Goverment of India  
Bhabha Atomic Research Centre  
Chemical Technology Division  

Ref: CTD/MDS/SS/388  
Date: 04/03/2020  

**Tender enquiry for minor fabrication work**  

Sealed quotations are invited on behalf of President of India for the work as per following technical specification of stacked cell components & accessories, Annexure 1.

### Annexure 1

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Component with MOC</th>
<th>Specification (Refer attached sketches)</th>
<th>Quantity (Nos.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Unipolar plate (Haste alloy C 276) UNS N10276</td>
<td>Haste alloy C 276 plate of ASTM B 575 standard. Circular plate of 268 mm outer dia. and 5 mm thickness. 4 number of nozzle holes of 15.76 mm dia. in 234.24 mm PCD. Flow channels on one side &amp; a connector (bus bar) of 10mm*25mm size and 70 mm length on opposite side. Only 2 nozzles are opened/connected to channels through internal slots. Strip is EB welded above internal channel. There are 2 number of curved channels of 15.76 mm width and 1 mm depth. There are 4 number of straight channels of 13.76 mm width and 1 mm depth.</td>
<td>2</td>
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<tr>
<td>2.</td>
<td>Bipolar plate (Haste alloy C 276) UNS N10276</td>
<td>Haste alloy C 276 plate of ASTM B 575 standard. Circular plate of 268 mm outer dia. and 5 mm thickness. 4 number of nozzle holes of 15.76 mm dia. in 234.24 mm PCD. Vertical flow channels in Side-A and horizontal flow channels in Side-B. Only vertical nozzles are opened/connected to channels in Side-A through internal slots. Strip is EB welded above internal channel. Only horizontal nozzles are opened/connected to channels in Side-B through internal slots. Strip is EB welded above internal channel. There are 2 number of curved channels of 15.76 mm width and 1 mm depth. There are 4 number of straight channels of 13.76 mm width and 1 mm depth.</td>
<td>3</td>
</tr>
</tbody>
</table>
| 3.     | Gasket (Viton) | - Material specification Viton 75  
- ASTM D 2000  
- Tensile, psi (MPa): Minimum 1450 (10)  
- Elongation: 150 (% Minimum)  
- Circular gasket of 268 mm outer dia., 200 mm inner dia. and 3 mm thickness.  
- 4 number of nozzle holes of 15.76 mm dia. in 234.24 mm PCD | 30 |
| 4.     | Tubing (Copper) | - ASTM B 280 (Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service)  
- Size: ¼ inch (Outer dia.: 6.35 mm & wall thickness: 0.635 mm)  
- Length: 10 metre | 5 |
| 5.     | Gasket (Expanded/soft PTFE) | - Gasket sheet is manufactured by expanding 100% virgin PTFE  
- Density ~0.9 g/cm³  
- PTFE of ASTM F 36 M compressibility (45%) & recovery (14%)  
- ASTM F 152 (Tensile strength across grain >20MPa)  
- DIN 52913 (Stress retention ~ 15MPa)  
- Circular gasket of 268 mm outer dia., 200 mm inner dia. and 3 mm thickness.  
4 number of nozzle holes of 15.76 mm dia. in 234.24 mm PCD | 25 |
| 7.     | Proton Exchange Membrane | - 30cm x 30cm size  
- N117 grade ‘Dupont’ make or equivalent | 3 |
<table>
<thead>
<tr>
<th></th>
<th>Conducting carbon paper-2</th>
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<tbody>
<tr>
<td></td>
<td>Nominal Basis Weight: 36 g/m³</td>
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<tr>
<td></td>
<td>Nominal Thickness (@ 1 psi / 0.7 N/cm²): 0.200 mm (200 microns)</td>
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<tr>
<td></td>
<td>Break Strength machine direction: 5.0 MPa</td>
<td></td>
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<tr>
<td></td>
<td>Break Strength cross machine direction: 3.5 MPa</td>
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<tr>
<td></td>
<td>Bulk Density (@ 0.69 N/cm³ / 1 psi): 0.20 g/cm³</td>
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<tr>
<td></td>
<td>Through-Plane Resistivity: 8.0 mOhm•cm²</td>
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<tr>
<td></td>
<td>PTFE Treatment: None</td>
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<tr>
<td></td>
<td>Microporous Layer (MPL): None</td>
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<tr>
<td></td>
<td>Size: 50 x 38 cm, Thickness 0.19 mm</td>
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</tbody>
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<thead>
<tr>
<th></th>
<th>Quartz column</th>
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<tbody>
<tr>
<td></td>
<td>As per attached drawing-QUARTZ COLUMN</td>
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</tr>
</tbody>
</table>

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General Terms & Conditions

Scope of work: Supply of raw materials, manufacture, inspection, testing, packaging, guarantee and delivery at site of stacked cell components & accessories as per technical specification, Annexure-1.

Completion period: Four months from the date of receipt of work order.

Guarantee: All items shall be guaranteed for all non-consumable products and workmanship and/or performance for 12 months from date of acceptance.

1. Terms of payments:
   1.1. No advance payment shall be made.
   1.2. Full payment shall be made once, after completion and supply of the entire items.
   1.3. Payment shall be made through cheque, in favor of the contractor and Accounts Officer, BARC, shall issue the same.
   1.4. Contractor shall confirm the payment terms mentioned above, variations if any may please be mentioned clearly.
   1.5. Please mention PAN Number, GST/VAT Number & Service Tax Number in your quotation.
   1.6. The contractor shall have to submit in advance duly signed and stamped receipt along with the bills & necessary papers for the payment.
   1.7. Necessary documents for release of payments shall be raised in the name of "Accounts Officer, BARC (Govt. of India) Trombay, Mumbai-400085 and forward the same to Sujee S., Scientific Officer "E", Chemical Technology Division, BARC (Govt. of India), Trombay, Mumbai-400085.

2. The following confidentiality clause shall be maintained

2.1. Confidentiality:
   No party shall disclose any information to any third party concerning the matters under this contract generally. In particular, any information identified as “Proprietary” in nature by disclosing the party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party. The clause shall apply to the subcontractors, advisers, or the employees engaged by a party with equal force.

2.2. “Restricted information” categories under Section 18 of the Atomic Energy Act 1962 and “Official Secrets” under Section 5 of the Official Secrets Act, 1923:
   Any contravention of the above-mentioned provisions by any contractor, subcontractor, consultant, adviser or the employees of the contractor will invite penal consequences under the aforesaid legislation.

2.3. Prohibition against use of BARC’s name without permission for publicity purposes:
   The contractor or subcontractor, consultant, adviser or the employees engaged by the contractor shall not use BARC’s name for any publicity purpose through any public media like, Press, Radio, T.V. and Internet without the written approval of BARC.

3. Sealed quotations by speed post only, to be sent to ‘Head CTD, BARC, Trombay, Mumbai-85, marked as ‘kind attention Shri. Sujee S., SO/E, CTD’, so as to reach before 7th April 2020 by 14.00 hrs. Quotations will be opened at 14.00 hrs on 7th April 2020.

(Sujee S.)
SO/E, MDS, ChTD

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