

**GOVERNMENT OF INDIA
BHABHA ATOMIC RESEARCH CENTRE
SOLID STATE PHYSICS DIVISION**

Ref: BARC/ SSPD/ 2018/1041

September 06, 2018

Sub: Minor fabrication: Invitation for quotations for Fabrication, testing and installation of high temperature impedance cells and compatible high temperature horizontal furnace for impedance measurements at SSPD, BARC.

Quotations are invited for materials as given in attached specification sheet.

Kindly submit your offers along with detailed terms and conditions to **Head, Solid State Physics Division, BARC, Mumbai-400085** on or before **September 20, 2018** in a sealed envelope super scribed with the above reference number and due date given above by Indian post only.

The address on the envelope should read: Head, Solid State Physics Division, BARC, Mumbai-400085. Attn: Dr. A. K. Bera

Terms and conditions:

- 1) The items should be delivered only after pre-despatch inspection carried out to the users' satisfaction for acceptance and for certification of the completion of this order, in all respects.
- 2) **Delivery:** This work order shall be executed within **three months from the date of its receipt**; the work order may please be acknowledged. **Material is to be delivered to North Gate, BARC, Mumbai - 400085.**
- 3) **Guarantee:** Items supplied/work executed shall be guaranteed against quality material/workmanship for satisfactory intended operation, for a period of 12 months from the date of execution of this order.
- 4) Taxes and excise duties shall be quoted separately.
- 5) **Payment terms:**
Payment in general is made within 30 days of the completion of the order and on production of bill in triplicate along with an advanced stamp receipt for the bill amount and guarantee certificate referred to (3) above.
- 6) Head, SSPD reserves the right to accept /reject any or all quotations without giving any reason.
- 7) **Confidentiality & Publicity Clause**
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 the disclosing 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. This clause shall apply to the sub-contractor, consultants, advisers or employees engaged by a party with equal force.
- 8) **"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, sub-contractor, consultant, adviser or the employees of a contractor will invite penal consequences under the aforesaid legislation.
- 9) **Prohibition against use of BARC's name without permission for publicity purposes:-**The contractor or sub-contractor, consultant, advisor 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 or Internet without the prior written approval of BARC.

Enclosed: Specifications of high temperature impedance cells and high temperature furnace.

Head
Solid State Physics Division

Md. Yusuf 6.9.18

डॉ. एस.एम. यूसुफ/Dr. S. M. Yusuf
अध्यक्ष, एस.एस.पी.डी. /Head, SSPD
भारत सरकार, भा.प.अ.केंद्र/ Govt of India, BARC
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Annexure-I

Specification for high temperature impedance cells and compatible high temperature horizontal furnace for impedance measurements

1. High temperature Impedance cell (Quantity: 2)

- Outer cell body (Alumina tube, diameter: 45 mm) with gas tight aluminium head.
- The aluminium head should have two BNC connections for two electrodes, connection for thermometer, and two connections for gas inlet and outlet, respectively.
- Sample holder (Alumina tube, diameter: 20 mm) having thermometer close to the sample position. The sample holder should have proper mechanism for the movement of one of the electrodes by 10 mm (minimum) to load and unload sample.
- Electrodes: Two parallel platinum disks (diameter: 10 mm and thickness 1 mm each).
- Inlet and outlet gas provision with standard connectors.
- Thermometer: R type thermocouple (Platinum+platinum & 13% Rhodium thermocouple).

2. High temperature horizontal furnace for impedance measurements (Quantity: 1)

- Operating temperature range: Room temperature to 1050 °C.
- Alumina tube (diameter: 50 mm)
- Heating element: Kanthal winding (bifilar winding)
- Temperature controller: Eurotherm 3216.
- Temperature resolution: 0.1 °C
- Variable temperature scan rates (0.1 to 20 °C/min)
- Manual and remote access and control of the temperature controller.
- RS323 connector should be provided for read and write of the temperature controller from computer. Suitable cables and USB-RS232 connector should be provided.
- Proper thermal insulation, outside temperature should be below 50 °C at the highest operating temperature (1050 °C).
- Ampere meter for displaying output current.
- Independent switches for controller & load.
- Indicators for main connection as well as heating power.
- Solid state relay.
- All system should be mounted in a powder coated cabinet.

For details and clarification please contact
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