

**Request for Quote (Global tender) for the procurement of a ICP-RIE System running Fluorine and Chlorine based Chemistry (Last date: 20<sup>th</sup> May 2026)**

This is a Request for Quote (RFQ) for the procurement of a **ICP-RIE System running Fluorine and Chlorine based Chemistry**, for the Centre for Nano Science and Engineering (CeNSE) at the Indian Institute of Science (IISc), Bangalore. IISc is India's best institution of higher learning, and the Center for Nano Science and Engineering is home to one of the best academic fabs in the world that houses a 14,000 sq. ft. cleanroom.

CeNSE is a multidisciplinary research department at IISc that houses a 14,000 sq. ft. cleanroom and characterization facility used by 50 faculty members from various disciplines at IISc. CeNSE is also a user- facility which has hosted over 6000 participants from more than 700 universities and institutes all over the world. Consequently, any tool in CeNSE receives significant exposure to scientific community in India and beyond. The vendors are requested to factor in the value of this exposure in their quotes.

Being a user-facility puts an additional technical burden on the tool. We need a tool that can tolerate heavy usage (40 hours/week), has a high uptime, can be serviced and maintained for the foreseeable future (at least 5 years), and has a track record of reliability at comparable facilities in India and abroad. Details of existing facilities and the user program can be gleaned from:

<http://nnfc.cense.iisc.ac.in>

<http://www.mncf.cense.iisc.ac.in/>

<https://www.inup.cense.iisc.ac.in/>

1	Section 1	Bid Schedule	
2	Section 2	Eligibility Criteria	As specified by IISc
3	Section 3	Terms and conditions	As specified by IISc
4	Section 4	Specifications	Technical specifications
5	Section 5	Technical Bid	Annexure 1: Bidder details
			Annexure 2: Declaration regarding experience of bidder
			Annexure 3: Declaration regarding clean track record of the bidder
			Annexure 4: Declaration of acceptance of tender
			Annexure 5: Terms and conditions. Details of item quoted
6	Section 6	Commercial Bid	Quotation with Price, Technical specifications of the equipment

## **Section 1- Bid Schedule**

1	Tender No	CeNSE/SG/ICP-RIE/Global/2026
2	Tender Date	29 <sup>th</sup> April 2026
3	Item Description	Procurement of a <b>ICP-RIE System running Fluorine and Chlorine based Chemistry</b>
4	Tender Type	Two bid system (i) Technical Bid (Part A) (ii) Commercial Bid (Part B)
5	Place of tender submission	Chairperson Office, Attn: Dr. Sreetosh Goswami, Centre for Nano Science and Engineering Indian Institute of Science, Bangalore 560012
6	Last Date & Time for submission of tender	<b>20<sup>th</sup> May 2026, 5.00 PM (IST)</b>
7	For further clarification	Dr. Sreetosh Goswami Associate Professor Centre for Nano Science and Engineering Indian Institute of Science Bangalore – 560012, India. Email: <a href="mailto:sreetosh@iisc.ac.in">sreetosh@iisc.ac.in</a>

- Vendors will be required to submit a technical proposal and a commercial proposal in **two separate sealed envelopes**. The technical bid should contain all commercial terms and conditions, except the price. **Only vendors who will be adjudged by the committee to meet the technical requirements will be considered for the commercial negotiation.**
- **The deadline for submission of proposals is the 20<sup>th</sup> May 2026, 5:00 pm Indian Standard Time.** Proposals should arrive at the Main office, GF-15, Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012, India, on or before the above deadline.
- **C.I.P. Bangalore basis (by Air Freight only).** The quotation should mention the terms of delivery, delivery schedule, estimated delivery date, and payment terms.
- **Foreign currency quotes are allowed.**
- **The decision made by the purchase committee is final.**

## **Section 2 – Eligibility Criteria**

Pre-qualification criteria:

1. If the Bidder is a local distributor/dealer/Agent, it is mandatory to attach authorization certificate along with the technical bid from the original equipment manufacturer. Only the Original Equipment Manufacturer or their authorized representatives shall participate in the bid.
2. The bidder should sign and submit the declaration for Acceptance of Terms and Conditions as per - Annexure 4.
3. The Bidder must not be blacklisted/banned/suspended or have a record of any service- related dispute with any organization in India or elsewhere. A declaration to this effect has to be given as per Annexure 3.
4. The materials will be used for high-tech research work by academic researchers.
5. The Bidder's firm should have existed for a minimum of 5 years. (Enclosed Company Registration Certificate).
6. The vendor should have supplied the instrument either to CeNSE, Indian Institute of Science, Bangalore or other microelectronics fabrication unit of repute. Proof of the same should be attached.
7. The Bidder should have qualified technical service personnel for the instrument(s) based in India.
8. The order will be placed only on the bidder who participated in the bid.

## **Section 3 – Terms and Conditions**

### **A) Submission of Tender:**

1. All documentations in the tender should be in English.
2. Tender should be submitted in two envelopes (two bid system).
  - a. **Technical Bid (Part-A)** – Technical bid consisting of all technical details and check list for technical specifications. The technical bid **must not contain** any price information.

The technical proposal should contain a technical compliance table with 5 columns.

- i. The first column must list the technical requirements, in the order that they are given in the technical requirement below.
- ii. The second column should provide specifications of the instrument against the requirement. Please provide quantitative responses wherever possible.
- iii. The third column should describe your compliance with a “YES” or “NO” only. Ensure that the entries in column 2 and column 3 are consistent.
- iv. The fourth column should state the reasons/explanations/context for deviations, if any.
- v. The fifth column can contain additional remarks from the Indian Original Equipment Manufacturer (OEM) or from their distributors. You can use this opportunity to highlight technical features, qualify response of previous columns, or provide additional details, compare your solution with that of your competitors or provide details as requested in the technical requirements table below.
- vi. **Tender documents without technical compliance documents will not be considered.**
- vii. Technical capabilities of any suggested accessories/add-ons that may enhance the usability, capability, accuracy or reliability of the tool. Vendors are encouraged to quote for as many add-ons as their tool portfolio permits.
- viii. Vendors are encouraged to highlight the advantages of their tools over comparable tools from the competitors.
- ix. Items in addition to those listed in the technical table that the vendor would like to bring to the attention, such as data sheets, technical plots etc. can be listed at the end of the compliance table. Vendors are also

encouraged to highlight the advantage of their tools over comparable tools from the competitors.

- x. If multiple systems can fulfil the requirements, vendors can submit multiple bids.
  - xi. The RFQ must include references to 3 previous relevant installations, preferably in India. Please provide the names and contact addresses of the referees, so that the committee can contact them independently. Details of such systems with model numbers and users should be provided.
  - xii. The technical proposal will be evaluated against the technical requirement. Deviations from the technical specifications requested are allowed. Such deviations must be highlighted and justified. Their acceptance or rejection will be left to the discretion of the technical committee. Only the vendors, adjudged by the committee to be suitable to meet the technical requirements, will be considered for the commercial negotiation.
- b. **Commercial Bid (Part-B)** – Indicating item wise price for the items mentioned in the technical bid, **as per the format of quotation provided in the tender**, and other commercial terms and conditions. The commercial bid should contain:
- i. Itemized cost of the system and required accessories, such as software, power supply, etc.
  - ii. All accessories needed for the instrument to function as per the technical specification must be listed.
  - iii. Itemized cost, as an option, for any suggested accessories/add-ons that may enhance the usability, capability, accuracy or reliability of the tool. Vendors are encouraged to quote for as many add-ons as their tool portfolio permits.
  - iv. The cost of shipping plus insurance up to IISc has to be included. IISc will help the shipping company to take care of the customs clearance at Bangalore Airport.
  - v. Please indicate the warranty provided with the tool. A warranty of 1 years or more is preferred.
  - vi. Provide itemized cost for required/expected spares for 3 years of operation. For sake of this calculation, the vendor may assume active tool usage of 40 hours/week. This number will be used to estimate the life cycle cost of the tool.

- vii. The cost of annual maintenance contract (AMC). The details of AMC are given below. This number will be used to estimate the life cycle cost of the tool.
  - viii. Length of time that the tools will be supported with service and spares from the date of installation. Our requirement is that the tools be supported for at least 5 years from the date of installation. To quote the lowest price, vendors often quote for obsolete or soon-to-be obsolete equipment. This is NOT acceptable. For a user-facility like CeNSE, it is vital that the equipment be serviceable and supported for the foreseeable future. The length of guaranteed support will be used to estimate the life cycles cost of the tool.
  - ix. The commercial bid should indicate the following separately: (a) equipment price (b) optional items (c) Freight and insurance cost (d) Shipping cost and (e) the Total cost.
  - x. Foreign currency quotes are allowed.
3. The technical bid and price bid must be placed in separate sealed covers, superscripting on both the envelopes the tender no. and the due date. Both these sealed covers are to be placed in a bigger cover which should also be sealed and duly superscripted with the Tender No, Tender Description & Due Date.
  4. The SEALED COVER superscripting tender number / due date & should reach Chairperson Office, Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012, India, on or before due date mentioned in the tender notice. In case due date happens to be holiday the tender will be accepted and opened on the next working day. If the quotation cover is not sealed, it will be rejected.
  5. All queries are to be addressed to the person identified in "Section 1 – Bid Schedule" of the tender notice.
  6. GST/other taxes, levies etc., are to be indicated separately. The BIDDER should mention GST Registration and PAN in the tender document (Indian Bidders only).
  7. If price is not quoted in Commercial Bid as per the format provided in tender document the bid is liable to be rejected.
  8. The vendor should have qualified technical service personnel for the equipment based in India and should assure a response time of <48 hours.
  9. A technical evaluation by the purchase committee may include a demonstration to verify the functionalities and capabilities of the system quoted. The purchase committee reserves the right to reject the bids based on their technical evaluation of the quality of data, capability demonstration, and service. If the data/requested capability demonstration does not happen within a stipulated timeframe, the bid

will be rejected. Any discrepancy between the promised specifications and measurements will be deemed as technical non-compliance.

10. Imported items should be shipped on C.I.P. Bangalore basis (by Air Freight only) all components and accessories indicate component-wise and itemized breakup. The price of every line item in the commercial bid should be quoted along with the total quoted price for the instrument to be operational (installed and ready to use) in our facility.
11. The purchase committee reserves the right to accept or reject any bid or to annul the bidding process and reject all bids at any time prior to the award of the contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders.
12. Incomplete bids will be summarily rejected.
13. The decision of the purchase committee will be final.

**B) Cancellation of Tender:**

Notwithstanding anything specified in this tender document, IISc Bangalore, in its sole discretion, unconditionally and without having to assign any reason, reserves the rights:

- a. To accept OR reject lowest tender or any other tender or all the tenders.
- b. To accept any tender in full or in part.
- c. To reject the tender, offer not confirming to the tender terms.

**C) Validity of the offer:**

The offer shall be **valid 120 Days** from the date of opening of the commercial bid.

#### **D) Evaluation of the offer:**

1. The technical bid (Part A) will be opened first and evaluated.
2. Bidders meeting the required eligibility criteria as stated in Section 2 of this document shall only be considered for Commercial Bid (Part B) opening. Further, agencies not furnishing the documentary evidence as required will not be considered.
3. Pre-qualification of the bidders shall not imply final acceptance of the Commercial Bid. The agency may be rejected at any point during technical evaluation or during commercial evaluation. The decision in regard to acceptance and / or rejection of any offer in part or full shall be the sole discretion of IISc Bangalore, and decision in this regard shall be binding on the bidders.
4. The award of contract will be subject to acceptance of the terms and conditions stated in this tender.
5. Any offer which deviates from the vital conditions (as illustrated below) of the tender is liable to be rejected:
  - a. Non-submission of complete offers.
  - b. Receipt of bids after due date and time and or by email / fax (unless specified otherwise).
  - c. Receipt of bids in open conditions.
6. In case any BIDDER is silent on any clauses mentioned in these tender documents, IISc Bangalore shall construe that the BIDDER had accepted the clauses as of the tender and no further claim will be entertained.
7. No revision in the terms and conditions quoted in the offer will be entertained after the last date and time fixed for receipt of tenders.
8. Lowest bid will be calculated based on the total price of all items tendered for Basic equipment along with accessories selected for installation, operation, pre-processing and post processing, optional items, recommended spares, warranty, annual maintenance contract.

#### **E) Pre-requisites:**

The bidder will provide the prerequisite installation requirement of the equipment along with the technical bid.

#### **F) Warranty:**

The complete system is to be under a warranty period of a **minimum 1 year** from the date of functional installation. The vendor should include the cost of any spares that are expected to be needed during the warranty period, including electronics, subcomponents, and software. If the instrument is found to be defective, it must be

replaced or rectified at the cost of the bidder within 30 days from the date of receipt of written communications from IISc, Bangalore. If there is any delay in replacement or rectification, the warranty period should be correspondingly extended.

**Annual Maintenance Contract (AMC):**

An annual maintenance contract for a period of 2 years post warranty should be provided on completion of the warranty period. If not possible, ample justification is needed.

**G) Purchase Order:**

1. The order will be placed on the bidder whose bid is accepted by IISc Bangalore based on the terms & conditions mentioned in the tender document.
2. The quantity of the items in the tender is only indicative. IISc, Bangalore reserves the right to increase /decrease the quantity of the items depending on the requirement.
3. If the quality of the product and service provided is not found satisfactory, IISc, Bangalore reserves the right to cancel or amend the contract.
4. After the award of the purchase order, the vendor must provide an Order Acknowledgement within 30 days from the receipt of the Purchase Order

**H) Delivery, Installation and Training:**

1. The bidder shall provide the lead time to delivery, installation and made functional at IISc, Bangalore from the date of receipt of purchase order.
2. The system should be delivered, installed, and made functional **within 6-9 months** from the date of receipt of purchase order.
3. The supply of the items will be considered as effected only on satisfactory installation and inspection of the system and inspection of all the items and features/capabilities tested by the IISc, Bangalore.
4. After successful installation and inspection, the date of taking over of entire system by the IISc, Bangalore shall be taken as the start of the warranty period.
5. No partial shipment is allowed. The bidder should also arrange for technical training to the local facility technologists and users.
6. The bidder should provide onsite application training for the local facility technologists and users.
7. The bidder should also arrange technical training for the local facility technologists and users

**I) Payment Term:**

The payments will be through a Letter of Credit and milestone in the payment will

be determined after the mutual discussions with the successful bidder.

**J) Statutory Variation:**

Any statutory increase in the taxes and duties subsequent to bidder's offer, if it takes place within the original contractual delivery date, will be borne by IISc, Bangalore subject to the claim being supported by documentary evidence. However, if any decrease takes place the advantage will have to be passed on to IISc, Bangalore.

**K) Dispute and Jurisdiction:**

Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Bangalore, India.

**L) General:**

1. All amendments, time extension, clarifications etc., within the period of submission of the tender will be communicated electronically. No extension in the bid due date/time shall be considered on account of delay in receipt of any document(s) by mail.
2. The bidder may furnish any additional information, which is necessary to establish capabilities to successfully complete the envisaged work. It is however, advised not to furnish superfluous information.
3. The bidder may visit the installation site before submission of tender, with prior intimation.
4. Any information furnished by the bidder found to be incorrect, either immediately or at a later date, would render the bidder liable to be debarred from tendering/taking up of work in IISc, Bangalore.

## Section 4 – Technical Specifications

1	Primary application	<ul style="list-style-type: none"> <li>• ICP-RIE for etching Dielectrics: SiO<sub>2</sub>, HfO<sub>2</sub>, TiO<sub>2</sub>, NbO<sub>3</sub>, GaN, and SiN</li> <li>• ICP-RIE for etching Silicon, Ge</li> <li>• ICP-RIE for etching Metal (Au, Al, Cr, Ti, TiN, ITO, Ag,W etc)</li> <li>• Resist/Polymer Ashing</li> </ul>
2	Process capability	<ul style="list-style-type: none"> <li>• Etching up to 5 micrometer of SiO<sub>2</sub> and SiN with a surface non-uniformity of &lt; 5% within 8-inch wafer and &lt; 3% wafer to wafer, assuming 10 mm edge exclusion.</li> <li>• <b>Dielectric:</b> <ul style="list-style-type: none"> <li>▪ <b>Process Window</b> <ul style="list-style-type: none"> <li>○ Feature size range: 50 nm – 1 μm</li> <li>○ Etch depth range: 5 nm – 5 μm</li> </ul> </li> <li>▪ <b>Performance Targets</b> <ul style="list-style-type: none"> <li>○ <b>Selectivity:</b> Up to 5:1 (etched material: resist as a hard mask)</li> <li>○ <b>Aspect ratio (feature size: etch depth):</b> Up to 1:10 with Cr as hard mask (For 500 nm feature size, etch depth is 5 μm)</li> <li>○ Up to 1:5 with resist as hard mask (For 1 μm feature size, etch depth is 5 μm)</li> </ul> </li> </ul> </li> <li>• <b>Metal:</b> <ul style="list-style-type: none"> <li>▪ <b>Process Window</b> <ul style="list-style-type: none"> <li>○ Feature size range: <b>50 nm – 1 μm</b></li> <li>○ Etch depth range: <b>5 nm – 500 nm</b></li> </ul> </li> <li>▪ <b>Performance Targets</b> <ul style="list-style-type: none"> <li>○ <b>Selectivity:</b> Up to <b>10:1</b> (etched material : resist or Oxide as a hard mask, for max 500 nm etched material)</li> <li>○ <b>Aspect ratio (feature size : etch depth ):</b> Up to <b>1:5</b> with resist or oxide (For 50 nm feature size, etch depth is 250 nm)</li> </ul> </li> </ul> </li> <li>• <b>Silicon Etching:</b> <ul style="list-style-type: none"> <li>▪ <b>Process Window</b> <ul style="list-style-type: none"> <li>○ Feature size range: 50 nm – 1 μm</li> <li>○ Etch depth range: 50 nm – 10 μm</li> </ul> </li> <li>▪ <b>Performance Targets</b> <ul style="list-style-type: none"> <li>○ <b>Selectivity:</b> Up to 5:1 (Silicon: SiO<sub>2</sub> hard mask)</li> <li>○ <b>Aspect ratio (feature size: etch depth)</b></li> </ul> </li> </ul> </li> </ul>

		<p>Up to 1:10 (For 500 nm to 1 μm)</p> <ul style="list-style-type: none"> <li>• Ability to use both fluorine and Chlorine based chemistries</li> <li>• Ability to use sputter etches using Ar</li> <li>• Provide detailed technical literature for system use, such as your prior experience and technical data on etch processes and tool capabilities.</li> <li>• Provide details to handle switching among Cl, F and metal with ease and minimum cross-contamination.</li> <li>• The requirement will be for both Cl based and FI based. Swapping chamber condition in between Cl- and F-based should be there.</li> <li>• Etching materials: Si, TiO2, Germanium, Ag, Gold , Al, NbO3 and GaN etc.(Dielectrics and metals). The metal liner is necessary.</li> <li>• The gas: BCl3/Cl2/CF4/CHF3/SF6/Ar/O2 all 100 sccm for light Si, dielectric and metal etch.</li> <li>• H/W configuration should be <ol style="list-style-type: none"> <li>1. ICP-RIE system with vacuum load-lock for up to 200 mm substrates.</li> <li>2. quartz tube/liner x2 (one for Cl-based one for F-based)</li> <li>3. metal linerx1 for sputtering etch</li> <li>4. Chiller, helium pressure, Machine clamp</li> <li>5. RF bias, automatic matching network 600 W 13.56 MHz, ICP 2.0MHz automatic matching network 2KW</li> </ol> </li> </ul>
3	Process recipes	<ul style="list-style-type: none"> <li>• At the time of installation, all standard process recipes should be provided</li> </ul>
4	Substrate details	<ul style="list-style-type: none"> <li>• Processing up to 8-inch wafers</li> <li>• Offer substrate kits for 200 mm and 100 mm wafers. Other wafer kits to be offered as optional. The system will offer the capabilities to process 6- inch, 3-inch, 2 inches, and cut pieces of substrates measuring no more than 2cm x 2cm on carrier wafers.</li> <li>• Should be able to handle substrates other than Si like Sapphire. Regardless the dimensions of the other types substrates would have the same dimensions of the SEMI Si wafers.</li> </ul>
5	Tool requirements	<ul style="list-style-type: none"> <li>• Load lock chamber: software-controlled load and unload</li> <li>• The roughing vacuum pump for main chamber and load lock chamber should be a shared dry pump with appropriate pumping capacity. Turbo-molecular pump with appropriate capacity for ensuring the required process vacuum.</li> <li>• He substrate cooling</li> </ul>
6	Substrate	<ul style="list-style-type: none"> <li>• 30 to +150 deg C</li> </ul>

	temperature	
7	Power level	<ul style="list-style-type: none"> <li>ICP RF Source 2KW@2MHz and bias RF generator 600W@13.56Mhz</li> </ul>
8	Chuck configuration	<ul style="list-style-type: none"> <li>Manual chuck with the provision to handle 8-inch and 4-inch wafers. Qualification / acceptance should be based on 200 mm SEMI standard wafers (double and single polished, round with notch &amp; 670 micron thickness).</li> <li>Using various wafer sizes like 2",3",4",6" or 8" should be easy, changing different wafer processing size should not require opening the chamber for reconfiguration. Provide details on switching between wafers with ease.</li> </ul>
9	End point detection	<ul style="list-style-type: none"> <li>Give all the options available, itemize cost.</li> <li>The end point should be integrated with the system software for ease of monitoring.</li> <li>System is capable to accommodate multiple end pointing options, if equipped.</li> </ul>
10	Process gas lines required	<ol style="list-style-type: none"> <li>O2</li> <li>Ar</li> <li>N2</li> <li>H2</li> <li>BCl3</li> <li>Cl2</li> <li>C4F8</li> <li>CHF3</li> <li>SF6</li> <li>CF4</li> </ol> <p>The max flows for the MFCs would be at 100 sccm</p>
11	Gas Manifold	<ul style="list-style-type: none"> <li>Gas manifold can accommodate up to 11 lines.</li> <li>MFCs need to be installed only for the lines and gases specified. All the lines should have swagelok VCR fittings and welding if any should be orbital welding. The lines should be SS316L electro-polished suitable for corrosive and non-corrosive gases used for the specific process. MFCs should be MKS make or equivalent.</li> </ul>
12	Footprint & weight	<ul style="list-style-type: none"> <li>The system should be compatible with better than class 1000-cleanroom environment. The total footprint should be within 180cm x 100cm, and weight under 600kg.</li> </ul>
13	Process software	<ul style="list-style-type: none"> <li>Front panel displaying equipment and process status along with appropriate software to be supplied. The controls software will be able to show the synoptics of all the system components and be able to follow the process in real time.</li> </ul>

		<ul style="list-style-type: none"> <li>• Typical operations should be done within the controls system software, without the need to manually set up any sub-system component at various control panels of the component.</li> <li>• The software must allow at least 4 levels of instrument access. Simplified basic access for a user to a full access to an engineer.</li> <li>• Interlock that can interface with the online reservation system, so that the tools can only be used by authorized users.</li> <li>• Complete logs of all the process and system parameters to be available and stored in .CSV format for future trouble shooting</li> <li>• Graphical representation of tool and process parameters</li> <li>• Provision to alert the user in case of emergencies and an option to integrate the alarm system into the safety committee in CeNSE building monitoring software via SECS/GEM integration protocol</li> <li>• Software needs to be supported for the lifetime of the Tool</li> </ul>
14	Periodic Maintenance	<ul style="list-style-type: none"> <li>• The system should require minimal maintenance.</li> <li>• Mention the recommended preventive maintenance schedule for the system. Any accessories needed for periodic preventive maintenance for 1 years e.g. O-rings, should be mentioned in separately the itemized quote. Preventive maintenance is expected to be carry out every six months as standard recommendation, but depends on user preferences.</li> <li>• The preventive maintenance should be done by a trained on-site engineer or requires a specialist from the OEM. Please provide cost of a 3-year AMC with required kit/consumables for the purpose of cost of ownership analysis.</li> <li>• The system should be supported by a trained local representative and should have a 48 hour window of response.</li> </ul>
15	Installation and Training	<ul style="list-style-type: none"> <li>• Installation and training at customer site, by the experts from principals or its certified local partners should be part of the package.</li> <li>• During the installation all the hardware and software specifications should be verified for acceptance by the customer. Process specifications per the “acceptance tests” section below should be verified by the customer.</li> <li>• If periodic maintenance can be done by the on-site engineer, please include the cost of training the engineer.</li> </ul>
16	Power & utilities	<ul style="list-style-type: none"> <li>• The instrument should work with Indian standards ☐ Mention the power requirement.</li> <li>• Mention any utility requirement (water, air, exhaust, etc.)</li> </ul>

17	Gas abatement system	<ul style="list-style-type: none"> <li>• Specify the scrubbing system needed for treating exhaust gases</li> <li>• Specify the exhaust system needed to do an open chamber clean after etching materials with toxic etch products</li> </ul>
18	Safety	<ul style="list-style-type: none"> <li>• Mention any special safety requirement of the tool</li> <li>• The tool must come with a complement of interlocks to prevent common user errors.</li> <li>• Sensors should be provided to detect ppb levels of gas leaks and utility failures including scrubber failure</li> <li>• Any malfunction should have an audible alarm system.</li> <li>• Flashing lights during emergencies should also be an option</li> </ul>
19	Recommendation	<ul style="list-style-type: none"> <li>• The vendor must submit references from at least 3 previous installations</li> <li>• The names and contact addresses of the referees must be submitted with the proposal, so the purchase committee can contact them independently.</li> </ul>
20	Acceptance tests	<ul style="list-style-type: none"> <li>• <b>Test 1: SiO<sub>2</sub> Etching (F based chemistry)</b> <ul style="list-style-type: none"> <li>○ <b>Material:</b> 5 μm thick SiO<sub>2</sub></li> <li>○ <b>Pattern:</b> 1 μm trench</li> <li>○ <b>Wafer:</b> 200 mm SEMI</li> <li>○ <b>Hard mask:</b> Cr</li> <li>○ <b>Required selectivity:</b> 5:1 (SiO<sub>2</sub> : Cr)</li> <li>○ <b>Chemistry:</b> Fluorine-based plasma</li> </ul> </li> <li>• <b>Test 2: Metal Etching (Cl based chemistry)</b> <ul style="list-style-type: none"> <li>○ <b>Material:</b> TiN or Cr/Au (final material to be confirmed at order stage)</li> <li>○ <b>Pattern:</b> 200 nm trench</li> <li>○ <b>Etch depth:</b> 200 nm</li> <li>○ <b>Wafer:</b> 200 mm SEMI</li> <li>○ <b>Selectivity (etched material: hard mask):</b> 10:1 with respect to SiO<sub>2</sub> or HfO<sub>2</sub> as a hard mask (For 100 nm TiN or Cr/Au etching)</li> <li>○ <b>Etch profile must be:</b> <ul style="list-style-type: none"> <li>Clean</li> <li>Repeatable</li> <li>Residue-free</li> </ul> </li> </ul> </li> <li>• Uniformity should be <math>\pm[(\text{max}-\text{min})/(\text{max}+\text{min})]*100\%</math> over 5 points per wafer. Characteristics should be measured on wafers with edge exclusion of 10 mm. Locations of measurement points should be center, top, bottom, left right.)</li> </ul>

		<ul style="list-style-type: none"><li>• Demonstrate working of all the accessories including endpoint</li><li>• Detector if endpoint options are included in the contract.</li></ul>
21	Delivery	<ul style="list-style-type: none"><li>• Minimum delivery schedule</li></ul>

The Indian vendor if submitting bid on behalf of foreign supplier should be representing OEM for minimum Ten years and should have trained service engineers to maintain system in India.

## **Section 5 – Technical Bid**

The technical bid should furnish all requirements of the tender along with all annexures in this section and submitted to

The Chairperson,  
Attn: Dr. Sreetosh Goswami  
Centre for Nano Science and Engineering Indian Institute of Science  
Bangalore – 560012, India  
Email: [sreetosh@iisc.ac.in](mailto:sreetosh@iisc.ac.in)

## **Annexure-1**

### Details of the Bidder

The bidder must provide the following mandatory information & attach supporting documents wherever mentioned:

### Details of the Bidder:

Sl No.	Items	Details
1.	Name of the Bidder	
2.	Nature of Bidder (Attach attested copy of Certificate of Incorporation/ Partnership Deed)	
3.	Registration No/ Trade License, (attach attested copy)	
4.	Registered Office Address	
5.	Address for communication	
6.	Contact person- Name and Designation	
7.	Telephone No	
8.	Email ID	
9.	Website	
10.	PAN No. (attach copy)	
11.	GST No. (attach copy)	

Signature of the Bidder

Name

Designation, Seal

Date:

**Annexure-2**

Declaration regarding experience

To,  
The Chairperson,  
Centre for Nanoscience and Engineering, Indian Institute of Science,  
Bangalore – 560012, India

Ref: Tender No: XXXXXXXXXX Dated: XXXXX

Supply and installation of a **ICP-RIE System running Fluorine and Chlorine based Chemistry** at CeNSE, IISc Bangalore.

Sir/Madam,  
I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company / firm has \_\_\_years of experience in supplying and installing \_\_\_\_\_

(Signature of the Bidder)

Printed Name

Designation, Seal

Date:

**Annexure-3**

**Declaration regarding track record**

To,  
The Chairperson,  
Centre for Nano Science and Engineering Indian Institute of Science,  
Bangalore – 560012, India

Ref: Tender No: XXXXXXXX Dated: XXXXX

Supply and installation of a **ICP-RIE System running Fluorine and Chlorine based Chemistry** at CeNSE, IISc Bangalore.

Sir/Madam,

I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company/ firm is not currently debarred / blacklisted by any Government / Semi Government organizations / institutions in India or abroad. I further certify that I'm competent officer in my company / firm to make this declaration.

Or

I declare the following

Sl.No	Country in which the company is Debarred /blacklisted case is Pending	Blacklisted / debarred by the Government / Semi Government/Organizations //Institutions	Reason	Since when and for how long

(NOTE: In case the company / firm was blacklisted previously, please provide the details regarding period for which the company / firm was blacklisted and the reason/s for the same).

Yours faithfully

(Signature of the Bidder)

Name

Designation, Seal

Date:

**Annexure – 4**

**Declaration for acceptance of terms and conditions**

To,  
The Chairperson,  
Centre for Nano Science and Engineering Indian Institute of Science,  
Bangalore – 560012, India

Ref: Tender No: XXXXXX Dated: XXXX

Supply and installation of a **ICP-RIE System running Fluorine and Chlorine based Chemistry** at CeNSE, IISc Bangalore.

Sir/Madam,  
I've carefully gone through the Terms & Conditions as mentioned in the above referred tender document. I declare that all the provisions of this tender document are acceptable to my company. I further certify that I'm an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the Bidder)

Name

Designation, Seal

Date:

## **Annexure – 5**

Details of items quoted:

- a. Company Name
- b. Product Name
- c. Part / Catalogue number
- d. Product description / main features
- e. Detailed technical specifications
- f. Remarks

Instructions to bidders:

1. The bidder should provide technical specifications of the quoted product/s in detail.
2. Bidders should attach product brochures along with technical bid.
3. Bidders should clearly indicate compliance or non-compliance of the technical specifications provided in the tender document.

## **Section 6 – Commercial Bid**

The commercial bid should be furnished with all requirements of the tender with supporting documents as mentioned under:

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total
1	Essential items noted in the technical specification				
1.a	...(details of essential items)				
1.b	...				
2	Optional items noted in the technical specification				
2.a	... (details of essential items)				
2.b	...				
3	Accessories for operation and installation				
4	All Consumables, spares and software to be supplied locally				
5	Warranty (1 years)				
6	AMC 2 years beyond warranty				
7	Cost of Insurance and Airfreight				

Any additional items

S.No	Description	Cat.	Number Quantity	Unit Price	Sub total

Addressed to

The Chairperson,  
Attn: Dr. Sreetosh Goswami  
Centre for Nano Science and Engineering Indian Institute of Science  
Bangalore – 560012, India  
Email: [sreetosh@iisc.ac.in](mailto:sreetosh@iisc.ac.in)

## **Section 7 – Checklist**

(This should be enclosed with technical bid- Part A)

The following items must be checked before the Bid is submitted:

### (1) Sealed Envelope “A”: Technical Bid

- a. Section 5- Technical Bid (each page signed by the authorized signatory and sealed) with the below annexures:
  - i. Annexure 1: Bidders details
  - ii. Annexure 2: Declaration regarding experience
  - iii. Annexure 3: Declaration regarding clean track record
  - iv. Annexure 4: Declaration for acceptance of terms and conditions
  - v. Annexure 5: Details of items quoted.
- b. Copy of this tender document duly signed by the authorized signatory on every page and sealed.

### (2) Sealed Envelope “B”: Commercial Bid

- a. Section 6: Commercial Bid

Your quotation must be submitted in two envelopes: Technical Bid (Envelope A) and Commercial Bid (Envelope B) super scribing on both the envelopes with Tender No. and due date and both of these in sealed covers and put in a bigger cover which should also be sealed and duly super scribed with Tender No., Tender description & Due Date.

Thanking you,

Dr. Sreetosh Goswami  
Associate Professor  
Centre for Nano Science and Engineering  
Indian Institute of Science, Bangalore, India 560012.  
E-mail: [sreetosh@iisc.ac.in](mailto:sreetosh@iisc.ac.in)