INDIAN ASSOCITION FOR THE CULTIVATION OF SCIENCE

2A & 2B , Raja S.C. Mullick Road, Jadavpur, Kolkata-700032

NIT No.: IACS/SCS/AD/2019-20/108 Date: 10/02/2020

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/SCS/AD/2019-20/108 Date: 10-02-20**
Last date and time of submitting tender	**25.02.2020 at 12:00 noon**
Date and time of opening tender (Technical Bids)	**25.02.2020 at 3:30 P.M.**
Place of opening tender	In the office of Dr. Abhishek Dey, School of Chemical Sciences, IACS
Date and time of opening of Price Bid	The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.
Contact	Email: icad@iacs.res.in Tel: +91 33 2473 4971 (Ext 1366)

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 date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.
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 envelope 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.

Box:

(1) Glove box should be modular and expandable with bolted side panels. Material must be Stainless Steel
(2) Outer Box Dimensions must be greater than 900mm x 1200mm x 750mm (H x W x D)
(3) Controlled with Color Touch panel for operation of all Glove box functions, including graphical trend of box pressure, oxygen and moisture levels.
(4) The glove box should have facility to remotely monitor glove box parameters, able to receive alerts if parameters are exceeding the set limits and also to receive notification for upcoming maintenance schedule.
(5) Front panel should be of Polycarbonate material. Additional coating for chemical and scratch resistance is required. Inside surface should be brushed finish
(6) 3 Standard Stainless Steel shelves with multiple, adjustable height positions. Should be upgradeable with sliding shelves if needed in the near future.
(7) 2 Glove Ports Teflon Type only, Diameter must be greater than 200 mm, O ring sealed
(8) Two Butyl Gloves, thickness range = 0 .4mm -0.6 mm
(9) Quick lock door (Glove Port Cover) for pollution free gloves change
(10) Leak rate should be less than 0.05Vol %/h
(11) Glove box should have 4 DN 40 feed through, one should be electrical.

Stand: Should come with stand, height 1000 mm, with castors and machine feet lockable levelling feet and castors. Water proof Foot pedal for box pressure manipulation.

Filters: Dust filter 0.3 micron, class H13, One gas inlet/one gas outlet filter

Box Light: Fluorescent lamp should be front mounted with Automatic switch off facility

Pressure:

(1) Inside the box, must be adjustable from –15mbar to +15mbar
(2) Automatic pressure adjustment by pressure sensor. Pressure regulation must be possible without vacuum pump. Should include oil free pressure relief valve
(3) Purity of moisture (< 1 ppm) and oxygen (<1 ppm) must be attainable at complete pressure range

Antechamber:

(1) Must be stainless steel (preferably US Type 304), cylindrical, thickness 3 mm or more
(2) Inside dimensions must be greater than 380 mm diameter x length 580mm
(3) Sliding tray must be stainless steel, spindle lock type door lock, doors should be anodized
(4) Pressure gauge, manometer analogue display
(5) Vacuum/Refill process-manual operation via. hand valves

Mini Antechamber:

(1) Inside dimensions: not less than 150 mm diameter x length not less than 380 mm
(2) Sliding tray must be stainless steel, inside and outside doors should be of hinged type

Purification:

(1) Should be closed loop gas re-circulation containing Single Filter Purifier and regenerable
(2) Attainable purity must be: Less than 1 ppm H_2O and Less than 1 ppm O_2. Purification capacity must be at least : O_2: 35L, H_2O: 1200 g

(3) Circulation unit should consist of integrated blower, Vacuum tight, Flow rate > 70 m^3/hr
(4) Water cooling
(5) Blower speed reduction and provision for user defined O_2 and H_2O level for increase of blower speed back to 100%

Vacuum pump:

(1) Vacuum pump should be of type rotary vane pump. Must consist of oil mist filter, oil re circulation
(2) Automatic gas ballast control, dual stage, >15m^3/h. Automatic switch off of vacuum pump

Regeneration: Regeneration of purifier material should use 95% N_2 (or Argon) and 5-10% H_2 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.

Heat Exchanger:

(1) Glove box should be integrated with heat exchanger
(2) Water cooling not less than 2L/min (in case of excess heat generation, inside the glove box)

Circulation unit :

(1) The system should be fitted with a blower of minimum 85m^3/hour speed.
(2) Automatic Blower speed reduction / increase based on O_2 and H_2O levels should be possible.
(3) Positive Pressure regulation without vacuum pump should be possible
(4) Activation of above features should be possible at user Set Time.
(5) System should be upgrade able to remote monitoring facility of glove box parameters , able to send alerts, if required in the near future.

Valves/piping:

(1) Main purifier valves should be of Electro-pneumatic
(2) Magnetic valve system, DN 6/10
(3) Manual valves of Swagelok type
(4) Piping of the box should be as mentioned below :
Main piping: Stainless steel pipe DN40 KF-flange system
Control pipe work: Stainless steel (US 304L) preferred but copper pipe is also acceptable

User Interface :

(1) PLC controller with color touch panel
(2) Touch panel: English
(3) User help: Integrated to touch panel
(4) Display: Pressure (Pa or mmWG or mbar), O_2 and H_2O, ppm
(5) Controls: Vacuum chamber handling, force flushing, regeneration/purification

O_2 and H_2O Analyzer:

(1) PLC controlled
(2) Technology: Galvanic fuel cell sensors or Solid State sensors. Should be located in the circulation Line
(3) Cables should be included
(4) Measurement and analysis range: Minimum 0-1000 ppm for oxygen probe and minimum 0-500 ppm for moisture probe
(5) No frequent replacement of oxygen and moisture sensor parts should be necessary. Should be free from frequent calibration.

Refrigerator: PLC controlled from system control panel.Temperature −35°C, multiple trays inside with adjustable height. <u>All parts of the refrigerator including the door linings must be chemical/solvent resistant.</u>

Solvent adsorption unit: Suitable Solvent adsorption unit with activated Carbon. Upgrade able with solvent sensor 0-2,000ppm, PLC controlled if needed in the near future. Solvent filter trap must be included.

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 on going 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) Vendors are required to provide brochures / literature while complying the specifications. Only mentioning of complied /meeting specification will not lead to technical qualification.

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:
(1) Solvent adsorption unit with activated carbon, at least 5kgs. Should be with inline and bypass mode.
(2) One pair of additional Gloves
(3) One pair of O-rings for glove ports
(4) One Unit of Copper catalyst
(5) One unit of Molecular Sieves
(6) Feedthrough KF40
(7) One vacuum feedthrough
(8) One Banana feedthrough

Installation: Free installation and user training at IACS.

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

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:

An Account payee Demand Draft of any of the Commercial Banks for Rs. 60,000/- (Rupees Sixty thousand 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 10% 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 to 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. Abhishek Dey (icad@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