

## Global Tender

This is Request for Quotation for DRIE system at Centre for Nano Science and Engineering (CeNSE) at IISc, Bangalore.

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## Section 1 - Bid Schedule

1	Tender No	CeNSE/SKS/NNFC/2025/06
2	Tender Date	08 <sup>th</sup> July 2025
3	Item Description	DRIE system
4	Tender Type	Two bid system Technical Bid (Part A) Commercial Bid (Part B)
5	Place of tender submission	National Nanofabrication Centre, Centre for Nano Science and Engineering (CeNSE), Indian Institute of Science (IISc), Malleshwaram, Bangalore - 560012 Karnataka, INDIA.
6	Last Date & Time for submission of tender	29 <sup>th</sup> July 2025, by 4pm IST
7	For further clarification	Saleem Ahmed B, National Nanofabrication Centre, Centre for NanoScience and Engineering, Indian Institute of Science, Bangalore-560012 Email: <a href="mailto:saleemb@iisc.ac.in">saleemb@iisc.ac.in</a>

## 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. 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.
5. The Bidder should have qualified technical service personnel for the instrument(s) based in India.

## 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 conformance to technical specifications.
    - i. The technical proposal should contain a technical compliance table with 5 columns.
    - ii. The first column must list the technical requirements, in the order that they are given in the technical requirement below.
    - iii. The second column should provide specifications of the instrument against the requirement. Please provide quantitative responses wherever possible.
    - iv. 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.
    - v. The fourth column should state the reasons/explanations/context for deviations, if any.
    - vi. The fifth column can contain additional remarks from the OEM. 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.
  - 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 tender**, and other commercial terms and conditions.
3. The technical bid and commercial bid should each be placed in separate sealed covers, superscribing 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 superscribed with the Tender No, Tender Description & Due Date.
4. The SEALED COVER superscribing tender number / due date & should reach the Main office, GF-15, Centre for Nanoscience 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 Institute reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time prior to the award of contract, without there by incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders.
9. Incomplete bids will be summarily rejected.

#### B) Cancellation of Tender:

Notwithstanding anything specified in this tender document, the purchase committee, 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 60 Days from the date of opening of the commercial bid.

#### D) Evaluation of 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 purchase-order 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.

#### E) Purchase Order:

1. The order will be placed on the bidder whose bid is accepted by IISc based on the terms & conditions mentioned in the tender document.
2. The quantity of the items in 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.

#### F) Delivery:

It is mandatory to specify the delivery period.

#### G) Payment Terms:

The payments to non domestic vendors will be through a Letter of Credit and milestone of the payment will be determined after the mutual discussions with the successful bidder. As per GFR no advance payment can be made to domestic vendors, unless an equal amount of bank guarantee is provided.



#### H) 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.

#### I) Disputes 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.

#### J) 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. All imported items should be quoted in the currency of the country of origin, and all locally sourced items should be quoted in Indian Rupees.
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>• Deep Reactive ion etching of Si substrates</li> <li>• Shallow etches of Silicon (&lt;5um depth)</li> <li>• Must conform to some SEMI standard for ICP equipment manufacturing, e.g. SEMI SEMI E6-0914, SEMI E15-0698E2 , SEMI S21-1106E , SEMI S19-0311 (Reapproved 0816), etc.</li> </ul>
2.	Secondary application	<ul style="list-style-type: none"> <li>• Isotropic etch of Si</li> </ul>
3.	Process capability	<ul style="list-style-type: none"> <li>• Through Silicon etch using BOSCH process with the minimum (CD)critical dimension(50um) for substrate thickness of 500um and above</li> <li>• Silicon etch &gt;50um deep, with CD &lt;=2um on SOI, with less or no trenching and notching(footing)</li> <li>• High etch rate(&gt;15um/min) and low etch rate(&lt;5um/min) recipes</li> <li>• Anisotropic etch profile i.e vertical side walls of 90° with +/- 1 deg variation</li> <li>• Shallow etch of Si(&lt;5micron) with high aspect ratios, please specify the aspect ratios achieved</li> <li>• Etch uniformity &lt;5% with design(etch) density of 30% to 60% for same CDs and &lt;10% for varied dimensions</li> <li>• CD variation of &lt;5% after etch across 4inch wafer</li> <li>• Etch aspect ratio 1:50 or better for trenches from nm to micron ranges</li> <li>• Soft landing on thin membranes of material like SiO<sub>2</sub>(Thermal, PECVD, LPCVD etc.,) of thickness &lt;500nm(minimum 100nm) , of square or circular dimension of &lt;1mm (minimum 50um)</li> <li>• High etch selectivity of &gt;250 with SiO<sub>2</sub> mask and &gt;200 with AZ4562</li> <li>• Smooth side wall scallop/roughness &lt;50nm for low etch rate and &lt;300nm for high etch rates</li> <li>• No grass formation/micro masking on the bottom surface of the etch</li> <li>• Plasma dicing for die separation and etch for substrate planarization</li> <li>• Metal etch mask without effecting the cleanliness of the tool and standard processes(optional)</li> <li>• Provide detailed technical literature for the system use, such as your prior experience and technical data on etch processes and tool capabilities</li> </ul>

4.	Process recipes	<ul style="list-style-type: none"> <li>• Provide standard high and low etch rate recipes at the time of installation</li> <li>• Provision to create, edit and save minimum of 25 recipes</li> </ul>
5.	Substrate details	<ul style="list-style-type: none"> <li>• Processing of upto 6 inch Silicon wafers, Glass(optional)</li> <li>• Suitable substrate adapters to process 4 inch wafers should be available as an option</li> <li>• Thickness: 300um to 1000um</li> </ul>
6.	Etch Mask	<ul style="list-style-type: none"> <li>• SiO<sub>2</sub>(Thermal, PECVD)</li> <li>• Photoresist (AZ4562)</li> <li>• Metals(Optional)</li> <li>• Please specify other possible materials and their etch selectivity</li> </ul>
7.	Tool requirements	<ul style="list-style-type: none"> <li>• Load lock chamber: software-controlled load and unload options</li> <li>• Wider matching network</li> <li>• The roughing vacuum pump for main chamber and load lock chamber should be dry pumps with appropriate pumping capacity. Turbo-molecular pump with appropriate capacity for ensuring the required process vacuum.</li> <li>• Helium substrate cooling</li> <li>• High speed mass flow controllers</li> </ul>
8.	Substrate temperature	<ul style="list-style-type: none"> <li>• -10 to 30 degC.</li> </ul>
9.	Power level	<ul style="list-style-type: none"> <li>• Dual HDP ICP source (upto 3kW)</li> <li>• Radio and low frequencies wafer biasing, with pulsing possibility</li> </ul>
10.	Chuck configuration	<ul style="list-style-type: none"> <li>• Bipolar electrostatic chuck with the provision to handle 6 inch wafers</li> <li>• Give options for the use of 4 inch wafer as well</li> <li>• Options to be given for manual chuck as well, with the pro and cons of using the same.</li> </ul>
11.	End point detection	<ul style="list-style-type: none"> <li>• Give all the options available, itemize cost</li> </ul>
12.	Process gas lines required	<ul style="list-style-type: none"> <li>• O<sub>2</sub></li> <li>• N<sub>2</sub></li> <li>• SF<sub>6</sub></li> <li>• C<sub>4</sub>F<sub>8</sub></li> <li>• He</li> <li>• Two independent gas sources should be provided, centre and edge for more uniform process</li> </ul>

13.	Gas Manifold	<ul style="list-style-type: none"> <li>High speed digital MFC's need to be installed. 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.</li> </ul>
14.	Footprint & weight	<ul style="list-style-type: none"> <li>The system should be compatible with better than class 1000 cleanroom environment. Please specify the total foot print in cm x cm, and weight.</li> </ul>
15.	Process software	<ul style="list-style-type: none"> <li>Front panel displaying equipment and process status along with appropriate software to be supplied.</li> <li>The software must allow varying levels of instrument access. A 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 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 to NNFC building monitoring software</li> <li>Latest Software and need to be supported for the lifetime of the tool</li> </ul>
16.	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 3 years e.g. O-rings, should be mentioned in separately the itemized quote.</li> <li>Can the preventive maintenance be done by a trained on-site engineer or requires a specialist from the OEM? If the latter, please provide cost of a 3 year AMC with required kit/consumables.</li> <li>The system should be supported by a trained local representative and should have a 48hour window of response</li> </ul>
17.	Installation and Training	<ul style="list-style-type: none"> <li>Installation and training at customer site, by the experts from principals should be part of the package.</li> <li>During the installation all the specifications of the processes should be verified for acceptance 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>
18.	Power & utilities	<ul style="list-style-type: none"> <li>The instrument should work with Indian standards</li> <li>Mention the power requirement.</li> <li>Mention any utility requirement (water, air, exhaust, etc.)</li> </ul>

19	Gas abatement system	<ul style="list-style-type: none"><li>Specify if any scrubbing system is needed for treating exhaust gases from etching</li></ul>
20	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>Any malfunction should have an audible alarm system.</li><li>Flashing lights during emergencies should also be an option</li></ul>
21	Recommendation	<ul style="list-style-type: none"><li>The OEM must submit references from atleast 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>
22	Pre-purchase testing	<ul style="list-style-type: none"><li>To ensure the equipment conforms for specifications, the committee requires the vendor to perform some standard tests before the purchase process is complete. The validity of the tender will hinge on the successful and accurate measurement of these test samples.</li><li>The vendor must conclude the testing and submit the data within 1 week of receipt of samples.</li></ul>
23	Acceptance tests	<ul style="list-style-type: none"><li>Si etch of CD&lt;2um and depth of 50um on SOI</li><li>Through Silicon via etching of Si, CD 10um , depth 500um</li><li>Demonstrate working of all the accessories including endpoint detector</li></ul>

## Section 5- Technical Bid

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

The Chair,  
Centre for Nano Science and Engineering (CeNSE),  
Indian Institute of Science (IISc),  
Malleshwaram, Bangalore - 560012  
Karnataka, INDIA.

**Attention :** Saleem Ahmed B, NNFC, 080 22933319

## Annexure-1:

### Details of the Bidder

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

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 Chairman,  
Centre for Nano Science and Engineering (CeNSE),  
Indian Institute of Science (IISc),  
Malleshwaram, Bangalore - 560012  
Karnataka, INDIA.

Ref: Tender No: CeNSE/SKS/NNFC/2025/06

Dated:

Supply of \_\_\_\_\_

Sir,

I have 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 Chairman,  
Centre for Nano Science and Engineering (CeNSE),  
Indian Institute of Science (IISc),  
Mallechwaram, Bangalore - 560012  
Karnataka, INDIA.

Ref: Tender No: CeNSE/SKS/NNFC/2025/06

Dated:

Supply of \_\_\_\_\_

Sir,

I have 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 am 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 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 Chairman,  
Centre for Nano Science and Engineering (CeNSE),  
Indian Institute of Science (IISc),  
Mallechwaram, Bangalore - 560012  
Karnataka, INDIA.

Ref: Tender No: CeNSE/SKS/NNFC/2025/06

Dated:

Supply of \_\_\_\_\_

Sir,

I have 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 am 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. Bidder should provide technical specifications of the quoted product/s in detail.
2. Bidder 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	...				
7.	Cost of Insurance and Airfreight				
8.	CIP/CIF IISc, Bengaluru				

### Any additional items

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

Addressed to

The Chairman,  
Centre for Nano Science and Engineering (CeNSE),  
Indian Institute of Science (IISc),  
Mallechwaram, Bangalore - 560012  
Karnataka, INDIA.

**Attention :** Saleem Ahmed B, NNFC,  
080 22933319

## 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

**1. Section 5- Technical Bid (each page signed by the authorized signatory and sealed) with the below annexures:**

- a. **Annexure 1: Bidders details**
- b. **Annexure 2: Declaration regarding experience**
- c. **Annexure 3: Declaration regarding clean track record**
- d. **Annexure 4: Declaration for acceptance of terms and conditions**
- e. **Annexure 5: Details of items quoted**

**2. Copy of this tender document duly signed by the authorized signatory on every page and sealed.**

### 2. Sealed Envelop “B”: Commercial Bid

**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.**