MEP
National
Network™

COMPLETE THIS FORM TO INITIATE SUPPLIER SCOUTING

MEPNN Supplier Scouting Opportunity Synopsis

☒ *The submitting entity agrees to notify NIST MEP of the status of actions taken as a result of this scouting instance within 30 days after receiving a results report. For instances where the submitting entity is an MEP Center submitting on behalf of a client, the MEP Center agrees to notify NIST MEP on behalf of their client. For instances where the submission is direct from federal/state agencies or is a private company, the submitting federal/state agency or private company entity agrees to notify NIST MEP. Notification should be via email to scouting@nist.gov, indicating the following:

- Contact with matches identified in report complete and supply contract awarded, process complete
- Contact with matches identified in report complete and no supply contract awarded, process complete
- Contact with matches identified in report complete and supply negotiations underway, process in progress
- Contact with matches identified in report underway; supply negotiations not yet begun; process in progress
- Contact with matches identified in report not yet begun, process in progress
- Contact with matches identified in report will not occur within the next 6-months, process complete

Mechanical Clamp Based Single Wafer Deep Silicon Etcher
Item to be Scouted

___________days
Opportunities will be postedfor 30 days unless specified

Please describe the item application/ the end use of item.* Provide the item number if applicable: (N95 Mask vs Protective Mask).

The National Institute of Standards and Technology (NIST) seeks information on commercial vendors that can provide a mechanical clamp based single wafer deep silicon etching system to support nanofabrication in the Center for Nanoscale Science and Technology (CNST) user facility. The system will be sited and used as a shared resource accessible to researchers from industry, academia, NIST, and other government agencies in the CNST NanoFab. The mechanical clamp based deep silicon etching system is a pattern transfer tool that uses fluorocarbon compounds and other chemicals to fabricate micron- and nano-scale structures in silicon materials. Applications include fabricating nano-semiconductor and nano-photonic devices.

2022-137
Supplier Scouting Number (NIST MEP use)

333242
Scouting customer/product NAICS Code, if known

TECHNICAL INFORMATION:

1. Supplier Information

a. Type of supplier being sought*

☒ **Manufacturer** ☐ **Contract Manufacturer** ☐ **Distributor**
☐ **Other** ______________________________

b. Reason for scouting submission*

☐ **2nd Supplier** ☐ **Price** ☐ **Re-shore** ☐ **Past supplier no longer available**
☐ **New Product Startup**
☒ **Other** ______________________________

2. Summary of Technical Specifications and Performance Requirements:

a. Describe the manufacturing processes (elaborate to provide as much detail as possible).*

Item to be purchased as a standalone unit

b. Provide dimensions / size / tolerances / performance specifications for the item.*

this mechanical clamp based single wafer deep silicon etching system is a pattern transfer tool that uses inductive coupled plasma (ICP) source and Bosch process to fabricate micron- and nano-scale structures in silicon with vertical sidewall of high aspect ratio, primarily using fluorocarbon and other etching gases. This new mechanical clamp based single wafer deep silicon etching system will be used to minimize the system down time, improve the process repeatability and add new NanoFab's etching process capabilities. 2. Tool configuration: The system must be equipped with following components: 1) A load-lock that transfers the samples in and out of the process chamber. 2) A process chamber that is compatible with reactive chemicals such as SF6, C4F8. 3) An ICP that operates from 0 to 3500 W or higher. 4) A reactive ion etching (RIE) electrode that operates from 0 to 300 W or higher. 5) Software that supports both manual and automatic operations. 6) Safety interlocks to keep users safe. 3. Wafer compatibility and cooling: 1) The system shall be able to process substrates with various sizes including 75 mm, 100 mm, 150 mm, and 200 mm substrate. 2) The system shall have a wafer carrier loading system which can adapt various wafer sizes without opening the process chamber. 3) The wafer carrier loading system shall have wafer top clamping and backside helium cooling. 2. Established process library: 1) The system shall have established processes for etching silicon. 2) Established process documentation shall include process parameters such as etch rate, selectivity, and profile with scanning electron microscope pictures.

c. List required materials needed to make the product, including materials of product components.*

Item to be purchased as a standalone unit

2. Summary of Technical Specifications and Performance Requirements cont:

d. Are there applicable certification requirements?* ☐ **Yes** ■ **No**
Please explain

e. Are there applicable regulations?* ☐ **Yes** ■ **No**
Please explain

f. Are there any other standards, requirements, etc.?* ☐ **Yes** ■ **No**
Please explain

g. Additional Comments: Is there other information that would impact the item's performance or usefulness? Please explain.

BUSINESS INFORMATION:

3. Volume and Pricing

3a. Estimated potential business volume (i.e., # Units Per Day, Month, Year) *:

One unit

b. Estimated target price / unit cost information (flexible and negotiable <u>not</u> accepted) ***:**

$700.000.00

4. Delivery Requirements:

a. When is it needed by? (Immediate, 30 Days, 6 months, etc.)*

ASAP

b. Describe packaging requirements (i.e., individually/group packaging)*

Flexible

c. Where will this item be shipped? *

NIST, 100 Bureau Drive, Gaithersburg, MD

5. Ad dit

Is there other information you would like to include?

Photos or diagrams of the item (helpful but not required).