GOVERNMENT OF INDIA
BHABHA ATOMIC RESEARCH CENTRE
Cryo-Technology Division

Ref: BARC/CrTD/MF/RS/2019/OPA/167424

Dated: 16/09/2019

To,

Tender No.: BARC/CrTD/MF/RSM/2019/OPA/167424
Tender Due Date: 16/10/2019

Dt.26/06/2019

Sub: Invitation to submit your quotation

On behalf of the President of India, Head, Cryo - Technology Division, Bhabha Atomic Research Centre invites lowest quotation in sealed envelope for the work given below as per the technical specifications enclosed herewith.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description of Job</th>
<th>Completion Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Turbine and brake wheel of 5 kW Turboexpander as per our specification and drawing.</td>
<td>6 Months</td>
</tr>
</tbody>
</table>

The terms and conditions are given below:

1. Qualifying criteria for bidders
   a. Firms willing to bid for above mentioned job shall have been vetted by Security Section of BARC.
   b. All the personals who likely to visit our premises regarding this job should have valid Police Verification Certificate (PVC).
   c. The past experience of the firm in, fabrication of turbines and brake wheels of high precision in nature is compulsory. The vendor must submit one sample of compressor wheel blank with one completed vane for verifying the technical capability of the vendor.
   d. The documentary evidence of experience of should be provided as criteria for vendor selection.
   e. Interested bidders shall contact the undersigned on Phone No. 25591752 with above mentioned details for getting the Detailed Tender Specification.

2. The quotation envelope shall be superscripted with Description of the job and the Tender Ref. No., mentioned above.

3. The complete quotation shall reach the following address on or before 16/10/2019 by Registered Post/Speed post. The quotations will be opened on the next working day in Cryo-Technology Division, BARC between 1400 to 1600 Hrs.
4. **Printed Letter Head**: Quotation should be printed on the letter head; computer generated quotation is not valid.

5. **Validity of the Offer**: Validity of the offer shall be 90 days from date of opening of quotation.

6. **Guarantee**: Vendor shall have to give guarantee of the quality and workmanship of work done for the period of 12 months from the date of completion of the work.

7. **Offer of Firm**: Offer of those firms, who do not submit their quotation as per the details given in the technical specification and incomplete quotations in any respect shall not be considered. Contractor shall quote lump sum price for the execution of the complete job. The price quoted shall remain valid at least for three months time from the date of offer.

8. **Extension of Tender opening**: The department reserves right to extend the date of opening the quotations.

9. **Payment Terms**: Accounts Division BARC Mumbai-400085 shall make full and final payment only after submission of the satisfactory work completion certificate issued from the undersigned, bill, guarantee certificate, delivery Chellan and advanced stamped receipt. No advance is admissible. In case of satisfactory work completion till 6 months, advance half the payment can be released.

10. **Income Tax Recovery Clause**: Income tax @ 2% will be deducted from the bill.

11. If any of the employee, consultant, or partner of the company is an Ex BARC employee, the same must be stated in the quotation clearly.

12. **Penalty**: Any delay which attributable to the contractor is liable for penalty @ 0.5 % per week (max 5 %) to be imposed on contractor.

13. **ST/VAT/PAN Number**: Quotation shall consists of GST Registration Number & PAN number of the firm.

14. **Quantity Variation Clause**: Quantity variation of ± 10% is possible during the execution of the job. Actual payment shall be made based on the actual work carried out by the contractor after completion of entire job.

15. **Safety & Security Rule**: The vendor shall follow all the safety procedures as per the normal industrial practice during the execution of the job at site. Any mishap occurring during the work due to unsafe workmanship shall be the vendor’s liabilities. Security
TECHNICAL SPECIFICATIONS FOR INDENT

High Precision Machining of Components as per the enclosed drawings and specifications.

1. High temperature side Turbine - 04 nos
2. High temperature side brake wheel - 04 nos
3. Low temperature side Turbine - 04 nos
4. Low temperature side brake wheel - 04 nos

Material of Construction- the vendor has to procure the material of construction Aluminium Alloy 7075T6 to fabricate turbines. Test report of the material is to be produced and get it approved before starting the fabrication. The turbine blanks to be inspected and get it approved from the purchaser before staring the works on 5 axis milling machine for vane machining.

Facilities required for item 1 & 2
The above components require high precision machining. Supplier shall have required precision machining facility. Tool room with ultra high precision lathe (e.g. CNC Spinner), 5 Axis CNC milling machine or equitant, CNC Jig Boring, metrology lab/ with adequate measuring instruments to measure the given tolerances. The vendor must submit one sample of compressor wheel blank with one completed vane for verifying the technical capability of the vendor.

Inspection is required to be carried out by properly calibrated precision measuring instruments. Supplier shall give the detail list of machining and measuring facility which will be used to execute the above mentioned job. The blanks of both turbines and brake wheels shall be inspected and approved by the purchaser before cutting the vanes.

Fabrication Drawings: Supplier shall submit the detailed fabrication/ machining procedure and get it approved with the purchaser before starting fabrication/ Machining. IGS files and drawings will be provided for fabrication of both turbine and compressor.

Special Notes: The quotation must contain the following details but for which it will be considered incomplete and liable to be rejected.
1. Details of manufacturing procedure and facility for manufacturing, inspection, calibration, testing, cleaning and packing facilities.
2. List of clients for similar ultra high precision jobs executed and their value. The previous experience in executing the similar type of jobs will be main criteria for the selection of the vendors.
3. The purchaser will have the right to suggest the minor changes in the drawings during fabrications/ Machining of the above items.
4. Any deviations from the above specifications and conditions should be clearly brought out by the party in the absence of which the offer may be rejected.

Packing: Suitable packing is to be used to avoid any scratches, dents etc. coming on components surface during handling and transportation.

Delivery: Components should be delivered within four months from the date of ordering.
<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Our Applicable Drawing</th>
<th>Component</th>
<th>Material of Construction</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CrTD/5kW/AC-MJ/01</td>
<td>High Temp. side turbine Dia. 45</td>
<td>7075T6 Aluminium alloy</td>
<td>4 nos</td>
</tr>
<tr>
<td>2</td>
<td>CrTD/5kW/RM-MJ/TE-5/08</td>
<td>High Temp. side Brake wheel Dia. 44</td>
<td>7075T6 Aluminium alloy</td>
<td>4 nos</td>
</tr>
<tr>
<td>3</td>
<td>CrTD/5kW/RM-MJ/03</td>
<td>Low Temp. side turbine Dia. 36</td>
<td>7075T6 Aluminium alloy</td>
<td>4 nos</td>
</tr>
<tr>
<td>4</td>
<td>CrTD/5kW/ MJ-RS/TE-5/09</td>
<td>Low Temp. side Brake wheel Dia. 52</td>
<td>7075T6 Aluminium alloy</td>
<td>4 nos</td>
</tr>
</tbody>
</table>

**Rights & Privileges:**

1. Purchaser reserves the right to inspect any machine, material, equipment, tools, measuring and calibration equipments used by the party for manufacturing these items and reject the use of any of them if found unsuitable or inappropriate for achieving the necessary specified quality and workmanship of these items or if it is likely to cause heavy rejections at any stage of manufacturing or testing or during further operations from the purchaser side.

2. Should the purchaser waive the right to inspect any equipment, tool, machinery, instruments etc, such waiving shall not relieve party in any way of his obligations for supplying the items as per the specifications.

3. Purchaser or his representative shall be permitted free access to party's or his sub contractor's premises at all reasonable times for the purpose of inspecting the works at all stages of manufacturing of these items.

[Signature]