

**Pollution Control Board, Assam
Bamunimaidam, Guwahati-21.**

No. WB/LB-16/Pt-I/97-98/274
To

Dated Guwahati, the 19th June, 2009.

All the Suppliers/ Bidders of Scientific Instruments

Sub: Call for offers for some Scientific Instruments.

Sir,

The Pollution Control Board, Assam is a Govt. aided (Non commercial) Research Oriented and advisory body to the Govt. of Assam relating to Control and Preservation of Environmental Pollution under Water Act, Air Act and Environment (P) Act.

The Board requires some scientific instrument to enhance its monitoring activities and if you are dealing with the following instruments you are requested to send your offer in sealed envelop alongwith full specifications, your terms and conditions, product literatures, manufacturer's authorization in respect of the following instruments:

- 1) Flue Gas Analyzer
- 2) Rotary Evaporator
- 3) H₂, N₂, Zero Air Gas Generator
- 4) Bottom Sampler
- 5) Current Meter
- 6) Sampling device for Hazardous Waste.

The Board's term and conditions and specification against the first three instruments are enclosed herewith for ready reference. Your offers should reach us before 30th July, 2009.

Yours Sincerely

Sd/-

(K.K. Dutta)

Member Secretary

Memo No.WB/LB-16/Pt-I/97-98/274-A

Dated Guwahati, the 19th June, 2009.

Copy to:

1. P.A to the Chairman, Pollution Control Board, Assam for kind appraisal to the Hon'ble Chairman.

(K.K. Dutta)

Member Secretary

GENERAL TERMS AND CONDITIONS

1. This document contains the following:
 - i) Copy of quotation notice
 - ii) General Terms and Conditions of Bid
 - iii) Terms and Conditions for Submission of Bid
 - iv) Application Form
 - v) Undertaking
 - vi) Bid Form
 - vii) Detailed specification of the instruments.
 - viii) Schedule of Earnest Money to be deposited along with Tender (Annexure-IV)
 - ix) Check List.
2. The Tender Document is not transferable by the purchaser. Each sheet including that provided by the Board with this document must be signed by the bidder. The price bid must be in the form provided herewith at Annexure-II.
3. The tender will not be accepted from the firm who has not paid for the tender document.
4. The Board takes no responsibility for delay or non receipt of Tender Document sent by post either way and also reserves the right to accept; or reject any or all the tenders in part or full without assigning any reason thereof.
5. The bidder is expected to examine all instructions, forms, terms and conditions and specifications mentioned in the bidding document. Failure to furnish all information required by the bidding documents or submission of a bid not substantially irresponsive to the bidding document in every respect will be at the bidder's risk and may result in the rejection of it's bid.
6. This tender notice, Tender forms, Specification etc are also available on PCBA's website www.pcbassam.org. Bidders using down loaded tender forms must submit a separate tender fee by Demand Draft alongwith the technical part of the bid. The tender without requisite tender fee will be rejected.
7. The Board at its discretion may extend the last date of submission of tender and opening of tenders. The final authority for acceptance of a Tender will rest with the Chairman, Pollution Control Board, Assam who does not bind himself to accept the lowest tender and is vested with the authority to reject any or all of the tenders received without assigning any reason.
8. The warranty period is between twelve months to thirty six months depending on the item and starting from the date of successful commissioning of the instrument.
9. The bid shall contain no interlineations, erasures or overwriting words except as necessary to correct errors made by the bidder, in that case, such correction shall be initialled by the person or persons signing the bid
10. It is advised that the outside suppliers should send the Tender through Registered Post/ Speed Post. However, the local supplier may drop their Tenders in Tender Box kept in the Board's office for the purpose. In no case Tender should be handed over to any employee of the Board.
11. Canvassing in any form will disqualify the Bid.
12. The Tender Notice No. WB/LB-16/Pt-I/97-98/274 dated 19th June, 2009 should be invariably be quoted in the bid and for further correspondence in this regard.
13. The courts at Guwahati shall have exclusive jurisdiction to entertain and try all matters arising out of this contract.
14. All the Tenders should be addressed to:

**THE MEMBER SECRETARY,
POLLUTION CONTROL BOARD, ASSAM
BAMUNIMAIDAN, GUWAHATI-781021**

2.0 SUBMISSION OF BID

1. The bid must accompany Annexure-I with Techno Commercial part of Bid and and Annexure-II & III along with 'Price' part of the Bid duly filled in and signed by the Bidder along with the seal of the Firm.
2. The Bidders are requested to quote-total price of each instrument separately indicating the Govt. levies, freight, insurance, installation charges and other expenditure item-wise F.O.R. PCBA, Guwahati. The bidders are expected to examine the bidding documents carefully and are deemed to have received and read all documents. It shall be the responsibility of the bidders to request the copies of any missing documents. Failure to do so will be at bidders risks.

BIDDER CAN QUOTE THE RATES FOR ALL THE INSTRUMENTS OR SOME OF THE INSTRUMENTS AGAINST ONE TENDER DOCUMENT. HOWEVER, SEPARATE PRICE BID AND TECHNICAL BID SHOULD BE SUBMITTED FOR EACH ITEM CLEARLY MENTIONING THE ITEM CODE NUMBER, ITEM NAME ON THE TOP OF THE ENVELOPES WITH SENDERS NAME AND ADDRESS. THE POLLUTION CONTROL BOARD, ASSAM, RESERVES THE RIGHT TO ACCEPT THE TENDER IN FULL OR IN PART. THE BID FOR EACH ITEM SHOULD BE IN SEPARATE SHEETS/PAGES AND FOR THE SAKE OF IDENTITY, COMPILATION, INSTRUMENT/ITEM CODE NUMBER AND DESCRIPTION OF ITEM SHOULD BE WRITTEN ON THE TOP OF EACH BID. EMD SHOULD BE SUBMITTED SEPARATELY AGAINST EACH ITEM. ITEM-WISE TECHNICAL SPECIFICATIONS AND PRICES SHOULD BE IN SEPARATE SHEETS i.e. THERE SHOULD BE SEPARATE ENVELOPE FOR EACH ITEMS INCASE BIDDERS DESIRES TO QUOTE MORE THAN ONE ITEM. TENDERERS SHOULD COMPLY THE ABOVE INSTRUCTION.

3. The Tender is to be submitted "single stage-2 envelops system" i.e. the first sealed envelope will contain full information required to judge pre-qualification, earnest money, complete details and specifications of the instruments offered including the leaflets and catalogues, list of credentials with documentary evidence i.e., purchase/work order etc. PAN No., Vat/Sales Tax Registration No., Affidavit for not being black listed, Commercial Terms & Conditions etc. It shall be marked "Pre-qualifications, technical and commercial Bid No. WB/LB-16/Pt-I/97-98/274 dated 19th June. 2009, due on 30th July, 2009, for supply of instruments & equipments". The second envelope will contain only price quoted by the bidder in the form given at Annexure -II of this document and shall be clearly marked "Price Bid No. WB/LB-16/Pt-I/97-98/274 dated 19th June. 2009, for instruments & equipment". Both the above envelopes must be separately sealed and shall be kept in one envelope bearing the address of Pollution Control Board, Assam and superscribed with bold letter "**TENDER FOR INSTRUMENTS & EQUIPMENTS**". The senders' address should be mentioned in all envelopes.
4. Item Code number(s) should be mentioned invariably on all envelopes.
5. The EARNEST MONEY shall be in the form of Demand Draft only in favour of "MEMBER SECRETARY, POLLUTION CONTROL BOARD, ASSAM" payable at GUWAHATI. Tender shall not be entertained where a Tenderer has not furnished adequate earnest money as specified in the Annexure –IV. In case of non-supply within stipulated time or the instrument supplied is found defective and not attended by the supplier, the Earnest Money deposited by the supplier will be forfeited.

6. The Firm who seek exemption from depositing earnest money being small scale industry or being registered with NSIC, DGS&D and other Government agencies which entitles them for exemption must submit the valid Registration Certificate covering the instrument offered by them along with the permissible value. The copy of Government Notification granting exemption from deposit of EMD must be submitted along with the techno- commercial part of tender along with the bid. (EMD Exemption will be granted only to those items specified in the certificate of Registration).
7. Unsuccessful bidders bid security will be discharged/ returned without any interest in the same form after the concerned purchase is finalized and that of successful bidders will be discharged without interest after the warranty period is over.
8. The validity of Tender would be for a minimum period of 12 months from the date of opening of Tenders. A Bid valid for a shorter period may be rejected by the Board as non responsive.
9. The rates should be quoted both in words and figures. If there is discrepancy between words and figures, the amount mentioned in words will prevail.
10. To assist in the examination, evaluation and comparison of bids the buyer may, at its discretion, ask the Bidder for a clarification of its bid. However, no change in the price or substance of the bid shall be sought, offered, re-permitted.
11. The specifications are clearly mentioned in the document and the Bidder are requested to submit Bid only if their offer comply with these specifications. BIDS CARRYING THE STATEMENT LIKE "SPECIFICATION AS PER TENDER DOCUMENT" SHALL NOT BE ENTERTAINED. THE PRODUCT SPECIFICATIONS SUPPORTED BY TECHNICAL LITERATURE AND LIST OF USERS MUST BE ENCLOSED.
12. The nomenclature of the instruments and spares will be invariably same in Proforma Invoice, Invoice, Packing list and in other relevant papers in case the Bidder is asked to supply the instruments against its offer.
13. With the submission of the Tender, the Bidders are deemed to accept the terms & conditions of the Tender.
- 14. The Supplier should attach a copy of financial bid (without cost/price figures) along with the technical bid to assess the item/components quoted in the bid.**
15. The installation and commissioning of the instruments is the entire responsibility of the supplier. It must be done either by the principal/supplier or their authorized agents within one week of the receipt of the instruments by the Board.
16. The Bidder must sign each and every folio of the Tender.
17. The bidder should attach a separate list for the consumable/spares required for smooth operation of the instrument at least for three years (as optional items) and two copies of trouble shooting manuals, electric circuits etc. along with the bids.
18. The bidder should provide a complete list of spares and consumables required for operation and maintenance of the instruments along with the price list.
19. The instrument for which Tenders are invited will have to be supplied within 6 (six) weeks from the date of issue of purchase order. In case of non-observance of the delivery period, the order will be cancelled.
20. If the instrument supplied is found defective/unsatisfactory condition/short supply/other than specifications in the Purchase Orders, the same will have to be replaced at the suppliers' risk and cost. The Board will not pay freight and other charges for replacement.

21. The prices must be quoted item-wise i.e. basic price, taxes, packing forwarding, handling and installation charges etc. The charges must be quoted clearly and not in vague terms like "As Actual" "Approx" etc.
22. The warranty/guarantee of the instrument/equipment should be clearly mentioned in the Bid.
23. **Party should offer for Charges of 3 (three) years Annual Maintenance Contract (AMC) effective after the expiry of warranty period.**
24. **MOST IMPORTANT**
PLEASE NOTE THAT ANNEXURE-I OF THIS DOCUMENT MUST BE ENCLOSED WITH THE FIRST PART OF BID i.e. "TECHNICAL/COMMERCIAL BID AND ANNEXURE-II AND III WILL BE KEPT IN THE SECOND PART OF BID i.e. PRICE BID.
25. **PLEASE NOTE THAT THERE IS NO NEED TO ENCLOSE THE ENTIRE TENDER DOCUMENT (SUPPLIED BY THE BOARD) WITH YOUR BID. ONLY ANNEXURE-I,II AND III NEED TO BE ENCLOSED AS PER INSTRUCTION STIPULATED IN PARA 24 AND OTHER RELEVANT PARAGRAPHS OF THIS BID.**
26. Full payment will be released on delivery, installation and successful commissioning of the instruments/equipment (to be certified by concerned Scientist/In charge of the Division), and on submission of bills in triplicate. No advance payment will be made in any case and no proposal for documents through Bank will be considered.

S. No.

APPLICATION FORM

(To be filled by the bidder)

- 1) Name and full address of the Bidder including Telegraphic Address/Telex No. and Fax No., e-mail. :
- 2) Name and Designation of the Head of the Firm/supplier and his Telephone No. :
- 3)
 - i) In case the supplier is located out of ASSAM specify the Address/ Authorised Distributor's or Agent's Address in Assam, if any. :
 - ii) Name, Designation, Address Telephone & Fax Numbers of the Authorised Person who may be Contacted during the process of the purchase concerned under this document (Applicable for all the suppliers) :
- 3) Item Code Number(s) & description of item quoted for. :
- 4) Whether Earnest Money Deposited (Amount: Rs.) :
- 5) If yes, Demand Draft No, Date and Name of issuing Bank. :
- 6) Validity of Tender :
- 7) If the tender documents are accepted in full (Yes or No) :
- 8) Income Tax Clearance Certificate attached (Latest) (Yes or No) with PAN Number. :

Place:

Date :

Legally Binding Signature with stamp

BID FORM**No.**

Details showing quantity, specification and other details of the instruments offered (to be filled by the bidder and must be kept in "Price Bid" part of the Tender)

SI No and Item code Number of instruments as per our tender Document	Name of Instrument	The Specification offered by the Bidder	Difference in Specifications of tender document and that of Bid, if any	Unit Price (in Rupees excluding rates at col. no. 6)	Taxes and other expenditures (Sales Tax, C.S.T, freight, cost of installation & training (in case of indigenous items)etc.	Total Amount in Rupees FOR PCBA, Guwahati
1	2	3	4	5	6	8

NOTE:- If this sheet is not sufficient to accommodate the bid the additional sheets containing the same proforma but all such sheets including this one must be signed by the Bidder along with the seal. This Annexure must enclose in the Proforma Invoice price bid for item wise. Separate Bid form should be attached against each item, quoted for.

Signature with date & stamp of the bidder

UNDERTAKING

DATE _____

TENDER NOTICE NO _____

TO

THE MEMBER-SECRETARY
POLLUTION CONTROL BOARD, ASSAM
BAMUNIMAIDAM, GUWAHATI, 781021.

Sir,

Having examined the conditions of Tender Document and specifications of the instruments, the receipt of which is hereby acknowledged. We, the undersigned, offer to supply, install and commissioning the following:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13

(Please add additional pages, if required). The above supply, installation and commissioning shall be in conformity with the specifications and conditions of supply.

We undertake if our bid is accepted to deliver the instruments quoted by us, we shall deliver and install within the period indicated by us in our offer.

We agree to abide by this bid for a period of 120 days from the date fixed for Bid opening and it shall remain binding upon us and may be accepted at any time before expiration of that period.

We are submitting a Demand Draft for Rs.....in favour of "Member Secretary, Pollution Control Board, Assam", towards the Earnest Money.

This Bid, together with your written acceptance thereof in your notification of award shall constitute a bidding contract between us.

We understood that you are not bound to accept the lowest or any bid you may receive.

Dated this.....day of.....2009

Signature of authorized Person, Name with Stamp & full Address.

ANNEXURE - IV**SCHEDULE OF EARNEST MONEY**

Item code No.	Name of Instruments/Equipments	Quantity	Earnest Money amount is shown in Rupees. EMD should submit through Demand Draft either in Rupees or in bid Currency (equivalent amount as per exchange rate prevailing)
1.	Flue gas analyser	01	8000.00
2.	Rotary Evaporator with Pump	01	2000.00
3.	H ₂ ,N ₂ ,Zero gas generator	01	8000.00

Item code No.1

Flue Gas Analyser

Portable and advance type flue Gas Analyser, comprising sensor, pumps, supply unit, electronics, and key controlling panel. It should be handy and mobile for easy operation and record the measurement as CO₂, CO, SO₂, Temp., NO₂, NO, NO_x, HC, Combustion efficiency, Excess air and other supporting parameter. The detail specification as below:

- 1 Gases to be measured : CO, O₂, CO₂, SO₂, NO, NO₂, NO_x, HC and combustion efficiency
2. Sensors : IR or Electro-chemical Sensors with high accuracy and life span of 3 to 5 years
3. Gas Flow : 1 to 2.5 liter/min
4. Temperature Measurable : 1100 °C
5. Operating Temperature : 0-50 °C
6. Power Supply : Battery(Long Life) operated along with built in charger on Mains 230 V + 10 VAC, 50 Hz + 3%
7. Flue Gas Probe : Stainless Steel Shaft with rubber handle; length initially 01 meter and expandable up to 2 meter. The Probe should withstand high temperature of the order of 1100 °C
8. Pre Programming : For Natural Gas, light Oil, heavy Oil, LPGs, Propane, Butane, Coke, Coal etc.
9. Parameter wise Specification : Please see **Annexure - 'A'**
10. Software/Operator : Easy to handle Key Board operated and user friendly. Data format transferable to user software and print out facility
11. Weight : Light Weight/Portable with Qualitative Carrying Case
12. . Certificate : Calibration and certificate of approval from recognized agency like EPA, TUV,NPL,NTSC, be provided
13. Documents : Instruction manual for operation. Circuit details for each Electronic card for repair and maintenance.
14. Calibration : Automatic

- Spares of flue Gas Analyser should be available at least 10 years to the supplier company.
- Warranty should be provided for three years from the date of installation.
- AMC charges for service after warranty may be quoted separately.

Annexure –A

Parameter	Sensor	Range	Res.	Accuracy
O ₂	ELECTROCHEMICAL	0 – 25%	0.1%	±0.1% vol
CO	ELECTROCHEMICAL	0 – 8000 ppm	1 ppm	<300 ppm= ±10ppm up to 2000 ppm= ±4% >2000ppm=+10%
CO	ELECTROCHEMICAL	0 – 20000 ppm	1ppm	<300 ppm= ±10ppm up to 2000 ppm= ±4% >2000ppm=+10%
CO %	ELECTROCHEMICAL	10%	0.01%	±100 ppm<0.02% ±5% rdg. Or 10%
NO	ELECTROCHEMICAL	0 – 4000 ppm	1 ppm	<100 ppm= ±5ppm up to 3000 ppm= ± 4%
NO ₂	ELECTROCHEMICAL	0 – 1000 ppm	1 ppm	<100 ppm= ±5ppm up to 800 ppm= ± 4%
NO _x	Calculated	0 – 4000 ppm	1 ppm	
SO ₂	ELECTROCHEMICAL	0 – 4000 ppm	1 ppm	<100 ppm=±5ppm up to 2000 ppm = ±4%
CO ₂	Calculated	0 – 99.9%	0.1%	
CO ₂	NDIR	0 – 200%	0.01%	±3% rdg. or ±0.3%
CX _{HY}	Pellistor	0 – 5.00%	0.01%	+ 5% F.S.
CX _{HY}	NDIR	0 – 50000ppm	1 ppm	±3% rdg. or ±10%
H ₂ S	ELECTROCHEMICAL	0 – 1000 ppm	1 ppm	±5ppm<100ppm ±4%rdg. or 1000ppm
T-air	Pt-100	-10 – 99.9 °C 14.0 – 212.0°F	0.1°C	±(0.2% rdg.+ 0.15°C)
T-GAS	Tc K	0 – 999.9 ° C 32.0 – 1830° F	0.2° F	±(0.3% rdg.+ 0.3°C)
ΔT	Calculated	0 – 999.9 °C 32.0 – 1830° F	0.1°C	(0.2% rdg.+ 0.15°C)
T _{flow} /T _{return}	Tc K	-10 – 99.9°C	0.2°F	±(0.3% rdg.+ 0.3°C)
Pressure/Draft	Bridge	±100h Pa	0.01hPa	±3Pa <300Pa ±1% rdg. >300Pa
Excess air	Calculated	1.00 -INFINITY	0.01	
Gas velocity	Calculated	0-99.9 m/s	0.1m/s	
Efficiency	Calculated	1-99.9 %	0.1%	
Auxiliary Inputs	2 channels	4 – 20 mA		

Specifications for VOC Analyser**Range, Resolution & Response time**

Gas Monitor	Range	Resolution	Response time(T90)
VOCs	0-9999 ppb	1ppb	<5 sec
	10.0-99.9 ppm	0.1 ppm	<5 sec
	100-2000 ppm	1ppm	<5 sec

Detector Specifications

sensor	Patented, planer, dual-channel, photoionization sensor with super-bright lamp
Battery	Rechargeable, external, field replaceable Nickel-Metal-Hydride (NiMH) battery pack /Alkaline battery holder
Operating period	At least 10 hours continuous operation
Display	LCD
Direct Readout	VOCs as ppb or ppm by volume High and low values STEL and TWA (in hygiene mode) Battery and shutdown voltage
Alarms	With buzzer and flashing light to indicate exceeded preset limits High beeps and flashes per second Low beeps and flashes per second STEL and TWA 1 beep and flash per second Alarms with automatic reset or latching with manual override User-adjustable alarm limits
Calibration	At least Two-point field calibration of zero and standard reference gas. Calibration memory of at least 8 calibration gases, alarm limits, span values and calibration date
Datalogging	Optional with date/time. Header information should include monitor serial number, user ID, site ID, date and time
Sampling Pump	Internal integrated flow rate 400 – 500 cc/min Sampling from 100 (30 m) horizontally or vertically
Low Flow Alarm	Auto shut-off pump at low flow condition
Communication	Download data and upload instrument set-up from pc through RS-232 link to serial port
Temperature	10 ⁰ to 105 ⁰ F or (-10 to 40 ⁰ C)
Humidity	0% - 95% relative humidity(non-condensing)
IP-rating	IP protected against dust, protected against low-pressure jets of water from all direction
Attachments	Durable rubber boot with belt clip & wrist strap
Warranty	Lifetime on non- consumable components, 3 years for PID lamp, 1 year for pump and battery

Monitor should include:

- UV lamp
- 5" Flex-I-Probe
- External filter
- Rubber boot with belt clip
- Alkaline battery adapter
- Tool kit
- Lamp-cleaning kit
- VOC Zeroing tubes(1 box)
- Tube adapter
- Tedlar bag for calibration
- Nickel-Metal-Hydride battery
- 120/230 v AC/DC wall adapter
- Operation and maintenance manual

Monitor with accessories kit should include:

- Hard transport case
- At least 5 porous metal filters and O-rings
- Gas outlet port fitting and tubing

Optional calibration kit should include:

- 10 ppm calibration gas
- Regulator and Teflon tubing

Data logging monitor should include:

- Software package for Windows XP, Vista
- Computer interface cable

- **Instrument will be accepted only after proper commissioning and training failing which the tem may be returned without any cost from Board's side.**

- **Annual maintenance of 3 (three) years should be provided after the expiry of warranty period.**

ROTARY EVAPORATOR WITH PUMP (ADVANCED)

1.0	Equipment	Composition
1.1	Rotavapor	One Set
1.2	Heating Bath	One Set
1.3	Vacuum Controller	One Set
1.4	Glass Assembly	One Set
1.5	Vacuum Pump	One Set
1.6	Water Jet Pump (Optional)	One Set
1.7	Recirculating Chiller (Optional)	One Set
2.0	General Specifications	
2.1	Operating Voltage	230 Volts AC
2.2	Frequency	50 / 60 Hz
2.3	Power Consumption	1500 Watts or less
2.4	Power On / Off Switch	Separate for each component
2.5	Footprint	Less than 0.20 m ²
3.0	Technical Specifications	
3.1	Rotavapor	
3.1.1	Rotation Speed	Control and digital display
3.1.2	Vapour Temperature	Sensor and Digital display
3.1.3	Jack	For elevation and submersion of evaporating flask, Jack operation - electrical by pressing of button as well as manual
3.2	Heating bath	
3.2.1	Material	Corrosion resistant coated with PTFE
3.2.2	Capacity	About 4.0 Litres
3.2.3	Heating Element	Under Pan heating element for ease of bath cleaning
3.2.4	Temperature Control and Display	Provision for setting of temperature by user, digital display
3.2.5	Temperature Range	Settable from 20 to 180 °C
3.2.6	Temperature Accuracy	1 °C
3.2.7	Flask Accommodation	50 - 3000 ml
3.3	Vacuum Controller	
3.3.1	Vacuum Display	Digital display
3.3.2	Vacuum Control	Capable of controlling vacuum set by user for unattended operation
3.3.3	Programming Facility	Vacuum programming for evaporating mixture of solvents
3.3.4	Programme Storage Facility	Facility to store user customised programmes
3.4	Glass Assembly	
3.4.1	Condenser	Vertical, compatible connectivity for vacuum pump & water jet pump
3.4.2	Joint Adapter	Press fit type Adapter for connecting evaporating flask to condenser

3.4.3	Evaporation Flask Volumes	Preferably conical shape, 25 ml, 50 ml, 100 ml, 250 ml and 500 ml
3.4.4	Extension Joints	Adapter Joints for smaller volume evaporation flasks
3.4.5	Receiving Flask (Condensed Solvent)	Spherical 1000 ml with ball joint and clamp
3.4.6	Clips for assembling of Evaporation Flask	Preferably plastic, press fit assembly
3.5	Vacuum Pump	
3.5.1	Vacuum Pump Type	Mono Block, PTFE Diaphragm type
3.5.2	Final Vacuum	About 10 mBar
3.5.3	Suction Volume	About 1.5 m ³ /hour or more
3.5.4	Communication with Vacuum Controller	Vacuum level communication with vacuum controller
3.5.5	Glass Heads	Inert Glass Heads
3.5.6	Control of Solvent Vapour built-up	Secondary Condenser for minimization of Laboratory Pollution
3.6	Water Jet Pump (Optional)	
3.6.1	Type	Solenoid Valve type with quiet operation
3.6.2	Control of Water Flow	Communication with Vacuum Controller for control of water flow
3.6.3	Dual Function	Vacuum and integrated Cold Water Circulation
3.7	Recirculating Chiller (Optional)	
3.7.1	Water Cooling	Down to about -10 °C (using CFC Free Gas)
2.7.2	Water Recirculation	Leak Proof Recirculation of cold water to and from condenser
2.7.3	Distribution	Capable of supplying to two Rotavapor Units
2.7.4	Power Consumption	1500 Watts or less

H₂ N₂ ZERO GAS GENERATOR:

Generators should produce a high purity of generated gases. It should be completely safe, featuring sophisticated control and safety system, display units to indicate system status and provided with alarm with automatic shutdown in the event of a breakdown. All generators should feature easy installation and low maintenance.

H₂ Gas Generator:

H₂ gas flow providing clean and dry high purity hydrogen for GC

H₂ Flow rate cc/min 160 (optional 250)

H₂ Purity * >99.9999%

H₂ Pressure (electronically adjustable) 0-7 bar (0-100 psi)

De-ionised Water Quality >1 Megohm

Water Capacity 5 Litres

Supply Voltage 230+/- Volts (50+/-3 Hz)

Electrical Consumption 100W /170W

Drying Type Desiccant

Ambient Operating Temperature +5 - 40°C (41 - 104°F)

Outlet Connector 1/8" Compression (Swagelok)

N₂ gas generator:

N₂ gas flow providing clean and dry high purity nitrogen.

With Economy Mode zero grade N₂ for GC

N₂ flow: 550 cc/min (optional 1.5lit /min)

Output Pressure (bar) 5

Hydrocarbon content of <0.1ppm

Oxygen < 10 ppm

On-line purity monitoring capability

Digital hours counter

Audible and visual maintenance indicator

Economy mode option: Enables the Compressor to switch off when nitrogen supply is not required

Quick and easy servicing: less than 10 minutes

Supply Voltage /Electrical Consumption 230+/- Volts (50+/-3 Hz)

Zero air gas generator:

Max Air Flow Rate (outlet) for Specified Hydrocarbon

Concentration: 1500cc/min

Outlet Hydrocarbon Concentration (as Methane): <0.1 ppm

Max Inlet Hydrocarbon Concentration (as Methane): 100ppm

Inlet Air Pressure (min/max) psig: 20-125 psi

Start up time for Specified Hydrocarbon Concentration (as Methane): 30 mins

Particles >0.01micron: None

Electrical Requirements @ 110v AC / 220v AC: 4.0A / 2.0A

Dimensions to be specified

CHECK LIST FOR THE BIDDER

1. Bid on original Tender form only.
2. Separate EMD against each item.
3. Earnest money or necessary documentary proof for exemption of earnest money with the part 1 of the bid.
4. Price bid must be Part II of the bid in the form provided at Annexure II of the tender document.
5. The Basic Price, Taxes, Packing, Forwarding, Handling, Transportation Insurance, Installation charges etc. must be quoted clearly. Do not use vague terms like "As Actual, Approximately etc".
6. Do not use the terms As per Specification of Tender Documents' in respect of instruments. There should be proper write up of production quoted for supported with printed leaflets literature.
7. In case the bidders desirous to quote more than one item, separate envelope should be submitted (technical & price bid) for individual item superscribing item code number and name.
8. With technical bid, the bidder should provide a copy of the price bid format (giving details of the items, accessories, spares etc.) without specifying the price other than one mentioned in annexure-II of this tender document.
