सत्यमेव जयते

भारत सरकार/ **GOVERNMENT OF INDIA**
अंतरिक्ष विभाग/ **DEPARTMENT OF SPACE**
भारतीय अंतरिक्ष विज्ञान एवं प्रौद्योगिकी संस्थान/**INDIAN INSTITUTE OF SPACE SCIENCE & TECHNOLOGY**
क्रय एवं भंडार विभाग / PURCHASE & STORES DEPARTMENT
वलियमला पीओ.. , तिरुवनंतपुरम 695 547/ **VALIAMALA P.O, THIRUVANANTHAPURAM 695 547,**
केरल, भारत/ **KERALA, INDIA**
Ph No.:0471-2568451/ Tele Fax:0471-2568406/ e-mail : pso@iist.ac.in

निविदा आमंत्रण / INVITATION TO TENDER

Date : 18.07.2016

Tender Due on : **05.09.2016 at 14.00 Hrs**
Tender opening on: **06.09.2016 at 10.30 Hrs**

Dear Sirs,

Separate Sealed TWO PART tenders are invited from accredited manufacturers / suppliers / agents for the supply of the following equipments:

Sl. No.	Tender No.	Item Description	Qty/ Nos.	Cost of Tender (Rs.)
1.	2016003304	**GLOVE BOX** **Specifications :**	1 No.	500+VAT @5% (525/-)

1.	**GLOVE BOX**	
1.1	Inside dimensions	2500×920×780 mm approx.
1.2	Box material	Stainless steel; Bolted side panels
1.3	Box end panels	Sealed
1.4	Box windows	Inclined panel, polycarbonate (lexan) of minimum thickness 10mm with special protection for chemicals, corrosion and scratch resistance
1.5	Shelves	Height adjustable shelves: Minimum 3, SS, Length: ~1000mm, depth: ~200mm.
1.6	Glove Ports	4 glove ports, ~220 mm dia, O-ring sealed, powder coated SS with internal glove port cover,
1.7	Gloves	Viton or viton –butyl hybrid rubber gloves, Minimum thickness: 0.4 mm
1.8	Box light	Fluorescent/LED lamps mounted to give hig visibility inside
1.9	Power points inside the chamber	3 pin 5-15 Amps, minimum 6 Nos
1.10	Feed through	Vacuum tight DN 40KF (3 nos) 1. Gas inlet: 1 No 2. Gas outlet: 1 No 3. Electrical feed through: 1 No

			1.11	Dust filter	0.3 Micron, Class H13, one each at gas inlet/ gas outlet (HEPA type)			
			1.12	Working gas	Nitrogen, Argon, Helium. Preferably Argon			
			1.13	Box pressure control	Automatic with foot switch, with water proof foot pedal			
			1.14	Pressure inside the Box	Adjustable from -15mbar to +15 mbar (to atmospheric pressure)			
			1.15	Pressure gauge	Manometer analog display			
			1.16	Purifier type	H_2O/O_2 purifier column, molecular sieve and copper catalyst based systems to remove H_2O/O_2. Levels: Moisture <1ppm; Oxygen < 1ppm.			
			1.17	Location of gas generator/purifier system	Below the glove box			
			1.18	Leak rate	Leak rate should be less than 0.05 vol% / h at negative pressure of 10mbar at constant temperature			
			1.25	Attainable purity	Less than 1ppm for water vapour Less than 1ppm for oxygen			
			C	**Main Antechamber**				
			2.1	Inside dimensions	Cylindrical type antechamber, 390 mm diameter, length 600 mm			
			2.2	Box material	Stainless Steel			
			2.3	Sliding tray	Stainless Steel			
			2.4	Door	Aluminium anodised, thickness 10 mm			
			2.5	Door lock	Easy to operate, spindle lock type			
			2.6	Vacuum/refill process	Both automated and manual operations required			
			2.7	Hand valves (reqd)	DN40 vacuum line/ DN10 refill line			
			2.8	Leak rate	$<10^{-5}$ l/s			
			3.	**Mini antechamber**				
				1. Cylindrical Approx. 100 mm diameter, length 300 mm 2. Leak rate lower than 10^{-6} l/s 3. Provision for manual control also				
			4.	**System regeneration**				
				1. PLC controlled Automated regeneration program. 2. Features to allow columns to be evacuated if solvent vapours are present before regeneration. 3. Regeneration gas: N_2/H_2 mixture(3-7%H_2) or Ar/H_2 mixture(3-7%H_2)				
			5.	**Circulation unit**				
				1. Closed loop gas circulation 2. Vacuum tight oil free integrated blower 3. Flow rate 84m^3/h at 60mbar, hermetically sealed. 4. Chiller for cooling 5. Motor protection switch to avoid damage of blower in case of power failure 6. Resistant to organic solvents. 7. Should be operated with 50Hz,220V, Single phase AC power supplies				
			6.	**Cooling System**				
				1. Box cooling system should be through refrigeration unit. <u>Water cooling system is not acceptable</u>. 2. Temperature of the process gas inside the box should be displayed through touch panel.				
			7.	**Valves**				

				7.1	Main purifier valves	Electro-pneumatic, high vacuum, DN40 bellow valves			
				7.2	Antechamber valves	Butterfly type/high vacuum bellow valves			
				7.3	Control valves	Magnetic valve system: DN6/10 (brass)			
				7.4	Manual valves	Swagelok type			
				7.5	Gas/vacuum fittings	Swagelok type			
			8.	**Piping**					
				8.1	Main piping	Copper			
				8.2	Control pipe work	Copper			
			9.	**Plumbing line**					
				9.1	Material for main plumbing line	Copper			
				9.2	For Hydrogen line	Copper			
			10.	**Programmable Logic Control (PLC) with HMI touch panel**					
				1. Multi colour touch panel with simulated operation elements for all glove box components, foot pedal for box pressure adjustments 2. Every function and parameters to be clearly displayed on the touch panel with mimic diagram 3. Trend graphs to be displayed for 24 hours operation 4. System shall work on 230V/50 Hz 5. Provision for built in safety interlocks 6. Audio/visual alarms for fault conditions is required 7. Alarm limit for parameters should be settable 8. Automatic restart to be provided after power failure and after regeneration					
			11.	**Oxygen analyzer**					
				1. Range : 0-1000ppm 2. Accuracy: better than 1ppm. 3. Sensor life> 5years					
			12.	**Moisture analyzer**					
				1. Range : 0-1000ppm 2. Accuracy: better than 1ppm 3. Sensor life> 5years					
			Note: Party should give the details regarding type and life of sensors for oxygen and moisture analysers.						
			13.	**Solvent trap**					
				Should be equipped with either manual and/or regenerating solvent removal systems that prevent solvent vapo0urs from harming the gas purification system.					
			14.	**Operation modes of solvent trap**					
				Must be able to operate in line with gas purification or by-pass mode without compromising the box atmosphere.					
			15.	**Gas regulation**					
				15.1	For circulation and regeneration of gases	1. All accessories including the gas regulators (2 stages, 2 gauges) are required for the individual gases used 2. Regulators should be of standard make as part of the system			
				15.2	Regeneration gas connection accessories	Necessary tubing, adapters, ferrules for connecting the cylinder should be provided			

			16.	**Additional Spares**				
				1.	Gloves: 4 Nos. O-ring for glove: 8 nos. Dummy glove port: 2 Nos.			
				2.	Copper catalyst for purifier unit; quantity required for one charge.			
				3.	Molecular sieves for purifier unit; quantity required for one charge.			
				4.	Charcoal akolit: quantity required for one charge.			
				5.	Audio / visual indicators for fault indications.			
			17.	**General**				
				1.	The cost for each of the above items required to be indicated separately in the quotation (where applicable).			
				2.	Full technical details supported by well- documented catalogues/ datasheet/ leaflets to be provided			
				3.	Quotation should give a detailed account of conformity to our specifications or deviations if any.			
				4.	Addresses of parties (in India) to whom such units are supplied.			
				5.	Operation/maintenance manual, trouble shooting flow chart, detailed wiring diagrams/ circuit, details of PLC systems and maintenance tool kits to be supplied along with the unit.			
				6.	Detailed description of control systems to be provided.			
				7.	All necessary safety interlocks and earthing to be provided for operator's safety.			
				8.	All corrosive components should be painted with anticorrosive epoxy based paint.			
				9.	System should have caster wheels for mobility			
				10.	The spares consumed from our stock at the time of installation if any, shall be replenished at the party's expense.			
				11.	Guarantee for 2 years of trouble free operation.			
				12.	Beyond guaranteed period, party or their agents has to take up maintenance of the unit as per the rules in our Institute.			
				13.	Readiness to accommodate any minor modifications if required.			
				14.	Party has to install and demonstrate the performance of the system at IIST, Valiamala, Trivandrum campus. Training should be given, if necessary.			
				15	Party has to strictly stick on to the supply schedule.			

Compliance Sheet for Glove Box

Sr. No	Specification	Compliance
1.	GLOVE BOX	
2.	Main antechamber	
3.	Mini antechamber	
4.	System Regeneration	
5.	Circulation Unit	
6.	Cooling System	
7.	Valves	
8.	Piping	
9.	Plumbing line	
10.	Programmable Logic Control (PLC) with HMI touch panel	
11.	Oxygen Analyzer	
12.	Moisture Analyzer	
13.	Solvent Trap	
14.	Operation Modes of Solvent Trap	
15.	Gas Regulation.	
16.	Additional Spares.	

Commercial terms and Conditions Tender No. 2016003304 dated 18.07.2016

1. General Requirements:

1.1 Detailed Catalogue/ Data Sheet of the quoted item.
1.2 Clientele List
1.3 Performance Letter from the Clients.
1.4 ***Detailed Compliance Sheets for Glove Box is to be attached along with Technical Bids for evaluation***. ***Without detailed Compliance sheet, your offer shall summarily reject.***

2. SPECIAL INSTRUCTIONS TO TENDERERS

2.1 **The bidder is required to submit quotation for the entire scope in** *TWO PART* **viz, Technical and commercial bid and price bid separately. The first cover shall contain the technical and commercial details along with the format of price quotation without the price superscribing in the cover** *"Technical and Commercial-Tender No.* ***2016003304 Due on 05.09.2016.*** *The second cover shall contain the prices superscribing in the cover price bid- Tender No.* ***2016003304 Due on 05.09.2016****.* **All the covers to be sealed and insert in another cover super scribing the** *Tender No.* ***2016003304 Due on 05.09.2016*** *and submit immediately but not later than the due date mentioned against each tender.* **If the tender is received after the due date and time, the same shall be summarily rejected.**

2.2 The cost of tender stated against each tender shall be submitted ***along with Technical & Commercial bid by Demand Draft*** drawn in favour of the Sr. Accounts Officer, IIST and payable at State Bank of India, Valiamala Trivandrum-695 547. ***In case the Demand Draft is not enclosed with the quotation, the bid shall be summarily rejected.***

2.3 **Test certificate**: Wherever required, test certificates should be essential.

2.4 **Payment:** Our normal payment term shall be E-Transfer / within 30 days after supply/installation and acceptance for imports and indigenous respectively.

2.5 The installation and commissioning of equipment to be done at our campus, Valiamala, Thiruvananthapuram-695 547. All pre-requisites such as foundation drawing, grouting and any consumables needed for carrying out the installation, if applicable, shall be separately mentioned in the technical bid.

2.6 Delivery terms shall be Ex-works/FOB/FCA for imports and FOR, Valiamala for indigenous.

2.7 For import cargoes, the purchase order shall be drawn directly to the foreign supplier through agents in India. We have our own freight forwarder and customs clearance at Trivandrum shall be done by us.

2.8 All duties and taxes, if applicable shall be quoted separately.

2.10 Accreditation documents such as current income tax/sales tax clearance certificate, clientele list with previous experience in the similar lines of supply must be provided with documentary evidence), Performance Certificate, authorization for import, after sales support in India etc. shall be explained in detail with proof.

2.11 **Guarantee & Replacement:**

a) The contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.

b) For a period of twenty four (24 months) months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship, contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from
the date of acceptance thereof by the Purchaser who shall state in writing in what respect the stores or any part thereof are faulty.

2.12 **Earnest Money Deposit (EMD):-** Interest free EMD to ensure the earnestness of the vendor in the participation of the procurement process to the tune of **Rs.90,000/-** by Demand Draft drawn in favour of the Sr. Accounts Officer, IIST, Valiamala, Trivandrum may be enclosed with Technical & Commercial bid sealed cover. The EMD will be refunded to the unsuccessful tenderers within 30 days after placement of Purchase Order.

2.13 **Security Deposit:-** Interest free Security Deposit @ 10% of the value of Purchase Order shall be payable by successful vendor for satisfactory execution of the Purchase Order.

2.14 **Performance Bank Guarantee** equivalent to 10% of order value shall be submitted by the Vendor for Warranty obligation.

2.15 **Liquidated Damages**: The period of completion indicated shall be the essence of the contract. In the event of delayed date of completion, the liquidated damages @ 0.5% per week or part thereof subject to a maximum of 10% of the contract value shall be recovered.

2.16 **Force Majeure**: During the continuance of the contract, should a part or whole of the items covered by this contract be delayed in delivery due to reasons of force majeure condition which shall include lockouts, strikes, riots, civil commotions, fire, flood, windstorm, explosion, labour disturbance, act of any Govt. or any

agency, juditional action, sabotage act of civil disobedience, act of public enemy, technical failure, accidents, acts of God and war, stoppage of deliveries by Govt. etc, each party undertakes to advise the other as soon as it becomes a way of the circumstance of such force majeure, so that action under the provisions of this contract can be mutually reviewed and agreed upon between contractor and IIST. If the force majeure condition extended over a period of six months, both the parties of the contract shall mutually discussed and arrived at an agreement for the continuation/ termination of the contract forthwith.

2.17 **Arbitration:** Dispute if any shall be settled mutually, failing which, it will be referred to a one-man arbitrator appointed by Director, IIST in accordance with the Arbitration and Conciliation Act, 1996 and any alteration/modifications thereof, whose decision shall be final and binding on both the parties

2.18 **After Sales Service Support**: The stock availability of spares and consumables for a minimum period of 5 years for up keeping the equipment shall be guaranteed to avoid obsolescence of systems.

2.19 **AMC:** The charges towards Annual Maintenance Contract (Comprehensive/Non- Comprehensive) beyond the normal warranty period may be quoted separately as option.

2.20 IIST reserves the right to either accept/reject any tender/s without assigning any reason/s whatsoever.

2.21 **Separate quotations shall be submitted for each tender along with the tender fee by demand draft.**

3. Terms & Conditions of Tender Form No. DOS PM:20, Form No. DOS PM:22 & Form No. DOS PM:23 as per attachment.

Sd/-
(M.B Subash Chandran)
Sr. Purchase & Stores Officer
For and on behalf of Director, IIST