SUSHOBHAN AVASTHI
Assistant Professor

T +91 80 2293 2949
E savasthi@iisc.ac.in
http://www.cense.iisc.ac.in/sushobhan-avasthi

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To Whom It May Concern

Open Tender for a Plasma-Ashing System for CENSE, IISc.

This is an RFQ (Request for Quote) for procurement of a plasma ashing system as part of an open tender for the Centre for Nano Science and Engineering (CeNSE) at IISc, Bangalore.

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 additional technical burden on the tool. We need a tool that can tolerate heavy usage (atleast 30 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/

Procedure

1. Vendors will be required to submit a technical proposal and a commercial proposal in **two separate sealed envelopes**. Quotes in violation of this will be rejected.
2. **The deadline for submission of proposals is the 22nd of January 2019, 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.
3. The decision of the purchase committee is final.
4. The technical proposal should contain
    a. Relevant technical datasheets. The committee reserves the right to cross-check the information in these datasheets with publicly available information.
    b. A compliance table with 5 columns. The first column must list the technical requirement, in the order that they are given in the technical configuration below. The second column should describe the capability of the tool for that specific requirement. In case the technical requirement is a question, second column must provide a technical answer. Please be quantitative and consistent with the technical datasheets. Third column must specify whether the technical requirement is met with a “Yes”, “No”, or “Partially”. If the response is “Partially” or “No” the third column, the fourth column must explain the extent of the deviation and, if possible, the reasons for the deviation. The fifth column is for other

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"Remarks". You can use it to compare your tool with that of your competitors or provide more details/justifications.

c. 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.
d. Any additional capabilities or technical details, that you would like to bring to the attention of the purchase committee. Vendors are encouraged to highlight the advantages of their tools over comparable tools from the competitors

5. The technical proposal will be evaluated against the technical requirement. Only vendors who meet the technical requirement will be considered for the commercial negotiation.
6. If multiple systems fulfill the requirements, vendors can offer multiple bids.
7. The commercial bid must contain:
    a. Itemized cost of the system and *required* accessories, such as software, power supply, etc.
    b. 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.
    c. The quotes should be CIF Bangalore, India. So please include cost of shipping to Bangalore. The quote does not need to account for Customs duties.
    d. Please indicate the warranty provided with the tool. Warrant of 3 years of more is preferred.
    e. 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 30 hours/week. This number will be used to estimate the life cycle cost of the tool.
    f. The cost of annual maintenance contract. The details of AMC are given below. This number will be used to estimate the life cycle cost of the tool.
    g. 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 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.
8. As an additional option, provide cost of an annual maintenance contract (AMC) for 3 years, post warranty. The AMC must
    a. cover 1 scheduled and 1 emergency visit per year;
    b. The emergency visit should be supported with a 48-hour response window.
    c. clarify if maintenance will be done by a trained onsite engineer (CeNSE employee) or a specialist from the OEM.
    d. in case the OEM is foreign, clarify if maintenance will be done by a trained engineer from India (local representative or Indian subsidiary) or by a trained engineer from abroad.
    e. include an itemized list of spares (e.g. maintenance kits) that are essential for scheduled visits;

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9. The commercial bids will be evaluated based on life-cycle cost of the tool. This includes the cost of purchase, maintenance, spares, etc.
10. The RFQ must include references of 3 previous installations, preferably in India. Please provide the names and contact addresses of the referees, so that the committee can contact them independently.
11. We encourage vendors to give technical presentations, physically or over Skype, so that we can better understand the technical capabilities of their tools and vendors can better understand the requirements. To schedule the presentations, the vendors can contact Dr. Savitha P, GF-20, Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012, India. (savithap@iisc.ac.in).
12. Any technical questions can be directed to Dr. Savitha P, GF-20, Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012, India. (savithap@iisc.ac.in).

Technical Requirements

1.	Primary application	• Ashing of photoresists on semiconductor wafers • Descumming of semiconductor wafers
2.	Secondary application	• Surface treatment of the new/processes wafer
3.	Process capability	• Ashing of positive (AZ series, S1813) and negative photoresists (SU8 series) and e-beam lithography resists (PMMA). Thickness upto 10 um. • Remove residual photoresists. Especially polymeric residues after dry etch processes • O2/F plasma treatment for activating surfaces
4.	Process recipes	• At the time of installation, all standard process recipes for the processes list above should be provided
5.	Substrate details	• Processing small pieces up to 4 inch wafers.
6.	Tool requirement	• Small footprint table-top system preferred. • Systems that process one wafer per run are ok, give as an option ability to process 6 wafers at a time
7.	Substrate temperature	• Option to heat the substrate up to 80 °C.
8.	Power level	• Digitally controlled RF Power range 100W - 600W, with automatic power matching unit and with an option to bias the substrate (typical range of 100W - 600W)
9.	End point detection	• What capabilities are possible? List all as added “options”.
10.	Process gases lines required	1. O_2 2. Ar

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		3. N_2 4. CF4, as an option
11	Gas Manifold	• Gas manifold should have 4 lines. • MFCs need to be installed only for the lines and gases specified. • All the lines should have metal-seal or welded fittings (e,g, VCR) • The lines should be made of electro-polished SS316L suitable for corrosive and non-corrosive gases used for the specific process. • MFCs should preferably be MKS make.
12	Footprint & weight	• The system should compatible with better than class 1000 cleanroom environment. • Please specify the total foot print in cm x cm, • Please specify the weight.
13	Process software	• 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, more access to a superuser and 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 • The software will be supported for the lifecycle of the tool. For more details, please see point 7.g in the Procedure. • If control-computer has Windows OS. We require that it be Windows 10.
14	Periodic Maintenance	• Assume a tool-usage of 30 hours/week for all calculation in this item. • The system should require minimal maintenance. • List the recommended preventive maintenance schedule for the system, including the frequency, procedures, and accessories needed e.g. O-rings, etc. The cost of these *required* or *recommended* accessories should be mentioned be given in the commercial document, as specified in 7.e of the Procedure. • Please provide the technical scope of a 3-year AMC, post warranty, including the items in any maintenance kit.
15	Installation and Training	• Installation and expert training at CeNSE, IISc, Bangalore, must be part of the package. • During the installation all the specifications of the processes/tool will be verified for acceptance tests. Details are given below. • Can the periodic maintenance can be done by the on-site CeNSE

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		engineer? If yes, then please include the cost of training the engineer in the commercial bid
16.	Power & utilities	• The instrument should work with Indian electrical standards • Mention the power requirement. • Mention ALL utility requirement (water, air, exhaust, cooling, etc.)
17.	Gas abatement system	• Please give an option of a suitable scrubbing system to safely manage exhaust.
18.	Safety	• 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 indicator lights are required to signal tool status: “standby”, “in-use”, & “error/emergency” • There must be an emergency stop button on the front panel.
19.	Previous User Recommendations	• The system must submit references from atleast 3 previous installations • 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	• To ensure the equipment conforms for specifications, the committee may ask vendor to perform some standard tests *before* the purchase process is complete. The tests will be used to confirm the performance of the system. • Results that are inconsistent or inferior to claimed performance, may be grounds for rejecting the tender. • The vendor must conclude the testing and submit the data within 1 week of receipt of samples.
21.	Acceptance tests	• Complete ashing of 6 micron AZ4562 resist on 4” silicon wafer. • Descum a 4” Si wafer with a grid of 500 um through-holes etched using Deep-RIE (Bosch process), with no residue.

Thanking you,

Sushobhan Avasthi, Ph.D.
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Centre for Nano Science and Engineering
Indian Institute of Science, Bangalore, India 560012.
Cell : +91-99-0233-3360
Office : +91-80-2293-2949
E-mail: savasthi@iisc.ac.in