Government of India  
Bhabha Atomic Research Centre  
Laser & Plasma Technology Division  

Trombay, Mumbai-85.  
Date: 03-11-2020

REF: LPTD/Works/VCM/20/ 110923

To

Sub: Inviting quotation for fabrication

Dear Sirs,

1. Quotations are invited for Fabrication, Supply and Installation of Process Chamber for CNT Functionalization with translation stage and data acquisition system as per Annexure D.
2. Bidder shall quote for fabrication along with components involved.
3. GST shall be quoted separately.
4. The quotations must reach, Head, Laser & Plasma Technology Division by 16-11-2020 and must be sent in a sealed envelope super scribed with the above reference number and due date given above.
5. The address on the envelope should read:
   Head, Laser & Plasma Technology Division
   Bhabha Atomic Research Centre, Trombay, Mumbai-400 085.
   (Attn: Vandana Chaturvedi Misra)
6. The bidder shall have to take insurance policy against any material issued to him by the purchaser.
7. The fabrication work shall be subject to inspection by our engineer. The final material shall not be dispatched prior to approval by our engineer at bidder's works. Necessary inspection facilities should be provided to our engineers during fabrication at bidder's premises.
8. The bidder shall deliver the final product after approval by our engineer, within 60 days from the date the firm purchase order is issued to the bidder. The final product shall be delivered by the bidder at PRIP Shed, BARC, Trombay.
9. Head, Laser & Plasma Technology Division, BARC, reserves the right to accept/reject any or all quotations without assigning any reason.
10. PAN number and GSTIN number must be given
11. There may be 5% change in the final design of the product and the price should be quoted accordingly.

Encl: As above

Copy to: Head SIRD, Accounts Officer G.S.S.

The quotations will be opened at 16.00 Hrs on 17-11-2020

Head, L&PT Division

M. L. Mascarenhas
Asstt Head
Laser & Plasma Technology Division
B.A.R.C.
Annexure-D

1. Justification and Scope of work:

Thermal Plasma Technology Section of Laser & Plasma Technology Division is involved in CNT functionalization using plasma sources. To ensure the uniform treatment in controlled atmosphere, a stainless steel chamber to mount the sample, equipped with motorized X-Y-Z translation stage for uniform movement of the samples is essential.

There is no free issue of material. Scope of the work includes procuring material of appropriate dimension, quantity and quality, fabrication of the components as per the design and specification, assembling of the components to form the final device and delivery of the item to the users place. Welding of the joints as necessary must be performed by certified welders only. Work shall be carried out to Indian Standards and Code of Practices. In absence, latest issue of International Standards shall be followed. Any discrepancies / conflict noticed shall be directed to the Executing Officer for her direction/approval. Required precision, overall dimension of the components and material of construction are provided for proper budgetary estimate. Detailed fabrication drawing of each and every component will be provided only after the issue of the final work order.

2. Design Specifications

2.1 SS Box enclosure

Box type SS Enclosure with acrylic Openable door
Size: 300mm x 320mm x 300mm
Other arrangements: 30 mm Ø opening at the top for torch fixing with appropriate screw arrangement and a small corner groove for a push-fit pipe provision (ID. 8mm Ø and OD 12mm Ø)
### 2.2 X-Y-Z translation Stage Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel Range</td>
<td>50mm x 50mm x 50mm</td>
</tr>
<tr>
<td>Screw Pitch</td>
<td>1mm</td>
</tr>
<tr>
<td>Resolution (8 subdivision)</td>
<td>0.625μ or better</td>
</tr>
<tr>
<td>Motor Type</td>
<td>Stepper Motor</td>
</tr>
<tr>
<td>Speed</td>
<td>0-10mm/s</td>
</tr>
<tr>
<td>Load Capacity</td>
<td>upto 5 Kg</td>
</tr>
<tr>
<td>Sample to be loaded</td>
<td>50 mm X 50 mm X 10 mm (height)</td>
</tr>
<tr>
<td>Dimension</td>
<td>based on SS Box and sample dimension.</td>
</tr>
</tbody>
</table>

**3-axis motion controller with 220V power supply**

The stages should be controlled by PC software through the standard RS232 or USB interface on the motion controller. The software should provide all the necessary functions for the movement in all three directions with variable speeds.

### 2.3 Sample Mounting Bracket

The right angle brackets should be provided to connect the translation stages to xz or xyz stages. Good perpendicularity of angle bracket should be ensured. There should be many holes on the angle brackets for better universality.

### 2.4 Data Acquisition system for Software Interfacing:

An appropriate data acquisition system with all necessary softwares should be supplied for operation.

- Specifications of the system
- Processor: i3 Core Processor
- RAM: 4GB
- Hard Disk: 1TB