
Indian Institute of Science Bangalore

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Domestic tender notification for the Procurement of two port glove box with freezer.

Tender Summary

1	Tender Number	IPC/SH/2023/Glove Box-01
2	Tender Date	12 th May 2023
3	Item Description	Two-port glove box with freezer
4	Tender Type	Two bid system: (a) Technical Bid (Part A) (b) Commercial Bid (part B)
5	Place of tender submission	To The Chairperson Attn: Dr. Susanta Hazra Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bengaluru 560012, India
6	Last Date and Time for tender submission	26 th May 2023, 5:00 PM

This is a Request for quote (RFQ) from **Class I and Class II local suppliers/manufacturers** for the procurement of a “two-port glove box with freezer” at the Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore (dated 12th May 2023). All interested vendors shall submit a response demonstrating their capabilities to produce the requested equipment to the primary point of contact listed below.

This Invitation for Bids is open to only domestic (India-based) manufacturers, Indian OEMs or its authorized Indian distributors. All interested vendors shall submit a response demonstrating their capabilities to produce the requested equipment to the primary point of contact listed below.

Concerning this tender, the rules laid out by the Government of India in order No. P45021/2/2017-pp-BE-II issued by the Public Procurement Section, Department or Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, dated 4th June 2020 will be followed. The bidders must go through the Government of India order stated above and follow all the rules and regulations therein.

Relevant definitions as per the Government of India order:

- **Class-I local supplier** - A supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%.
- **Class-II local supplier** - A supplier or service provider, whose goods, services or works are offered for procurement, has local content of more than 20% but less than 50%.
- **Local content** – The amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

General Terms and Conditions

1. The quote should come only from the Indian Original Equipment Manufacturer (OEM) or their authorized Indian distributor.
2. The bid should be submitted in the two-cover system, i.e., technical bid and commercial bid separately in sealed covers. The technical bid should contain all commercial terms and conditions except the price. The SEALED COVER superscribing tender number / due date & should arrive Main office, Inorganic and Physical Chemistry Department, Indian Institute of Science, Bangalore 560012, India, on or before due date mentioned in the tender notice. In case the due date happens to be a holiday the tender will be accepted and opened on the next working day. If the quotation cover is not sealed, it will be rejected.
3. The technical bid must contain a point-by-point technical compliance document. The technical proposal should contain a compliance table that should describe your compliance in a "yes" or "no" response against each of the items in the table listed in this RFQ. If the response is "no", the second column should state the extent of the deviation. The third column should state the reason for the deviation, if any. The fourth column can be used to compare your tool with that of your competitors or provide details as requested in the technical requirement table below.
4. In the commercial bid, the price (in INR) should be inclusive of all discounts.
5. The price of every line item in the commercial bid should be quoted along with the total quoted price for the instrument to be operational (installed and ready to use) in our facility. Please quote the price of each optional line item separately.
6. The vendor should have qualified technical service personnel for the equipment based in India (preferably in Bangalore).
7. The delivery time of the equipment should not be more than 3 months from the date of receipt of our purchase order. It should be clearly mentioned in the technical and commercial bids.
8. All quotations must be valid for at least 90 days at the time of submission.
9. The Bidder should have supplied similar equipment in reputable institutes, preferably IITs, IISc, IISERs, NITs, CSIR Labs, etc. Please provide the details and contact information of the individuals.
10. The Bidder must NOT be blacklisted/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere. A declaration certificate should be provided.
11. Vendors are encouraged to highlight the advantage of their tools over comparable tools from the competitors.
12. If required, a meeting for any technical clarifications can be scheduled with the undersigned by sending an email.
13. The Institute reserves the right to accept or reject any bid or to annul the bidding process and reject all bids, at any time before the award of the contract without thereby incurring any liability of the affected bidder or bidders.
14. Lowest bid will be calculated based on the total price of all items tendered for Basic equipment along with accessories selected for installation, operation, preprocessing and post processing, optional items, recommended spares, warranty, annual maintenance contract.

15. After receiving the purchase order, the vendor must provide an Order Acknowledgement within 30 days from the receipt of the Purchase Order.
16. The vendor should have a good track record of having previously supplied similar equipment in IISc and other centrally funded universities/institutes.
17. The vendor should be able to provide End User Certificates from at least five users.
18. The vendor is encouraged to provide recommendation letters from the user's university/institute, and the contact of people with the PO number.
19. If the goods are found to be defective, they have to be replaced or rectified at the cost of the supplier within 30 days from the date of receipt of written communication from us.
20. The detailed technical literature and make of each component should be submitted by the bidders.
21. The quotations should be on FOR-IISc Bangalore basis in INR only.
22. GST/other taxes, levies etc., are to be indicated separately. The BIDDER should mention GST Registration and PAN in the tender document.
23. If price is not quoted in Commercial Bid as per the format provided in tender document the bid is liable to be rejected.
24. The Bidder should belong to either Class-1 or Class-2 suppliers distinguished by their "local content" as defined by recent edits to GFR. They should mention clearly which class they belong to in the cover letter.
 - a) Class-1 supplier: Goods and services should have local content of equal to or more than 50%.
 - b) Class-2 supplier: Goods and services should have local content of equal to or more than 20 % and less than 50%
25. Bidders offering imported products will fall under the category of non-local suppliers. They cannot claim themselves as Class-1 local suppliers/Class-2 local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training, and other sales service support like AMC/CMC, etc., as local value addition.
26. Purchase preference as defined by the recent edits to GFR (within the "margin of purchase preference") will be given to the Class-1 supplier.
27. MSMEs can seek an exemption to some qualification criteria. IISc follows GFR2017 for such details.

Service, Training, and Warranty

1. The vendors must have a locally dedicated Sales & Service team & Application lab in Karnataka.
2. The vendors must have an appropriate set-up and capability to provide after-sales service efficiently and effectively. The supplier should give training with a similar system in their facility to that proposed in this tender.
3. Installation and training should be conducted by a qualified trained engineer.
4. Support should be available on working day from 9:00 am to 5:00 pm (excluding Public Holidays), local time.
5. A declaration of Conformity certificate, and System Validation certificate must be provided.
6. Three years of complete system warranty should be given for all the components. If the system requires service during the warranty period, the vendor must guarantee or replace the instrument free of cost. Vendors should have logistic support to ensure that over at least 95% of the service parts are readily available and upkeep delivery within 3-5 days.
7. Terms and conditions for the annual maintenance contract (AMC) beyond the warranty period should be mentioned.
8. Vendors should provide a copy of the Site-Preparation checklist.
9. Problems occurred during the warranty period should be rectified within 2 weeks or less.
10. If there is any delay in replacement or rectification, the warranty period should be extended accordingly.

Technical requirements

The requirements listed below are only guidelines, vendors are requested to quote for equipment that fulfills the requirement to the best extent possible and least deviations, if any. Deviations are NOT an automatic reason for disqualification. A technical group will discuss them before making an informed decision.

Enclosure

- The working space of each glove box should be at least 890 mm in height, 1200 mm in length and 760 mm in depth.
- The window materials should be impact-resistant polycarbonate that is at least 10 mm thick.
- The main body must be SS304 or SS316 brushed stainless steel, at least 2.5 mm thick.
- The trays, rails and other components in the ante-chambers should also be of 304 grade or 316 grade or similar corrosion/chemical resistant grades of brushed stainless steel.
- The external should either be powder coated or Spray paint finish.
- We strongly prefer a system in which the space underneath the glove box is empty.
- Need a modular system that can be expanded further. The side panels must be removable to accommodate future expansions.
- Glove Ports: Delrin(POM) Natural white/PP

Programmatic Logic Control

- Glove box should be controllable with independent and fully integrated Siemens programmatic logic control (PLC), with a touch panel interface
- The touch panel interface should serve as a central control unit for all glove box functions and procedures.
- All glove box functions should be accessible via the touch panel.
- Graphical display of the box pressure, O₂ and moisture levels should be available in the touch panel interface.
- Touch panel implementations showing this should be provided. A copy of relevant documentation from the user manual should also be provided.
- Gas (argon or nitrogen) flow rate of 200 liter/min or greater during purging should be possible.
- The O₂ and moisture trigger set-point range for automatic box purging should be between 10-999 ppm. Touch panel implementations showing this should be provided. A copy of relevant documentation from the user manual should also be provided.

Purifier

- Single Column Gas purification system 7 inch Siemens touch screen HMI, remote and graphical PLC controller with Auto-regeneration
- Glove box should have at least one independent purifier capable of purifying the glove box ambient to attain a purity of <1 ppm H₂O and O₂.
- The removable capacity should be a minimum of 41 liters for oxygen and at least 1400 grams for moisture. Specification sheets or data sheets attesting to this must be provided.
- The purifier should be fully regenerable with an automatic/programmed control using forming gas (10% H₂ or lower) or Ar or N₂.
- The gas circulation blower should be capable of a circulation rate of at least 100 m³/hour. The maximum and minimum circulation rates of the blower should be provided and should work without any heat exchanger.
- The blower speed should be dynamically controlled via program logic based on the moisture and oxygen content in the glove box, to make the blower operation power efficient. Implementation diagrams or specifications that prove this is possible must be provided.
- The purifier loop must have at least two H14 dust filters (HEPA or ULPA filters) -- one for filtering inlet gas (nitrogen or argon) and one for filtering the box ambient before it goes out to the gas circulation system.
- Oil bubblers should NOT be used in any of the gas circulation lines. The mechanism for pressure regulation should be clearly mentioned.
- NO component in the gas circulation line (except for the vacuum pumps) should use oil or oil containing parts.
- Eco Mode Operation
- Auto purge with time sequence or ppm of O₂ and H₂O

- With Upgrade facility for 24/7 remote monitoring of glove box parameters and provision for sending alerts and notifications about upcoming service schedules. Must be freely downloadable from the google play store /app Play store link should be provided link to be given in the bid itself.

Solvent Absorption Unit

- The solvent trap should be capable of absorbing volatile organic solvents like DMF, THF, methanol, toluene, IPA, acetone, methanol, DMSO, acetonitrile, Capacity of solvent trap must be 2 kg or more.

-20 to -30 Freezer RHS of the Glove Box

- 40 Litter capacity
- Designed for the low temperature storage of reactive materials, which need to be processed or held in a pure inert atmosphere, these glove box freezers can be dedicated systems or used in conjunction with other process operations.

Sensors

- A solid-state/Electrochemical oxygen sensor capable of measuring oxygen levels from 0.1 ppm to 1000 ppm should be provided with box.
- A solid-state moisture sensor capable of measuring moisture levels from 0.1 ppm to 3000 ppm should be provided with box.

Box pressure

- Box pressure should be controllable automatically (via programmatic logic) within a pressure range of -15 to +15 mbar.
- The desired pressure should be settable via the touch panel interface. Touch panel implementations showing this should be provided. A copy of relevant documentation from the user manual should also be provided.

Gloves and Glove Port Covers

- There should be 2 POM (polypropylene is preferred) glove ports for each box and butyl gloves should be provided for these glove ports.
- The size of each glove port should be at least 9" in dia
- The glove ports should be O-ring sealed against the gloves.
- At least 1 additional pairs of butyl gloves should be supplied with the box.
- Must include at least one glove port cover.
- The thickness of the butyl gloves should be a minimum of 0.4 mm or more.

Automatic Large Antechamber

- The box must have one large ante-chamber for sample transfer.
- The ante-chamber should be cylindrical with a diameter of at least 400 mm and a length of at ~600 mm.
- The doors should preferably be with a swing-type hydraulic-assisted opening mechanism to conserve working space.
- There should also be a tray preferably mounted on telescopic rails, which can be slid back and forth. The tray should facilitate transfer for tools and chemicals.
- The chamber must have an Automatic PLC controlled evacuate and purge system with pressure gauge.

Mini antechambers

- The box must have one mini ante-chamber for sample transfer.
- The ante-chamber should be at least 150 mm in diameter and 400 mm in length.
- The ante-chamber should have a tray to enable sample transfer.
- The chamber must have a manual pump and purge system: with pressure gauge, manual valve and connection to vacuum pump.
- The ante-chamber should have a door that can seal the ante-chamber for evacuation.

Feedthroughs

- The box should have at least 4 KF-40 feedthroughs. These can be connected to liquid, electrical or vacuum feedthroughs. The details of placement can be discussed at the time of ordering

- The system must have at least 1 electrical feedthrough with 15 A connector that are compatible with 220 V – 240 V supply.

Vacuum Pump:

- The pump ON/OFF should be controllable via the touch panel. Touch panel implementations showing this should be provided.
- High performance compact dry vacuum pump: The box should come with a High-performance compact dry vacuum pump of at least 30 m³ /h capacity.
- Pumping Speed NXRI 30 m³/h.
- Ultimate vacuum (total pressure) 0.03 mbar (0.022 Torr).
- Inlet flange NW25.
- Outlet flange NW25.
- Maximum permitted outlet pressure 0.2 bar gauge.
- Maximum continuous inlet pressure 1013 mbar.
- Operating temperature range +5 to +40°C.
- Nominal rotational speed 15000 rpm.
- Voltage input 100-127/200-240 V (+/-10%), switchable.
- Frequency 50/60 Hz.
- Power connector 1-ph IEC EN60320 C19.
- Power at ultimate 450 W.
- Leak tightness < 1x10⁻⁶ mbar ls⁻¹.
- Noise at ultimate vacuum 55 dB(A).
- Vibration at inlet flange < 2.0 mm/s.
- The pump ON/OFF should be controllable via the touch panel. Touch panel implementations showing this should be provided.

Accessories: The following accessories should be supplied along with the glove box

- One nitrogen cylinder filled with UHP grade gas.
- One regeneration cylinder with mixer gas (nitrogen 90% - hydrogen 10%).
- One stainless steel regulator for nitrogen cylinder with 200-250 l/m flowrate.
- One stainless steel regulator for regeneration gas with 25 - 30 l/m flowrate.
- 0.4mm 9-inch dia 32-inch length butyl Gloves.
- One LED lamp inside the glove box. There must be a switch on the outside of the body or touchscreen to turn the light on/off.
- A foot pedal for controlling box pressure should be provided.
- At least two height-adjustable stainless-steel shelves of at least 1000 mm in length and at least 200 mm in depth should be provided. These should be centrally located so that any chemicals or tools are accessible from glove ports.
- All electrical connections should comply with line power specifications in India. Single phase voltage range is 220-240 V, and the three-phase voltage range is 415 - 440 V. The line frequency is 50Hz.
- The circulation system should make it possible to have positive pressure regulation without vacuum pump
- One weighing balance (4 digits) suitable for the glove box
- One heating stirrer with temperature controller and sensor

Acceptance Tests

- IISc will expect acceptance tests, post installation. These can be recorded in the presence of representatives of the OEM. Inability to pass these tests will be counted as a technical failure and breach of contract.
- Maintain <1 ppm of H₂O and O₂ for 24-hour period.
- Demonstrate automated routines for catalyst regeneration
- Demonstrate automated routines for maintaining target pressure.

Optional items: Total warranty of 3 years + 3 years AMC optional

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