



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 : 19.06.2015**

Tender Due on : **11.08.2015 at 14.00 Hrs.**  
Tender opening on: **12.08.2015 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 (₹)
1.	2015002436	<b><u>Gas Mixing Panel for Gas Sensor Calibration with Vacuum Compatible Heating Chamber and Automation</u></b>  <b><u>General specifications</u></b> <ol style="list-style-type: none"><li>1. Customized Gas Panel with Two Inlet and one Mixed Gas Outlet.</li><li>2. Mass Flow Controller</li><li>3. Heating Chamber (upto 500 °C or above) with inbuilt capacity to hold sample. Can hold vacuum upto 1 mBar or better</li><li>4. With user driven recipe management software</li><li>5. All process parameters like temperature and flow shall be controlled through PID / PLC controller</li><li>6. Automatic shut-off valves</li><li>7. PLC/PID controller with Screen</li><li>8. Option to connect one more stream of gas inlet in future.</li><li>9. Vendor shall have facility to carry out fabrication of panel in class 100 Clean room or better</li><li>10. Vendor must furnish <b>Performance certificate</b> of installing similar set-up in research facility in India in last 2 Years.</li><li>11. Vendor shall have experience in designing and installation of hazardous gas distribution system.</li></ol>	1 No.	500+VAT @5% (525/-)

		<p><b><u>Working Principle:</u></b></p> <ol style="list-style-type: none"> <li>1. Gas panel is equipped with two inlets through Pressure Regulators and Mass Flow Controllers to have precision on flow and percentage of each gas stream.</li> <li>2. Gases will pass through SS 316L Electro-polished Tubes having average roughness of less &lt; 10µ or better</li> <li>3. Diaphragm valves with face sealed end connections are installed at the inlet of each gas stream to isolate the system manually.</li> <li>4. After Mass flow controller, each stream passes through NRV to a Static Mixer.</li> <li>5. This Mixing unit (Static Mixer) takes care of proper mixing of both the streams before it goes into a Heating Chamber through manual isolation diaphragm valves.</li> <li>6. Pressure gauge is installed at the outlet of mixing panel to monitor pressure of mixed gas before it enters Heating Chamber.</li> <li>7. Heating Chamber can attain temperature upto 500 + Deg. C or better and have the capacity to hold vacuum and with sample holding arrangement. Temperature inside the chamber can be measured and controlled by using a temperature controller. Heater unit will be insulated to avoid heat loss.</li> <li>8. The gas from Heating Chamber can be vented manually through vent valve.</li> <li>9. Auto Safety valve is installed to vent out gas in case of pressure build up.</li> <li>10. Automatic shut-off valves shall be installed to stop the gas supply in case of emergency.</li> <li>11. Vendor has to submit the drawing based on the specifications.</li> </ol> <p><b><u>Quality Features:</u></b></p> <ol style="list-style-type: none"> <li>1. Full unit shall be assembly in Class 100 Clean room or better.</li> <li>2. All installed components are approved for ultra-high purity applications</li> <li>3. Wetted parts of valves and regulators were chosen by considering gas compatibility.</li> <li>4. All end connections are Face Sealed to maintain optimum level of gas purity.</li> </ol> <p><b><u>Safety Features:</u></b></p> <ol style="list-style-type: none"> <li>1. Complete set-up must be installed in class 100 Clean Room or better under the supervision of certified tube fitters &amp; engineers.</li> <li>2. After installation, unit will go for pressure decay test for 24 hours. In case of any leak, system shall be</li> </ol>		
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		<p>reinstalled to eliminate the leak.</p> <ol style="list-style-type: none"> <li>After successful completion of above test, system shall undergo Helium leak test at <math>1 \times 10^{-9}</math> He Lit/Sec or better</li> <li>After all above test, end connection of panel shall be capped with positive pressure of ultra high pure N<sub>2</sub> inside to avoid any ingress before installation.</li> <li>Gas Leak detector shall be installed to shut-off the system in case of emergency.</li> </ol> <p><b>Optional Items:</b></p> <ol style="list-style-type: none"> <li>4 Channel Read Out Unit with Cable</li> <li>Vacuum Pump (Dry)</li> <li>Gas cabinet</li> </ol>		
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**Preferred make / Brand details:**

Sr. No	Items	Make	Qty
1	Mixing Panel with 2 inlets and 1 outlet stream with following accessories mounted on SS- Mirror Finished Plate. Without Mass Flow Controllers		1 Nos
1.1	Diaphragm Valve	TK FUJIKIN / HAMLET / STC KITZ / FITOK	3 Nos.
1.2	Static Mixer	KOFLOW	1 Nos
1.3	NRV	TK FUJIKIN	2 Nos.
1.4	Filters	TK FUJIKIN	2 Nos.
1.5	High Purity Tube Fittings	DAJA / TK FUJIKIN / HAMLET / STC KITZ / FITOK	1 Lot
1.6	Pressure Gauge	WIKA / WARREE	1 Nos.
2	Mass Flow Controller	ALICAT / AALBORG	2 Nos.
3	4 Channel Read Out Unit with Cable (10Ft)	TK FUJIKIN / ALICAT / AALBORG	1 Nos.
4	Heating Reactor (Heating Capacity upto 500 Deg. C), with inlet and outlet valve, option for manual vent and equipped with safety valve and manual Temperature Controller. Additional He leak port and capacity to hold vacuum of 1 mbar.		1 Nos
5	Gas Leak Detector	Honeywell	2 Nos
6	Automatic Shut- off valve	TK Fujikin / STC KITZ / HAMLET	1 Nos
7	PLC System	Siemens	1 Set
8	Automation		1 Set
9	Dry Vacuum Pump. Capacity : 1 mbar, Pumping speed : 10 to 13 Cu.M/Hr.	Vacuubrand / Vaculine/Edward	1Nos. (Optional)
10	Fabrication of Complete unit in Class 100 Clean Room		Set
11	Installation & Testing of Complete unit at IIST, Thiruvananthapuram		Set

**Compliance Statement Tender No. 201500243601 dated .19.06.2015**

<b>IIST Specification</b>	<b>Quoted Specification by the Tenderer</b>	<b>Deviation</b>
Mixing Panel with 2 inlets and 1 outlet stream with following accessories mounted on SS- Mirror Finished Plate. Without Mass Flow Controllers		
Diaphragm Valve		
Static Mixer		
NRV		
Filters		
High Purity Tube Fittings		
Pressure Gauge		
Mass Flow Controller		
4 Channel Read Out Unit with Cable (10Ft or longer		
Heating Reactor		
Gas Leak Detector		
Automatic Shut- off valve		
PLC System		
Automation		
Dry Vacuum Pump. Capacity : 1 mbar, Pumping speed : 10 to 13 Cu.M/Hr or better		
Fabrication of Complete unit in Class 100 Clean Room or better		
Installation & Testing of Complete unit at IIST, Thiruvananthpuram		
<b>General specifications</b>		
<b>Working Principle</b>		
<b>Quality Features</b>		
<b>Safety Features</b>		
<b>Optional Items:</b> <ol style="list-style-type: none"> <li>1. 4 Channel Read Out Unit with Cable</li> <li>2. Vacuum Pump (Dry)</li> <li>3. Gas cabinet</li> </ol>		

**Commercial terms and Conditions Tender No. 201500243601 dated.19.06.2015**

**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 are to be attached along with Technical Bids for evaluation. Without detailed Compliance sheet, your offer shall summarily rejected.

**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. 2015002436 Due on 11.08.2015. The second cover shall contain the prices superscribing in the cover price bid- Tender No. 2015002436 Due on 11.08.2015. All the covers will be sealed and insert in another cover superscribing the Tender No. 2015002436 Due on 11.08.2015 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 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 Complete technical specifications/catalogue/leaflet etc., should be enclosed with quotation.
- 2.4 **Test certificate:** Wherever required, test certificates should be essential.
- 2.5 **Payment:** Our normal payment term shall be E-Transfer / within 30 days after supply/installation and acceptance for imports and indigenous respectively.
- 2.6 The installation and commissioning of equipment will be 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.

- 2.7 Delivery terms shall be Ex-works/FOB/FCA for imports and FOR, Valiamala for indigenous equipments.
- 2.8 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.
- 2.9 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 **Warranty/Guarantee:** Warranty: For a minimum period of 1 year from the date of installation/dispatch (wherever applicable) and extended warranty if any.
- 2.12 **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 twelve 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.
- 2.13 **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 ₹70,000/- by Demand Draft drawn in favour of the 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.
- 2.14 **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.
- 2.15 Performance Bank Guarantee equivalent to 10% of order value shall be submitted by the Vendor for Warranty obligation.

- 2.16 **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.
- 2.17 **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, judicial 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.
- 2.18 **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
- 2.19 **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.
- 2.20 **AMC:** The charges towards Annual Maintenance Contract (Comprehensive/Non-Comprehensive) beyond the normal warranty period may be quoted separately as option.
- 2.21 IIST reserves the right to either accept/reject any tender/s without assigning any reason/s whatsoever.
- 2.22 **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 Registrar, IIST