



Government of India  
Bhabha Atomic Research Centre  
Materials Processing & corrosion Engineering Division  
Trombay, Mumbai-400085

Ref: BARC/MP&CED/FAB & REP/SCM/2018-19/20146


Date: 28/01/2019

**Sub: Minor Fabrication for upgradation of PLC and SCADA Automation System for Vacuum Brazing Furnace- invitation of quotation**

Dear Sirs,

1. Quotations are invited for carrying out minor fabrication work for **Upgradation of existing PLC& SCADA and development of Automation System for operation of high temperature Vacuum Brazing Furnace**
2. Bidder shall quote for fabrication work along with components required.
3. Charge a total of **5% GST** (2.5% State & 2.5% Central) in your quotation. Necessary GST exemption certificate will be issued by us..
4. The quotations must reach Head, Materials Processing & Corrosion Engineering Division by **18/02/2019** and must be send in a sealed envelope super scribed with the above reference number and due date given above.
5. The address on the envelope should read:  
**The Head  
Materials Processing & Corrosion Engineering Division,  
2<sup>nd</sup> Floor, 319-S Mod lab,  
Bhabha Atomic Research Centre,  
Trombay, Mumbai- 400 085**
6. The bidder shall have to take an insurance policy against any material issued to him by the purchaser.
7. The fabrication work shall be carried out at user's site.
8. The bidder should complete the fabrication work within **30 working days** from the date the firm purchase order is issued to the bidder.
9. Head, Materials Processing & Corrosion Engineering Division, BARC reserves the right to accept/reject any or all quotations without assigning any reason.
10. GST and PAN No must be given on quotation.

Yours faithfully,

  
डॉ. विवेकानंद Dr. Vivekanand Kain  
अध्यक्ष, पदार्थ संसाधन एवं संशोधन विभाग  
Head, Materials Processing & Corrosion Engineering Division  
भारत सरकार (Approving Authority)  
भाभा परमाणु अनुसंधान केंद्र/ Bhabha Atomic Research Centre  
ट्रॉम्बे, मुंबई - 400 085/Trombay, Mumbai - 400 085.

Encl. Specification & scope of work

The quotations will be opened on 19/02/2019.at 14:00hours

- Copy to: 1) Notice Boards BARC Site. 3) BARC website (for uploading), Head SIRD.  
2) Notice Board, V. S. Bhavan. 4) Account Officer (Works)

## SCOPE OF WORK

### Up-Gradation of PLC & SCADA systems for the operation of High Temperature Vacuum Brazing Furnace

- 1) Replacing of existing PLC S7-200 and PCIM SCADA to S7-1200 PLC 62 DI/58 DO, WinCC V 14 512 Tags, OPC server for Modbus Communication with SCADA software.
- 2) Development PLC & SCADA Programming for safe operation of the furnace in Manual/ Semi Automatic/Automatic Modes. . **Existing PLC ladder diagram used for high Vacuum furnace will be shared only with the qualified vendor. Various graphical mimic diagram screens displaying operational parameters as well as various other SCADA screens developed for programming and running the furnace (in various modes) can be shared with the interested vendors.** The list of important components present in the furnace includes Diffusion Pump (3000 liter/s), two numbers of rotary pumps, 7 numbers of pneumatic valves, M/s HHV Pvt. Ltd. make AUTOVAC VACUUM GAUGE (Model: PPC-9301), YOKOGAWA make programmable temperature controller (UP 550E), 48 KVA, 3 Phase Power Transformer, fast cooling system consisting of canned motor with blower and heat exchanger to carry out fast cooling at 800 mbar Ar, six number of water flow switches, hydraulic power pack for lifting the furnace top lid . The vacuum chamber is double walled water cooled SS vessel with molybdenum heating rods placed inside.
- 3) The work station running system automation through PLC/SCADA should be Core i3; 500GB HDD, 8GB Ram with Windows 10 Professional and MS Office to install PLC & SCADA system.
- 4) Licensed copy of SCADA and Windows 10 Professional software and MS Office 2007 (or higher) required for installing and running PLC & SCADA system should be provided.
- 5) It should allow password protected multiple level of system control.
- 6) It should be possible to operate all the switches present on the control panel through SCADA incorporating necessary safety interlocks in Remote Mode. The Vacuum Brazing Furnace control panel houses around 20 switches.
- 7) System status should be displayed on graphic mimic diagrams with all operations parameters and status display through popup or separate windows.
- 8) Recipe programming should be provided for storing and running 30 heating cycle patterns.
- 9) It should allow off-line verification analysis of user-selectable run time process parameters.
- 10) Alarm monitoring through an alarm line display that displays most recent, most severe active and acknowledged alarm.

*Swishar*  
24/01/2019

- 11) Display of PLC input & output status screen grouped in tabular format should be provided. Display of controller monitoring groups in bar-graph format containing set point and process variables.
- 12) Data logging and storage as per specified time intervals. Export of data in ASCII text file format for future data analysis.
- 13) Printing of data in tubular and graphical form to a printer.
- 14) The scope of work also includes supply of one number of six channel temperature indicator used for K-type thermocouples
- 15) The vendors should have previous experience of carrying out such type of works and will have to produce list of companies where they have done PLC/SCADA/PC automation. This is necessary condition to qualify as a vendor.
- 16) The Existing automation system consisting around 20 interactive SCADA screen windows and the upgraded SCADA configuration should emulate/improvise existing one.
- 17) Necessary hardwares to integrate the furnace with PLC and SCADA already exists.

*Suresh*  
*24/01/2019*