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तार : बार्क-मुंबई, चेम्बूर
TELEGRAMS : BARC-MUMBAI, CHEMBUR.
टेलिक्व : ०११-६१०१७/०११-६१०२२ बार्क इन
TELEX : 011-81017011-81022 BARC IN
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दुम्बे,
मुम्बई-४०० ०८५,
TROMBAY,
MUMBAI-400 085

भारत सरकार
GOVERNMENT OF INDIA
भाषा परमाणु अनुसंधान केन्द्र
BHABHA ATOMIC RESEARCH CENTRE

Product Development Section
(RC & I GROUP)

RefNo: PDS/5/10/3(a)/2019/63296

04.04.2019

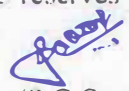
Invitation of quotation

Due date: 15.04.2019 upto 16:30 hrs

Sub: Design, Fabrication, Supply and Installation of containment system house for gas handling manifold- 1No.

Quotations are invited for the fabrication and supply of items as per the enclosed Annexure.

1. Quotations are to be on printed letter head / quotation format which should consist of Sales tax registration number registered with local ST authority/CST authority, PAN of the firm, GST number etc. Quotation that received in computer generated form is to be considered as invalid & rejected. Taxes and duties shall be quoted separately. GST exemption certificate shall be issued on request.
2. All the firms should submit technical and financial bid separately in separate envelops.
3. Financial bid of those firms whose technically qualified bids only will be opened.
4. Sample of each item should be produced for inspection at BARC North Gate within two weeks after technical bid tender opening as per demand for testing of technical suitability.
5. The complete quotation in sealed envelope shall be addressed to Head, Product Development Section, Radiochemistry & Isotope Group, S-62, South site, BARC, Trombay, Mumbai-400085 superscripted with above Tender no. **PDS/5/10/3(a)/2019/63296** along with due date and should reach on or before the due date 15/04/2019 upto 16:30 hrs by India Post. The quotations will be opened on the next working day between 1400 to 1600 hrs. Vendor's representatives are not allowed during tender opening.
6. No advance is admissible.
7. Any clarification as regard to this quotation can be obtained from Shri S.G.Sawant, TO(D), Fuel Chemistry Division (Tel# 2559 4873) with prior appointment.
8. Head, Product Development Section, RC & I group, BARC reserves the right to accept or reject any or all quotations without assigning any reason.


(S.G Sawant
TO/D, SMDS, PDS

Annexure-1

Design, Fabrication, Supply and Installation of containment system house for gas handling manifold- 1No.

Specification:

- 1) Containment system house for gas handling manifold should be designed as per given drawing (*Annexure-3*). Final detail fabrication drawing hard copy and soft copy should be supplied.
- 2) Material of construction of Containment system house should be SS304 and transparent Perspex panel (10mm thickness) from front and back side.
- 3) Material of construction should be shown before starting fabrication and test certificate report should be submitted.
- 4) Front and back side transparent Perspex panel should be divided in to three parts. Bottom part should have two SS glove port, middle part should have five glove ports and top panel should have two glove ports for both front and back panel.
- 5) All front and back side transparent panels should be mounted with hinges and can be opened on left side.
- 6) Both right and left side should be of SS304 sheet of thickness 3mm. single sheet should be used for fabrication.
- 7) All panels should be mounted with "U" type gasket.
- 8) Moisture and oxygen sensor along with display should be provided (specification given bellow) – *Annexure-2*
- 9) Photohelic gage and Magnehelic pressure controller should be mounted on glove box and should be tested for negative 20 to 40mm of water gauge.
- 10) Containment system house for gas handling manifold should be leak tight better than 0.05% of box volume.
- 11) Two filters should be mounted diagonally along with 1" ball valve at inlet and exist side. HEPA filter of standard size for glove box should be provided.
- 12) LED light should be provided at top glass panel.
- 13) Electrical feed through should be mounted on right side SS panel.
- 14) One metallic extension board having five 15/5 combination socket along with five MCB switches should be mounted in side glove box. Similar extension board should be mounted outside of glove box.
- 15) Existing gas handling manifold should be mounted inside this Containment system. Feed through should be made at right side SS panel for SS pipe lines connecting gas handling manifold.
- 16) Existing reactor should be mounted inside Containment system house and fitting of coolant pipe should be done using feed through to reactor.
- 17) At the bottom of Containment system 2" leg should be given along with Teflon wheels for movements of Glove box.

General terms and conditions

1. Supplier must have fabricated and supplied such type of glove box to reputed institution. Acceptance test report by user, work order number, value and user test report must be submitted.



2. Supplier should allow stage wise inspection during fabrication of job.
3. Quality assurance certificate should be provided.
4. All work covered by the specification shall be subject to quality surveillance by the purchaser or his authorized representative.
5. The purchaser reserves the right to inspect any material used by supplier under the contract and to reject any, which is found defective.
6. No Free Issue of Material
7. GST exemption certificate will be provided.
8. Warranty period: One year from date of delivery.
9. No advance is payable
10. The quotation should be in the printed letter head which should consist of the PAN No., GST, CST TIN no. or Service tax No. of the firm.
11. Quotation shall be signed by proprietor or authorized person and affix company seal.
12. All taxes, other charges should be mentioned clearly.
13. As BARC being a public funded R & D institution, concessional rate of GST, that is 5% will be applicable against a valid GST exemption certificate from our side as per CGST notification no. 45/2017 and 47/2017 dated 14/11/2017.



Annexure-2

A) Specification for Online Moisture Sensor with Analyzer - 1 Nos

Sensor

The operation of the sensor should be based on change in impedance of ceramic membrane with respect to dielectric constant of water.

Measurement Range: -100 to +20°Cdew point (1-3000ppm_v) in inert gas and harsh environment

Accuracy (dew point): ±1°C from -60 to +20°Cdp
: ±2°C from -100 to -60°Cdp

Response time: <10 seconds.

Enclosure: SS 316

Operating Temperature: 20°C to +60°C

Operating Pressure: From vacuum to 10 bar g (max)

Flow Rate: 1 to 5 NI/min

Gas Velocity: 0 to 10m/sec

Sensor recovery time: with flushing gas : <1Minute
without flushing gas: < 3 Minutes

Sensor life: Minimum period of 3years of continuous operation

Sensor calibration: Yearly once

Sensor should be able to withstand moisture condensation

Sensor cable: 5 meter

Process Connection: Swagelok connector

Sensor Calibration: Traceable to NIST

Sensor dimensions: 130mm (l) x30 mm (diameter)

Ingress Protection: IP66 and NEMA 4 in accordance with standards

Weight : 280-300g

Flow chamber in SS suitable to be connected through a ¼ "compression fitting.

Analyzer

Measurement Units: °C dew point; ppmV with user selectable range and resolution.

Resolution: 0.1 °C from -80 to +20°Cdp (1ppm)
: 1°C from -100 to -80°Cdp (0.1ppm)

User-configurable standard transducer with 4-20mA output

Automatic compensation for ppm_v units

Alarm Relays: 2Nos, adjustable

Analog Output: 4-20 mA user configurable and scalable

Digital Output: RS232

Power Supply: 230V V AC, 50 Hz

Power Supply cable: 3 meter

Size: Rack mountable, 100mm(w)x50mm(h)x120mm(d)approx.

B) Specification for Online Oxygen Sensor with Analyzer. Qty - 1 Nos

Sensor

Measurement Principle: Zirconia based cell with Metallic Sealed Reference Sensor technology with Yttria stabilized Zirconia sensor or based on paramagnetic sensor technology.

Salun

Sensor should sense oxygen in argon, helium and in harsh environment.

Minimum shelf life of sensor: 3 years.

Range: 1 ppm_v to 1% Oxygen in Argon/Helium.

Sensor Calibration: Traceable to NIST -by certified gases.

Accuracy: 2% of reading.

Response Time : <10 seconds.

Repeatability: ±0.1% of reading.

Linearity: better than ±1%.

Sample Flow Rate: 1 to 3 l/h with built-in fast loop circulation pump.

Gas In/Out Connection: Swagelok fittings.

Drift : <1% of reading per week.

Operating pressure: 0 to 2 bar (g).

Maximum Sample Temperature: 20°C to 60°C

Atmospheric Pressure Compensation: Built-in as standard.

Analyzer

Output Signal: 4-20 mA Linear with Galvanic Isolation Outputs-1N

User configurable 4-20 mA output-1No

Digital output: RS485 output-1No

Self-diagnostics: Via HMI

Output Ranges: User configurable from 1ppm

Alarms: 2 threshold alarms, user configurable

: 1 general fault alarm including flow alarm

: 1 remote flow alarm

Display Resolution: 0.1 ppm between 1 ppm and 10 ppm

: 1 ppm between 10 ppm and 10,000 ppm

Front panel: TFT touch screen

Power Supply cable: 3 meter

Power Supply: 230 V AC, 50 Hz

Operating Conditions

Ambient Temperature Range: 20 to 60°C

Sensor Temperature: ~ 600 to 650°C

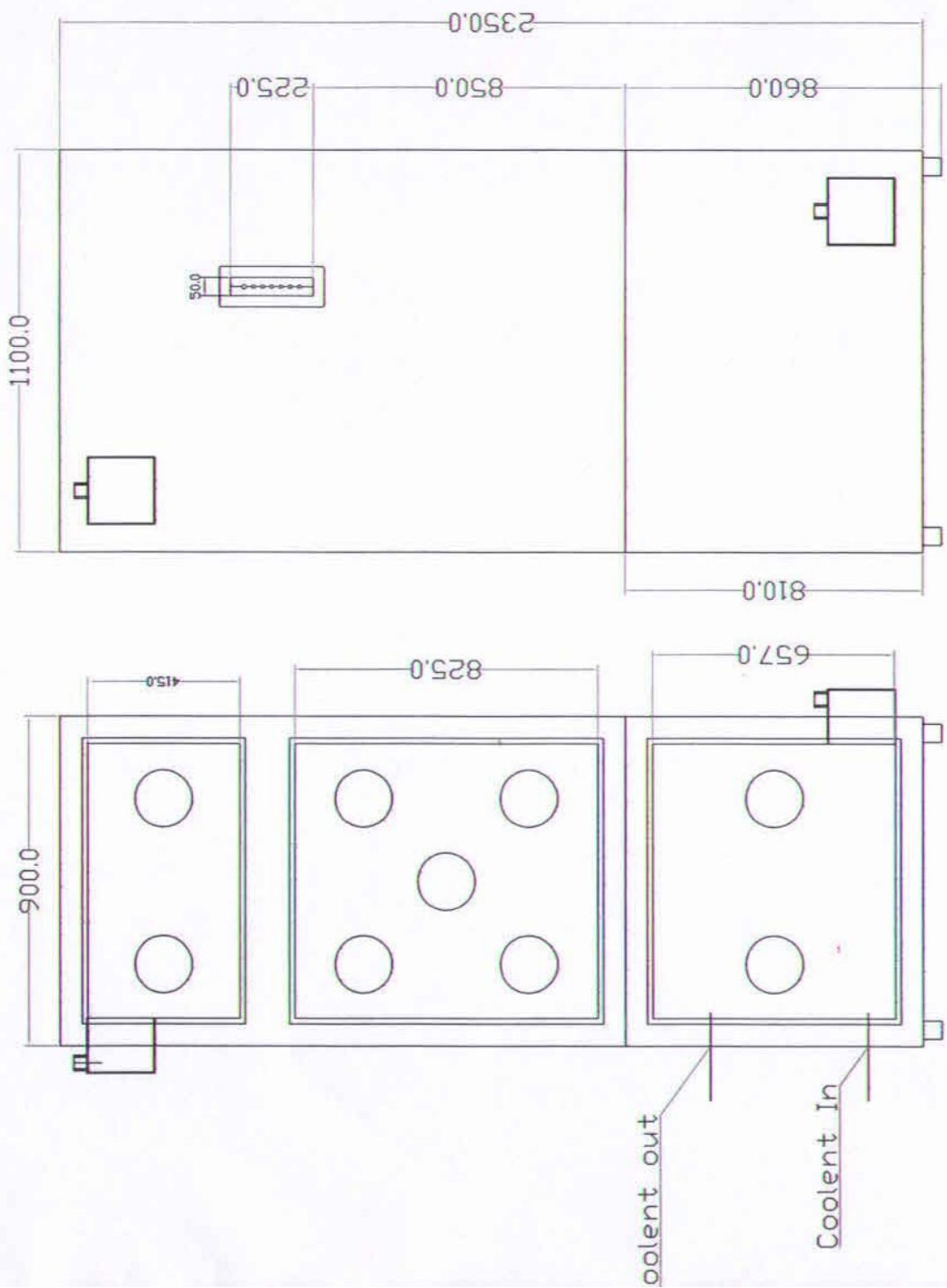
Operating Humidity: 30 to 90% RH without condensation

Power Supply cable: 3 meter

Mounting: Rack mountable with weight of ~ 10kg



Annexure-3



PDS/SGS/2019/02
20.03.2019

Saibani