

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE
2A & 2B , Raja S.C. Mullick Road, Jadavpur, Kolkata-700032

NIT No.: IACS/SMS/UM/21-22/62

Date: 22.07.2021

Sealed tender in two bids system (technical bid and price bid) is invited from bonafide, resourceful and eligible manufacturer/exclusive distributor/vendors for ONE **Inert Atmosphere Glove Box**.

Part-I (Technical Bid) of the tender should contain technical specifications in detail as well as commercial terms and conditions. Part-II (Price Bid) should clearly indicate group-wise price, if needed, as mentioned in the technical bid. The Technical Bid and Price Bid are to be submitted in separately sealed envelopes, distinctly marked accordingly and both to be put inside another envelop, that should be sealed and superscribed with tender notice no. and due date. The bidders may submit bids duly signed in their own letterheads.

Completed tender bids should reach the office of the **Registrar, Indian Association for the Cultivation of Science (IACS), 2A & 2B Raja S. C. Mullick Road, Jadavpur, Kolkata-700032** on or before the scheduled date and time specified below:

Tender Notice No.	NIT No. IACS/SMS/UM/21-22/62 Date: 22.07.19
Last date and time of submitting tender	16.08.2021 at 5 PM
Pre-bid meeting (date, time & place) to discuss technical specification	05. 08.2021 at 3 PM online
Date and time of opening tender (Technical Bids)	17.08.2021 at 3 PM online
Date and time of opening of Price Bid	20.08.2021 at 3 PM online
Contact	Email: urmimala.maitra@iacs.res.in Tel: +91 33 2473 4971 (Ext 1202)

The technical bids will be opened first to judge/evaluate the technical specifications of the said instrument and thereafter the price bids of only technically qualified bidders will be opened.

Technical Bid Evaluation: The Technical Bids will be evaluated in the presence of the representatives of intending bidders who will be able to clarify technical aspects of their bids, if any, required by the Technical Evaluation Team.

Opening of price-bid: The Price Bids of the bidders qualifying the technical bid will only be opened. The rest of the bids will be rejected. Only bidders qualifying the technical bid will be informed via email.

Please note that IACS will not provide any accommodation or reimburse any expenses to any of the bidders for attending opening of technical bid.

Quotations received incomplete or beyond the stipulated time will be summarily rejected.

Bidders should submit their past experience for supplying and successful installation of similar units to other research Institutes/Universities/other organizations in India and abroad. Please provide documentary proofs of such successful installation and supportive documents that the instruments are running successfully.

1. TECHNICAL BID

The technical bid should contain technical specifications and should be kept in a separate sealed envelope duly superscribed as 'TECHNICAL BID' on the outer cover of the envelop as already

detailed above. **It should be clearly mentioned on the envelope as "Technical Specification for Inert Atmosphere Glove Box".**

Technical Specification for Inert Atmosphere Glove Box:

The glove box and the accessories should be manufactured and sold by the same parent company or its agents.

1. Glove box should be modular and expandable with bolted side panels. Material must be Stainless Steel.
2. Inner Box Dimensions in the range : 900-950 mm x 1150-1250 mm x 775-800 mm [H x L x D] Inside surface should be Brushed finish Ra 1.2 μm . Outside surface should be coated, white (RAL 9003)
3. **Gloves and Ports:** Two in number, Teflon Type, Diameter must be greater than 200 mm, O ring sealed. Two Butyl Gloves, thickness range = 0.4mm -0.6 mm. Glove Port Cover for pollution free gloves change
4. Leak rate < 0.05 Vol %/h or lower
5. Front Window made of safety glass/polycarbonate material. Additional coating for chemical and scratch resistance (anti-corrosion film) is required for the inner side.
6. Three Standard Stainless-Steel shelves with multiple, adjustable height positions. Should be upgradeable with sliding shelves if needed in the near future
7. **Stand:** having machine feet lockable levelling feet and castors. Water proof Foot pedal for box pressure manipulation.
8. **Filters:** Dust filter 0.3-micron, class H13, One gas inlet/one gas outlet filter
9. **Box Light:** Fluorescent lamp should be front mounted with Automatic switch off facility
10. **Pressure:** Automatic Box pressure range $\pm 15\text{mbar}$ with oil-free pressure relief valve. Automatic pressure adjustment by pressure sensor and pressure regulation without vacuum pump should be possible.
11. Controlled with Color Touch panel for operation of all Glove box functions, including graphical trend of box pressure, oxygen and moisture levels
12. **Large Antechamber:**
 - a) Cylindrical type, thickness 2.5mm or more, made of stainless steel and brush- finished interior,
 - b) Dimensions, Inner diameter approximately 390mm and Length 600mm
 - c) Sliding tray stainless steel should be included with antechamberd,
 - d) Doors should be Aluminum, anodized, thickness 10mm with spindle lock,
 - e) Pressure gauge, analog display to be included in the antechamber,
 - f) Vacuum/ Refill process Handling: Manual operation
13. **Mini Antechamber:**
 - a) Inner dimenions , diameter 150mm and Length 400mm.
 - b) Hinged doors and Stainless sliding tray and 3 way valve
14. **Gas purification:**
 - a) Should be located underneath the Glove box.
 - b) Siemens PLC Controlled with Color Touch panel for operation of all purification and regeneration system functions including box pressure, oxygen and moisture levels. With ready upgrade facility for remote monitoring of glove box parameters and provision for sending alerts and notifications about upcoming service schedule, software downloadable from standard portals.
 - c) PLC controlled purifier and to maintain purity < 1ppm H_2O and O_2 (at complete pressure range)

d) Automatic PLC controlled regeneration sequence with nitrogen N₂ /Argon and Hydrogen (5-10%)

15. Circulation unit:

- a) The system should be fitted with a blower of minimum 85m³/hour speed.
- b) Automatic Blower speed reduction / increase based on O₂ and H₂O levels should be possible.
- c) Positive Pressure regulation without vacuum pump should be possible
- d) Activation of above features should be possible at user Set Time.
- e) System should be upgrade able to remote monitoring facility of glove box parameters, able to send alerts, if required in the near future.

16. **Vacuum pump:** Rotary vane pump with Oil mist filter, Oil re-circulation and automatic gas ballast control, 17m³/h pumping capacity, dual stage required to connect the pump to the system. Automated Switch off of Vacuum pump should be possible.

17. **Heat Exchanger** should be integrated with the box. Water cooling not less than 2L/min (in case of excess heat generation, inside the glove box)

18. **Solvent adsorption unit** with suitable adsorbent 5Kg loading, should be integrated with Glove Box Should include inline and bypass valves. Upgrade Provision for PLC controlled re-regenerable solvent trap and upgrade provision for PLC controlled inline in circulation piping positioned solvent sensor range 0 to 500ppm are needed.

19. **Regeneration:** Regeneration of purifier material should use 95% N₂ (or Argon) and 5-10% H₂ flow gas. It should be automated (PLC controlled), with automatic switching modes (such as auto circulation off). Regeneration period should not be greater than 16 hours.

20. Purging Mechanism:

- a) Purging to be automatically activated, when the Oxygen in the glove box is exceeded the set limit. Should be able to set between (10-999ppm) and continuously purging till the set point is reached and automatically start the circulation of the gas purifier.
- b) Automatic and adjustable mechanism for regular gas purge with time, duration and the day.
- c) Glove box purging to be operated by the operational panel of the purifier up to 200l/min with PLC control as well as manual regulation valve

21. Moisture and oxygen Sensor:

- a) PLC controlled and operated by the system touch panel
- b) Inline positioned in circulation line before the purifier
- c) Solid state sensor. Should be located in the circulation line. Cables should be included
- d) Measuring range: minimum of 0-500 ppm for moisture sensor and minimum range of 0-100 ppm for Oxygen sensor.
- e) Maintenance and calibration free - No frequent replacement of oxygen and moisture sensor parts should be necessary. Should be free from frequent calibration

22. **Feedthroughs:** 4 DN 40 feed through. Electrical(1No), Liquid /Gas/Vacuum (1No), 3point connector to connect electrochemical unit at outside (2 No). Cable feedthrough (8 wire)

23. Recirculating Chiller:

- a) Temperature Range 5 to 25° C
- b) Temperature Controller Microprocessor
- c) Accuracy +/-1 °C
- d) Sensor PT100 Sensor
- e) Cooling Capacity at 0°C 1000 watts
- f) Bath Volume 06 Ltrs, Flow rate 15 Ltrs. per minute
- g) Pump Type should be Chemical resistant magnetic pump, Pump Pressure 2 bar

Other Necessary Terms & Conditions Including Previous records:

1. At least 10 successful installations in India including at least 5 installations in eastern region. In addition to any standing purchase orders or ongoing processes. Proper proof for the installations should also be furnished.
2. Customer satisfaction reports for at least 5 individual users should be furnished.
3. Glove box and Purification System and Sensors should be from single manufacturer
4. Vendor must be able to perform factory acceptance testing of the product and demonstrate all the features prior to the dispatch
5. Vendors are required to provide brochures / literature while complying the specifications.
6. Upgrade options should be readily available and should be quoted with full information
7. Only mentioning of complied /meeting specification will not lead to technical qualification.

Payment: 90% against delivery / on receipt of goods and 10% after successful installation and submission of 3% Performance Bank Gurantee (PBG) in favor of IACS.

Service: Local service centre should be available, preferably in Kolkata. Details of experienced service engineer including contact details (email and phone numbers) should be provided.

Warranty: Minimum one-year warranty with additional AMC for the next two years.

Installation: Free installation and user training at IACS

The following optional items should be quoted separately.

Optional Items:

One pair of additional Gloves

One pair of O-rings for glove ports

One Unit of Copper catalyst

One unit of Molecular Sieves

Feedthrough KF40

One vacuum feedthrough

One Banana feedthrough

Solvent adsorption unit with activated carbon, at least 5kgs. Should be with inline and bypass mode.

Please SUBMIT ITEMIZED QUOTES with separate pricing for each accessory.

Installation/Demonstration/Application training at site: Installation & user training at IACS, free of cost by the supplier.

Service facility: In India, preferably Kolkata, supplier should mention their details of service setup and man powers who are responsible for after sales support. Response time should be within 24 hrs.

A compliance table (see below) must be prepared and submitted along with the technical bid.

Sr. No	Tender specification	Your offered instrument specification	Extent of compliance

Tender will not be accepted if the technical compliance chart is NOT provided following the above format.

2. PRICE BID

The financial bid indicating (item-wise) price for the item(s) mentioned in the technical bid should be kept in a separate sealed envelope duly super scribed as 'PRICE BID' on the outer cover of the envelop as already detailed above. Price bids of only technically qualified bidders will be opened and they will be intimated the date and time of the opening of price bid at their e-mail ids. Rest of the bidders will stand rejected.

PRICE: Price to be quoted on BOTH CIF Kolkata and FOB basis.

3. BID SECURITY DECLARATION:

An Account payee Demand Draft of any of the Commercial Banks for **Rs. 1,00,000/-** (Rupees One Lakh only) drawn in favour of "Indian Association for the Cultivation of Science (State Bank of India, Jadavpur University Branch, A/C No. 11079699211, IFSC: SBIN000093, MICR Code: 700002048)" is to be furnished by the bidders along with Technical Bid, except Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organisation or the concerned Ministry or Department.

Alternatively, the bidder shall have the option to furnish EMD in the form of Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the Commercial Banks. The Bid-Security should have at least 90 (ninety) days validity period beyond the final bid validity period.

In case of non-award of the work the Bid Security money would be returned to the unsuccessful Bidders.

4. PERFORMANCE SECURITY:

An Account Payee Demand Draft on any commercial bank of India or Bank Guarantee (BG) of any Commercial Bank preferably located at Kolkata of 3% (in terms of order F9/4/2020-PPD dt.12.11.2020) of the order value in the name of "Indian Association for the Cultivation of Science" is to be furnished by the successful bidder as Performance security. Performance security money should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. Bid security money or EMD will be refunded to successful bidder on receipt of the Performance security money.

5. TERMS OF PAYMENT:

Payment will be made through irrevocable Letter of Credit in two instalments. 90% of the money will be released on submission of shipping of documents. Remaining 10% will be released after successful installation of the instrument.

6. GENERAL INSTRUCTIONS:

1. Validity of tender: Tender submitted should remain valid for at least six months from the date of opening the tender. Validity beyond six months from the date of opening of the tender shall be lapsed by mutual consent.
2. The tender should accompany a compliance chart.
3. Incomplete and conditional tenders as well as tenders received after the due date will be summarily rejected without assigning any reasons thereof.

4. At any time prior to the bid due date, IACS may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder during pre-bid meeting, modify the bidding documents. The amendment(s) will be notified on the institute website. Prospective bidders are advised to occasionally visit the website (www.iacs.res.in/tender) for any amendment.
5. Installation/Demonstration/Application training at site: Installation & user training at IACS, free of cost by the supplier.
6. Service facility: In India, preferably Kolkata, supplier should mention their details of service setup and man powers who are responsible for after sales support. Response time should be within 24 hrs.
7. The model number, make and a printed literature of the product should be submitted positively.
8. Proposed delivery schedule should be mentioned clearly.
9. Manufacturers / exclusive distributors / vendors should have history of supplying this type of instruments to this or other scientific organizations. Availability of a list in this regard would be preferred.
10. Authorized dealership certificate should be provided in case of principal manufacturing company is not quoting directly.
11. Guarantee certificate, users manuals etc. are to be handed over to the user after successful commissioning of the system.
12. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of the technical bids will be the following working day at the appointed time.
13. In case of any dispute, the decision of IACS authority shall be final and binding on the bidders.
14. In case of any litigation the matter will be dealt within the jurisdiction of the High Court of Calcutta only
15. For any clarification regarding technical specifications, information etc., please send your queries to Dr. Urmimala Maitra (urmimala.maitra@iacs.res.in).
16. The authority of IACS reserves the right to reject any or all of the tenders received without assigning any reason thereof.

Acting Registrar

NOTE :

- 1) **WARRANTY:** Minimum one-year warranty with additional AMC for the next two years. (as per requirement of the indenter)
- 2) **PRICE:** Price to be quoted on BOTH CIF Kolkata and FOB basis or as per the requirement of the indenter.
- 3) **BID SECURITY:** Amount of bid security may be accepted in the range between two percent to five percent of the estimated value of the goods to be procured.
- 4) **PERFORMANCE SECURITY:** Performance Security may be accepted for an amount of five to ten percent of the value of the contract as specified in the bid documents.
- 5) **TERMS OF PAYMENT:** As per nature of the transaction
- 6) **GENERAL INSTRUCTIONS:** Installation/Demonstration/Application training at site : This may be modified as per the requirement of the indenter/technical committee. Service facility: This may be changed by the indenter as per requirement.