



## Indian Institute of Technology Kanpur National Centre for Flexible Electronics

**Enquiry number: SCDT/FLEXE/2022-23/03**

**Date: 15 July 2022**

Opening Date : 15/07/2022

Closing Date : 25/07/2022

Sealed quotations (**technical and commercial separately**) from prospective vendors are invited by the National Centre for Flexible Electronics, IIT Kanpur for “**Inert Gas Workstation - Glove Box**” with the following technical specification.

We are looking for **Glove Box**.

Total required quantity- 01

### Technical Specifications:

Parameter	Required Specification
Glove box	<ul style="list-style-type: none"> <li>• Box Material: Stainless steel</li> <li>• Internal Dimension: 900mm x 1150-1250mm x 775-800mm [H x L x D]</li> <li>• Leak rate of glove box should be less than 0.05V%/h</li> <li>• Box Windows thickness of 10mm safety glass</li> <li>• Special coated for chemical and scratch resistance is required</li> <li>• Should include 1 x 0.3 micron, dust filter, and class H13</li> <li>• Should include two gloveport round, diameter =220 mm, should be O ringsealed,</li> <li>• Material of glove ports should be aluminum with anti corrosion coating,</li> <li>• Gloves should be Butyl, Thickness 0.4mm.</li> <li>• Internal port cover</li> <li>• Box should include 3 Nos Height Adjustable, Modular Shelves, L1000mm, depth 220 mm.</li> <li>• Should have 2 DN 40KF flanges (Electrical feedthrough 1 piece + 1 blank)</li> <li>• Automatic Box Pressure Control in adjustable range between (+15 mbar to-15mbar) with oil free pressure relief mechanism</li> <li>• Operation in negative and / or positive pressure range is required</li> <li>• Apart from automatic box pressure additionally Foot pedal is needed.</li> <li>• Fluorescent lighting should be front side mounted.</li> <li>• Stand with height 1000mm with castors and levelling feet for height Adjustment</li> </ul>
Main Antechamber	<ul style="list-style-type: none"> <li>• Cylindrical design with stainless steel sliding tray</li> <li>• Size (internal dimension) 390mm diameter x 600mm length</li> <li>• Vacuum/Refill process with Manual operation</li> <li>• Pressure gauge, Manometer analogue display</li> <li>• Upgrade needed for heated 150C tray</li> </ul>
Vacuum/ Refill process	<ul style="list-style-type: none"> <li>• Manual operation by hand valves Vacuum line DN 40 and Refill DN10</li> </ul>

<b>Gas purification</b>	<ul style="list-style-type: none"> <li>• Closed loop gas re-circulation</li> <li>• Should provide inert atmosphere oxygen and moisture &lt; 1ppm all the time</li> <li>• Attainable Oxygen and Moisture purity less than one ppm</li> <li>• Located under the glove box</li> <li>• Working gas Argon, Nitrogen or Helium should be possible.</li> <li>• Upgrade for blow speed reduction/increase automatic based on oxygen or moisture levels, automatic fluorescent lamp auto off, vacuum pump auto off</li> </ul>
<b>Regeneration of Purifier</b>	<ul style="list-style-type: none"> <li>• Fully Automatic PLC controlled regeneration with nitrogen N2 or Argon &amp; Hydrogen (5-10%)</li> </ul>
<b>Circulation unit</b>	<ul style="list-style-type: none"> <li>• Integrated blower, vacuum tight,</li> <li>• Oil free Circulation</li> <li>• Flow rate up to 85 m3/h (60Hz)</li> </ul>
<b>Vacuum pump</b>	<ul style="list-style-type: none"> <li>• Rotary vane pump, 10-2 mbar</li> <li>• Should include Oil mist filter,</li> <li>• Oil re-circulation</li> <li>• Automatic gas ballast control,</li> <li>• Capacity more than 15 m3/h, dual stage</li> </ul>
<b>Valves and Piping</b>	<ul style="list-style-type: none"> <li>• Main valves should be Electro-pneumatically controlled</li> <li>• Control Piping should be DN 4/10</li> <li>• Main piping and Side Piping should be Stainless steel DN 40 KF</li> </ul>
<b>System control</b>	<ul style="list-style-type: none"> <li>• Glove box should be PLC controlled with Colour touch panel operation of glove box parameters with features of circulation control, pressure control, purging control, regeneration control and continuously monitoring pressure, oxygen and moisture. Each function should be clearly displayed on touch panel. Activation of parameters at user set time.</li> <li>• System should be capable of working continuously with visual indicators or fault indications.</li> <li>• With ready upgrade facility for 24/7 remote monitoring of glove box parameters and provision for sending alerts and notifications about upcoming service schedule. Must be freely downloadable from google play store /app store. Upgrade software package to enable user to do the chemical calculations on the touch screen</li> </ul>
<b>Mini Ante chamber – On right side</b>	<ul style="list-style-type: none"> <li>• Material: Cylindrical, stainless steel with sliding tray</li> <li>• Inside dimensions: 150 mm diameter x length 400 mm (approx)</li> <li>• Integral leak rate: &lt;10-5 mbar L/s</li> </ul>
<b>Sensor set</b>	<ul style="list-style-type: none"> <li>• PLC controlled Solid State Oxygen Analyzer with Measuring Range 0- 1000ppm</li> <li>• PLC controlled Solid State Moisture Analyzer with measuring Range 0-500ppm</li> </ul>
<b>Solvent vapour removal -</b>	<ul style="list-style-type: none"> <li>• Inline charcoal filter with 5 kg loading with inline and bypass valve</li> <li>• Ready upgrade provision for standalone independent re-generable solvent trap and PLC controlled .inline solvent sensor 0 to 2000ppm</li> </ul>
<b>Heat Exchanger</b>	<ul style="list-style-type: none"> <li>• Integrated below glove box water cooling between 2-3L/min</li> </ul>

### General Terms & Condition.

1. All vendors are requested to submit “**technical and financial bids**” together in separately sealed envelopes.
2. Evaluation will be done on the basis of technical specifications given in tender document.

3. Financial bid will be open for those only who qualify all the technical specification as per our tender notice.
4. Quotation must be valid for 60 days.
5. Payments terms: 100% after delivery & approval.
6. Warranty should be clearly mentioned, the Warranty must start from the date of installation at IITK.
7. Only OEM or its authorized agents should quote, Quotation should carry proper certifications like proprietary certificate/ authorization certificate from manufacturer, etc.
8. Glove box, Purification System and all Sensors should be from single manufacturer.
9. Vendors are required to provide brochures / literature while complying the specifications.
10. Vendor must be able to perform factory acceptance testing of the product and demonstrate all the features prior to the dispatch.
11. The technical and price bid should indicate the model and part numbers of items quoted.
12. System quoted must have the facility for the upgrades and therefore options should be readily available with full information
13. Manufacture should have a minimum 5 years manufacturing experience of glove boxes, purifiers, sensors, accessories.
14. Bidder must submit minimum 10 certificate for installation of glove box with purifier and sensors in last 5 years to IIT, IISER, NIT & Central institutes.
15. Bidders must submit minimum 5 satisfactory certificates from previous users.
16. Local center Service is mandatory and details to be provided
17. Delivery time 3 months from the date of receipt of purchase order
18. Quotation must integrate FOR prices.
19. GST on purchases meant for research purposes is applicable @ 5% only.
20. At any time prior to the deadline for submission of bid, the institute may, for any reason, at its own initiative, modify the bid document by amendments. Such amendments shall be uploaded on the website through corrigendum and shall form an integral part of bid document. The relevant clauses of the bid document shall be treated as amended accordingly. It shall be the sole responsibility of the prospective bidders to check the website from time to time for any amendment in the tender document. In case of failure to get the amendments, if any, the Institute shall not be responsible for it.
21. The Penalty @1% per week or part thereof subject to max 10% of the delivery price will be deducted from the balance payment, if supply is not completed within aforesaid delivery period.
22. The indenter reserves the right to withhold placement of final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason is reserved.

Prof. Monica Katiyar,  
National Centre for Flexible Electronics  
Indian Institute of Technology Kanpur  
Uttar Pradesh-208016, India.  
Email: [ckamaja@iitk.ac.in](mailto:ckamaja@iitk.ac.in) (end-user)  
Contact: 0512-259-7692