication. |
| MICROWAVE POWER | The reactor should have 4 magnetrons of 900 Watt each. |
| | Total available microwave power of 3600 Watts or higher. |
| | Maximum output power should be of 2000 Watt or higher. |
| MICROWAVE DISTRIBUTION | Each microwave chamber of the reactor should have a diffuser fan or an equivalent technology to achieve uniform microwave distribution within the chamber. |
| MICROWAVE HEATING PERFORMANCE | Benchmarking the heating performance with glass vessels and without any additional heating assistance: The system should be able to heat 20 mL of Ethanol to 200 °C in approximately 2 min. The system should be able to heat 5 mL of Toluene to 200 °C in approximately 5 min. |
| CONTROLLER AND PROGRAMMING | The microwave reactor's controller should feature a touch screen display of 10.1 inches or larger. |

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| | The User Interface (UI) should be icon based to represent various functions, including Method creation, Edit, Delete, Start, Stop, Settings, I/O selections, Calibration, Save, Open, Exit, etc. |
| | The controller should require user authentication through biometrics or password for login. |
| | The controller should be capable of individually as well as simultaneously programming two microwave chambers. |
| | The controller should be able to support the interface of the following devices; peristaltic pumps (8 nos.), overhead stirrer (1 no.), and magnetic stirrer with hot plate (2 nos.). |
| | The controller should allow users to program these devices in any combinations for operation with each microwave chamber separately or both chambers in a combined mode. |
| | The controller should display the operational parameters in real-time, such as Time, Temperature, Flow Rate, RPM, Microwave Power, Door status, Cooling status, Alarms/Errors, etc. |
| | The controller should be able to display graphical representations of process, such as Time vs. Temperature and Time vs. Power. |
| | The controller should automatically adjust the power delivery of magnetrons based on sample load and pre-programmed control settings. |
| TEMPERATURE SENSORS | Each microwave chamber should have 1 PT temperature sensor with non-reactive coating of following specifications; |
| | Range: 0 - 300 °C. |
| | Accuracy: ± 1 °C. |
| | Resolution: ± 0.1 °C. |
| | Each microwave chamber should have 1 IR temperature sensor of following specifications; |
| | Range: 0 - 300 °C. |
| | Accuracy: ± 1 °C. |
| Resolution: ± 0.1 °C. | |
| PERISTALTIC PUMP | 8 high precision peristaltic pumps with following specifications; |
| | - Should interface serial/parallel with the controller. |
| | - MOC: outer body of SS 304 / SS 316L. |
| | - Flow Rate: 0.1 ml/min to 100 ml/min or higher. |
| | - Speed: 0 to 250 RPM or higher. |
| OVERHEAD STIRRER | 1 precise controlled overhead stirrer with following specifications; |
| | - Should interface serially/parallel with the controller. |
| | - MOC: shaft of SS 304 / SS 316L. |
| | - Capacity: 5 Liter or higher. |
| | - Speed: 0 to 1500 RPM or higher. |
| | - Viscosity: 1000 mPas or higher. |

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| MAGNETIC STIRRER WITH HOT PLATE | 2 precise controlled magnetic stirrer with hot plate with following specifications; |
| | - Should interface serially/parallel with the controller. |
| | - MOC: body of SS 304 / SS 316L. |
| | - Capacity: 250 ml or 2 Liter, or higher. |
| | - Range: 0 to 350 °C or higher. |
| | - Should be compact in size and should automatically disconnect the magnetron when it is connected inside the microwave chamber. |
| HD CAMERA | HD camera with display for each microwave chamber should be provided with following specifications: |
| | - 7 inch TFT display |
| | High resolution (800x480) |
| | Acid resistant touch screen |
| THERMAL IMAGING CAMERA WITH DISPLAY | High resolution thermal imaging camera with display for each microwave chamber should be provided |
| REACTOR KIT | Each microwave chamber should have following glass accessories; |
| | - 1 number 250 ml capacity, specially designed round bottom flask with bottom drain port and 4 neck. |
| | - 1 Reflux condenser. |
| | - 1 Connecting glass pipe. |
| | - Connectors. |
| | - Stoppers |
| | - Oil-Water Separator. |
| | - T-Stand and others. |
| POWER SUPPLY | The microwave reactor should work on, single phase, AC 230 ± 10 V, 50 Hz. |
| WARRANTY | - The entire equipment should have warranty for a period of 2 years from the date of commissioning. |
| | - Any repairs, if required, within the warranty period are to be handled by the supplier. |
| | - Transportation cost of equipment/component besides repair/replacement charges, if any, should be borne by the supplier. |
| DEMO AND TRAINING | Demonstration and training of the microwave reactor to users must be carried out by the supplier at factory and on-site. |
| DOCUMENTATION | The following documentation should be provided; |
| | - Qualification Document (IQ, OQ, PQ). |

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| | - User and Maintenance Manual. |
| | - Calibration Certificates for temperature sensors, peristaltic pumps, etc. |
| | - MOC Certificates. |
| <p>Other terms:</p> <p>- All the stated specifications and conditions must be complied with mandatorily.</p> <p>- The vendor is required to furnish a compliance statement (as per Appendix enclosed to this document) for each technical specification outlined in the tender document, accompanied by the manufacturer's literature. Any other claim will not be accepted and may lead to rejection of the bid.</p> | |

Appendix

Compliance Statement of Specifications

| S. No. | Name of specification /part / accessories of tender enquiry | Specifications of the quoted Model / Item | Compliance whether YES or NO |
|--------|---|---|------------------------------|
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Signature and Seal of the Bidder

Warranty: 2 years from the date of installation

Discount: special discount for educational institutions shall be mentioned in the price bid.