

Request for Quote and Specifications of Resist processing station

- The GEECI (Gallium Nitride Ecosystem Enabling Centre and Incubator) at SID-Indian Institute of Science is seeking bids from qualified industries for Resist processing station tool as per the specifications below.
- Companies need to submit two bids, a technical bid and a commercial bid, in **two separate** sealed envelopes. The bids should be submitted no later than 30 days from the date of posting of this tender, as listed on the website date/time stamp, and by 5 pm on the 30th day or next weekday in case the 30th day falls on a weekend or a national holiday.
- Both technical and commercial bids should be addressed to “The Chief Executive, SID, IISc, Bangalore 560012, GST # 29AAATS5333E1ZJ.”
- All quotations should be CIF Bangalore.
- Cost of last mile transportation, including any insurance, from port of shipment to IISc has to be quoted as an option.
- In case of courier shipments maximum permissible weight would be 70kgs.
- The envelopes should be addressed to “Prof. Srinivasan Raghavan, CeNSE, IISc, Bangalore, 560012” and submitted to the office at CeNSE, IISc in Room No. GF 15 between 9 am and 5 pm.
- All questions regarding this tender should be addressed to Prof. Srinivasan Raghavan at the email address sraghavan@iisc.ac.in
- Post such submission all vendors should send an email to sraghavan@iisc.ac.in with the subject line: “GEECI_Bidder’s name_Tool Name” to intimate him of the submission within one day.
- 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.
- The equipment sought will be placed at the Centre for Nano Science and Engineering (CeNSE), Indian Institute of Science (IISc). IISc is India’s No. 1 institution on higher learning and the Center for Nano Science and Engineering is home to one of the best academic fabs in the world.
- The technical response, corresponding to the tool being offered, should be in the form of a compliance table with at least 5 columns. Serial number in column 1. Each of the numbered items below, **technical and non-technical**, should be addressed in a separate row of the table in column 2. Compliance to this requirement, in Yes/No, deviation from it and justification should be provided in the neighbouring columns 3-5. Post the opening of a hard copy of the technical bid the committee will request for a soft copy of the files for further processing. Companies should **NOT** mail soft copies of the files unless specifically requested for.
- Detailed technical specifications of the tool being offered should be included.
- Any additional capabilities or technical details, that you would like to bring to the attention of the purchase committee, can be listed at the end of the technical table.
- If multiple systems can fulfill the requirements, vendors can submit multiple bids.
- Vendors are encouraged to highlight the advantages of their tools over comparable tools from the competitors.
- The commercial bid should be broken up to the maximum extent possible into separate items with a cost against each to enable better comparison of price for various configurations across the bidders. As an option, please provide itemized cost 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.

1.	Primary application	<ul style="list-style-type: none"> Resist coating and processing for optical lithography
2.	Wafer requirement	<ul style="list-style-type: none"> 100 mm and 150 mm wafer as primary. Wafer flat alignment for 100 mm and 150 mm. Wafer thickness 300-800 um Wafer acceptance through open cassette holder. Wafer bow 50-80 μm. Ability to handle transparent wafers. Ability to handle sample pieces e.g. 1X1 cm.
3.	Coating module	<ul style="list-style-type: none"> 1 resist coating module. Spin coater with 10,000 ± 1 rpm max speed Option to have two nozzles for two photoresist dispense. Programmable nozzle dispense, position, and park position Ability to perform dummy dispense. Ability to perform programmable edge-bead removal. Uniform pressure control over the coater. Ability to pump high-viscosity resist. Give maximum viscosity. Ability to control resist flow down to 10 μl/sec. Cup-cleaning routine.
4.	Developer module	<ul style="list-style-type: none"> 1 spin developer module. Spinner with 6,000 ± 1 rpm max speed Option to have two nozzles for two difference dispense. Programmable nozzle dispense, position, and park position Ability to perform dummy dispense. Programmable backside rinse. Ability to perform puddle development Cup-cleaning routine.
5.	Hot plate modules	<ul style="list-style-type: none"> 2 hot-plate modules. Max temperature 180 ± 0.5 °C Specify cleaning requirement.
6.	Chiller plate module	<ul style="list-style-type: none"> 1 chiller plate module. Room temperature with ≤1 °C Specify cleaning requirement
7.	Wafer throughput	<ul style="list-style-type: none"> ≥ 50 WPH (6 inch wafer)
8.	Environment inside tools	<ul style="list-style-type: none"> Class 100 or better Tool level filter and exhaust
9.	Resist and developer storage	<ul style="list-style-type: none"> Chemistry cabinet for storage of chemicals
10	Particle per wafer front side	<ul style="list-style-type: none"> Vendor to specify.
11	Particle per wafer back side	<ul style="list-style-type: none"> Vendor to specify.
12	Footprint, weight, and heat load	<ul style="list-style-type: none"> The system should be compatible with a better than class 100 cleanroom environment. Please specify the total footprint in cm x cm and weight, including the heat load on the cleanroom. Specify any special environment requirement.

13	Process software	<ul style="list-style-type: none"> • Front panel displaying equipment and process status along with appropriate software to be supplied. • The software must allow varying levels of instrument access. A simplified basic access for a user to full access to an engineer. • Interlock that can interface with the online reservation system, so that the tools can only be used by authorized users. • Complete logs of all the process and system parameters to be available and stored for future trouble shooting. • Graphical representation of tool and process parameters • Software needs to be supported for the lifetime of the tool.
14	Periodic Maintenance	<ul style="list-style-type: none"> • The system should require minimal maintenance. • Mention the recommended preventive maintenance schedule for the system. Any accessories needed for periodic preventive maintenance for 5 years should be mentioned in separately the itemized quote. • Can the preventive maintenance be done by a trained on-site engineer or requires a specialist from the OEM? If the latter, please provide the cost of a 5 year AMC with required kit/consumables. • The system should be supported by a trained local representative and should have a 48 hour window of response
15	Installation and Training	<ul style="list-style-type: none"> • Installation and training at the customer site by the experts should be part of the package. • Include training at the OEM site as an option. • During the installation, all the specifications of the processes should be verified for acceptance by the customer. • If periodic maintenance can be done by the on-site engineer, please include the cost of training the engineer. • The following documentation should be provided. <ul style="list-style-type: none"> ○ ISO9001 quality certification ○ CE marking confirmation. ○ Installation documentation
16	Power & utilities	<ul style="list-style-type: none"> • The instrument should work with Indian standards. • Mention the power requirement. • Mention any utility requirement (water, air, exhaust, etc.)
17	Warranty	<ul style="list-style-type: none"> • Vendor to provide a comprehensive part and labor warranty for a period of 24 months. • Vendor should guarantee >90% uptime of the tool.
18	Safety	<ul style="list-style-type: none"> • Mention any special safety requirement of the tool. • The tool must come with a complement of interlocks to prevent common user errors. • Any malfunction should have an audible alarm system. • Flashing lights during emergencies should also be an option.
19	Recommendation	<ul style="list-style-type: none"> • The system must submit references from at least 3 previous installations in a semiconductor fab type clean room conditions.

		<ul style="list-style-type: none"> The names and contact addresses of the referees must be submitted with the proposal, so the purchase committee can contact them independently.
20	Pre-purchase testing	<ul style="list-style-type: none"> To ensure the equipment conforms for specifications, the committee requires the vendor to perform some standard tests before the purchase process is complete.
21	Acceptance tests	<ul style="list-style-type: none"> The systems should be commissioned and demonstrated to meet the processes requested. Recipes to be provided for all requested process with starting points and trend information. Demonstration of coating and development of standard photorest such as AZ5214. Submit an acceptance test proposal as a part of the technical bid.
22	<ul style="list-style-type: none"> Qualification and Acceptance Criteria: Details of the stage wise certification protocols to be pursued for tool acceptance should be included in the technical bid. The PO will include a mutually agreed upon set of tool qualification criteria. Please list a set of acceptance tests for on-site (vendor) inspection and after installation at IISc. 	
23	<ul style="list-style-type: none"> SEMI Standards: The technical bid should include details of the SEMI standards the tool confirms to. 	
24	<ul style="list-style-type: none"> Clean Room Compatibility: The system should be compatible with better than class 100 cleanroom environment. 	
25	<ul style="list-style-type: none"> Shipping: On all systems the cost of shipping up to IISc should be included. IISc will help with customs clearance at Bangalore Airport. Please include your payment option. IISc would prefer to retain at least 20% of payment till instruments have been commissioned and successfully demonstrated. 	
26	<ul style="list-style-type: none"> Tool Training: The bid should include as an option the cost of training personnel on site before shipment and post installation at IISc. 	
27	<ul style="list-style-type: none"> Tool footprint and utilities: A floor plan should be part of the technical bid. A list of utility requirements should be part of the technical bid. The system should be compatible with 240±10V, 50 Hz single phase or 415±20V, 50 Hz 3 phase supplies. The MINIMUM set of utility requirements needed are provided in Table 1. If there are additional utility requirements please include them in the technical bid. Please list connector types for all utilities. 	
28	<ul style="list-style-type: none"> Cost of Ownership and supply of spares: The quote should include a listing of spares that need to be replaced periodically to ensure that the system is in operation in a stable fashion – the stability parameters being defined by the vendor and agreed to by the client – the cost of such items, the ability to guarantee their availability at this cost for a period of 5 years from the time of procurement. The aim of this exercise is to compare cost of ownerships between reactors. 	

29	<ul style="list-style-type: none"> • Maintenance: The cost of an annual maintenance contract and cost of emergency technical support that may involve an engineer being on site should be quoted for in the commercial bid and addressed in the technical bid. The availability of trained engineers in India for servicing the system will be preferred and should be described in the technical bid.
30	<ul style="list-style-type: none"> • Maintenance: On all systems a set of basic tools required -non-standard screw or spanner head that is required for routine tool maintenance should be mentioned- for performing routine maintenance should be included.
31	<ul style="list-style-type: none"> • Maintenance: System operation, process and troubleshooting manuals and detailed drawings are a must. Their inclusion must be indicated in the technical bid.
32	<ul style="list-style-type: none"> • Online support: System should have the capability for online diagnostics from a remote location in case of tool problems.
33	<ul style="list-style-type: none"> • Post sales service and Indian Presence: Bidders should provide details of after sales service and support and in particular that available in India. If not India, the nearest geographical location should be specified. Please provide details of the number of trained personnel in India who can service the machine, the number of tools sold in India and the corresponding number in the southern region or in Bangalore.
34	<ul style="list-style-type: none"> • Payment Terms and Conditions: On all systems the payment terms should be specified in the technical and commercial proposal and is subject to negotiation. Please include your payment option. IISc would prefer to retain at least 20% of payment till instruments have been commissioned and successfully demonstrated.
35	<ul style="list-style-type: none"> • References: Bidders should provide details of other locations in India with similar tool installations.
36	<ul style="list-style-type: none"> • References: Bidders should provide details of at least 3 other locations globally where similar tool installations have been deployed for device fabrication in a clean room preferably for production purposes.
37	<ul style="list-style-type: none"> • Company financials: Bidder shall have to submit audited accounts of financial year 2017-18, 2018-19 and 2019-20. Audited statement must be signed and stamped by qualified chartered accounted. Income Tax return for assessment year – 2017-18, 2018-19 and 2019-20.
38	<ul style="list-style-type: none"> • The following documentation should be provided. ISO9001 quality certification. CE marking confirmation.
39	<ul style="list-style-type: none"> • III-V nitride processing: Please include information on whether the tool and its fixturing has been used for deposition of the said metals on GaN on Si wafers of 6” diameter for power applications.

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| 40 | <ul style="list-style-type: none">• Qualification and Acceptance Criteria: Thickness uniformity $\pm 5\%$ or better over a 6 inch substrate of selected materials. Commissioning shall involve demonstration of growth of single or multiple metal layers mutually agreed upon between the client and vendor and characterized by the client within time frames agreed upon. Details of the stage wise certification protocols to be pursued for tool acceptance should be included in the technical bid. The PO will include a mutually agreed upon set of tool qualification criteria. Please list a set of acceptance tests for on-site (vendor) inspection and after installation at IISc. |
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Details to be provided in addition to other utility requirements the tool may require. If not applicable mark as NA: Not applicable.

				Electric	Chilled Water	Gases																Exhaust	Thermic load
L (mm)	Tool Foot Print, (LXBXH)			Power consumption average	Cooling capacity	UHP Nitrogen	UHP Hydrogen	Dopant Silane	Pure Silane	Ammonia	Chlorine	He	Oxygen	Regular Nitrogen	CF4	CHF3	SF6	NO2	BCl3	Argon	Forming Gas		Thermic load to clean room
B (mm)			Area	kW	l/h	slpm	slpm	slpm	slpm	slpm	slpm	slpm	slpm	slpm	slpm	slpm	slpm	slpm	slpm	slpm	slpm	m ³ /h	kW
H (mm)				kVA																			