INDIAN INSTITUTE OF TECHNOLOGY DELHI
HAUZ KHAS NEW DELHI

Date: 20/06/2012

Notice Inviting Quotation

Quotations are invited for the purchase of Glovebox (one in number) at the Department of Textile Technology. Interested manufacturers / suppliers are required to submit their quotations as per the specifications given below. The sealed Quotations are to be submitted in two Separate envelopes;

A - for Technical Quote (Specifications) &
B - for Financial Quote
(For details, see Annexure I)

Both these envelopes should be further enclosed in an outer envelope, which should also be sealed and addressed to, clearly mentioning on top of the envelope "Quotations for Glovebox."

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The quotations should reach the above office **by 5.00PM on 13/07/2012**. If needed, the suppliers may be asked to make a technical presentation before the committee.

Institute reserves the right to accept or reject any of the offers without assigning any reasons.

Specifications of Glovebox (One in number)

S. No.	Specification	Essential requirement
1.	Glovebox Type and Design	• Inert atmosphere modular glovebox suitable for nitrogen/argon/helium • Single sided with TWO glove ports • Ready to operate with modular design, removable end panel and fully expandable for future expansions / upgrades / operations • Closed loop gas recirculation system • Box shell: stainless steel (US304L), ≥ 3 mm thick, bolted side panels • Pipes: entirely in stainless steel (US 304L) • View Window: Polycarbonate, 10 ± 1 mm thick, inclined panel, easy dismountable • Glove ports: Two grooves, made of standard high quality material • Door: quick lock door (dia matching with glove ports), practical placement of the gloves without pollution • Gloves: ambidextrous, made of Hypalon®, thickness ≥0.4 mm, length 750 mm (1+1 pair) • Shelves: 3-tier Stainless Steel rack, every shelf of dimension 1000 mm (L) x 200 mm (D) (±10mm), height adjustable • Supporting Frame: Stainless Steel, casters and lock out cylinders • Light: LED Fluorescent 22V – with on off switch • 5 Electrical power sockets • Filtration – HEPA filter on outlet of glovebox • Tightness: ISO or other international standard certified • Dimensions - 1250mm(W) x 800mm(D) x 900mm(H) (±20mm) • Stand having wheels with breaks, height – 1000mm, should be able to fully support the main body with antechambers and vacuum unit • International standard accessories for connections/fittings (entirely in SS US 304L)
2.	Main Antechamber	• Cylindrical stainless steel vacuum chamber of 400 mm (dia) x 600 mm (L) (±10mm) • On left or right hand side positioned • Spindle-lock and hydraulic arm with internal stainless steel sliding tray for sample transfer • Easy opening of external and internal doors • Automatic valves for purging and filling-up • Entirely controlled vacuum chamber cycles • Analog vacuum display manometer • Tightness: ISO or other international standard certified
3.	Mini Antechamber	• Cylindrical stainless steel vacuum chamber of 150 mm (dia) x 300 mm (L) (±10mm) • Positioned on same side as main antechamber • Quick lock doors, control through a 3 – way hand valve, high sealing integrity • Analog vacuum display manometer
4.	User Interface	• Touch panel integrated user help – programmable logic controller • As central operation panel; automatic controls for vacuum

		chamber handling, pressure control, force flushing, regeneration and purification • Setting: vacuum chamber cycle (vacuum/filling up time/number of cycles), flow of the blower, pressure control, warning according to O_2 and H_2O values • Display: Pressure, O_2 level (ppm), H_2O level (ppm), Temperature
5.	O_2 Analyzer	• Unit: ppm • Accuracy: ± 1 ppm in full range • Repeatability: ±1% in full range • Resolution: ± 0.1% in full range • Range of measurement: 10^{-20} ppm to 100% O_2 • Fast response, continuous online analysis, easy to calibrate by user with RS232 / RS485 communication and calibration certificate • Electronics: Integrated microprocessor control, selection of ranges, calibration • LCD display showing oxygen (ppm and any other selectable notation) with temperature / pressure • Fully programmable alarms (low and high condition) with outputs and visual / audible warning
6.	H_2O Analyzer	• Unit: ppm • Accuracy: ±1 ppm in full range • Repeatability: ±1% in full range • Resolution: ± 0.1% in full range • Range of measurement: 0.01 to >23000 ppm (-100°C to +20°Cdp) H_2O • Fast response, continuous online analysis, easy to calibrate by user with RS232 / RS485 communication and calibration certificate • Electronics: Integrated microprocessor control, selection of ranges, calibration • LCD display showing H_2O (ppm and any other selectable notation) with temperature / pressure • Fully programmable alarms (low and high condition) with outputs and visual / audible warning
7.	Vacuum Pump	• Dual stage vacuum pump having flow : 17m^3/h (±3 m^3/h) with mist eliminator, oil recirculation, automatic gas ballast control, ultimate vacuum < 10^{-2} mbar • Vacuum pump should stop automatically in case of glovebox being at under-pressure
8.	Pressure control	• Operation: Automatic • Over- or under-pressure depending upon user's choice • Inlet gas: Electrovalve controlled through automate • Outlet gas: System without backscattering through relief bubbler, independent from the vacuum pump, electrovalve controlled through automate
9.	Purification	• Process: Closed loop inert gas circulation, regenerable purifying loads, removal of H_2O and O_2 • Purification Unit: Independent module Pressure, arrangement right or left side of the glovebox • Pipes & Reactors: Stainless Steel (US 304 L) • Purification: 1 purification column for H_2O and O_2 • Attainable purity: H_2O < 1ppm, O_2 < 1 ppm • Measures (O_2) & (H_2O): Independent analysis circuit for easy maintenance and calibration and without pollution • Capacity: O_2 ≥30L, H_2O ≥1800 g • Purification flow: Circulation capacity >55 cfm at 60

		mbar(60Hz) • Blower: Encapsulated stainless steel centrifugal blower with frequency convertor, adjustable flow, brushless motor with electronic commutation • Cooling System: Not necessary (No chilled water required) • Regeneration process: Automatic, inlet and outlet regeneration gas through electrovalves , Interfaced with touch panel, Configured to receive a solvents trap module • Heating: Integrated temperature regulation controlled through automate and temperature cut – out • Tightness: ISO or other international standard certified • Regeneration: 95% N_2 or Ar + 5% H_2 • Noise level: ≤50 dB in purification and pressure control at 1 meter distance
10.	Feedthroughs	• Total 5 integrated high vacuum feedthroughs with blank flanges o 3 feedthroughs with stainless steel piping and different Swagelok needle valves allowing solvent's dispensing directly into the glovebox o 1 Vacuum feedthrough for connecting external vacuum pump o 1 additional feedthrough
11.	Optional	• Solvent Trapping System: with 6 Kg activated charcoal filter, KF 40 connection, easy replacement with three by-pass valves and 3-way conditioning valve

Annexure I

Envelope A: Technical Quote: The following details are to be enclosed *(Mention clearly on this envelope –* ***Technical Quote****)*

1. Technical brochures mentioning all details with complete address of the principals.
2. A compliance chart based on the specifications as per the NIQ.
3. Any optional equipment / accessory / spares advised to be included separately.
4. Installation requirements including water supply, UPS, etc.
5. List and addresses of organizations where the equipment has been supplied in last 3 years in India.
6. Details of other equipment supplied to IIT Delhi specifying the Department/ centre / lab to which the equipment was supplied. Also mention if the equipment is being maintained by your organization.
7. Address of the technical office, in India, with telephone and FAX numbers. Kindly clarify the type of support available in India.
8. If quote is for imported equipment supplied through Indian Agent, Sole Agency-ship certificate on the letterhead of the principal company, if quotation is from an Indian Agent.
9. Proprietary Item Certificate from the principals, if applicable.
10. Copy of the certificate of a registered importer from Ministry of Commerce or Finance if the quotation is being submitted by an Indian agent.

Envelope B: Financial Quote: The following details are to be enclosed/ ensured. *(Mention clearly on this envelope –* ***Financial Quote****)*

1. The quotations for the equipment in foreign exchange, if it is to be imported. The cost of spares and optional equipment/accessories to be quoted separately. The cost should be based on **FOB**. If equipment is indigenous, the quote should be in INR and all taxes applicable should be mentioned clearly.
2. Institute makes payment after delivery and successful installation. In case the payment terms are different, it should be mentioned clearly. If equipment is to be imported, the address of the company in whose name the LC is to be opened should be stated.
3. The comprehensive Warranty period.
4. The details of the AMC after the warranty period.
5. Cost for Installation and training at site, if applicable.
6. Validity of the quote should be minimum 90 days.
7. The delivery period to be clearly specified.