

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

2A & 2B , Raja S.C. Mullick Road, Jadavpur, Kolkata-700032

NIT No. : IACS/SMS/AP/2019-20/43

Date: 29/07/2019

Sealed tender in two bids system (technical bid and price bid) is invited from bonafide, resourceful and eligible manufacturer/exclusive distributor/vendors for **Gas Chromatography including TCD, FID and other Accessories.**

Part-I (Technical Bid) of the tender should contain technical specifications in detail as well as commercial terms and conditions. Part-II (Price Bid) should clearly indicate group-wise price, if needed, as mentioned in the technical bid. The Technical Bid and Price Bid are to be submitted in separately sealed envelopes, distinctly marked accordingly and both to be put inside another envelop, that should be sealed and superscribed with tender notice no. and due date. The bidders may submit bids duly signed in their own letterheads.

Completed tender bids should reach the office of the **Registrar, Indian Association for the Cultivation of Science (IACS), 2A & 2B Raja S. C. Mullick Road, Jadavpur, Kolkata-700032** on or before the scheduled date and time specified below:

Tender Notice No.	NIT No. IACS/SMS/AP/2019-20/43 Date: 29-07-19
Last date and time of submitting tender	22/08/2019, within 12.00 Noon
Pre-bid meeting(date, time & place) to discuss technical specification	19/08/2019, 11 AM, Room No-59 (1 st Floor , IACS Main Building)
Date and time of opening tender (Technical Bids)	22/08/2019, 3.00 PM
Place of opening tender	Room No 59 (1 st Floor, IACS main Building)
Date and time of opening of Price Bid	The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.
Contact	Email: msap@iacs.res.in Tel.+91 33 2473 4971 [Ext 1209]

The technical bids will be opened first to judge/evaluate the technical specifications of the said instrument and thereafter the price bids of only technically qualified bidders will be opened.

Technical Bid Evaluation: The Technical Bids will be evaluated in the presence of the representatives of intending bidders who will be able to clarify technical aspects of their bids, if any, required by the Technical Evaluation Team.

Opening of price-bid: The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.

Please note that IACS will not provide any accommodation or reimburse any expenses to any of the bidders for attending opening of technical bid.

Quotations received incomplete or beyond the stipulated time will be summarily rejected.

Bidders should submit their past experience for supplying and successful installation of similar units to other research Institutes/Universities/other organizations in India and abroad. Please provide documentary proofs of such successful installation and supportive documents that the instruments are running successfully

1. TECHNICAL BID

The technical bid should contain technical specifications and should be kept in a separate sealed envelope duly superscribed as 'TECHNICAL BID' on the outer cover of the envelope as already detailed above. **It should be clearly mentioned on the envelope as "Technical Specification for Gas Chromatography including TCD, FID and other accessories".**

Technical Specification for Gas Chromatography including TCD, FID and other Accessories

Microprocessor based Gas Chromatography system for analysis of trace level of Gases – CH₄, CO, CO₂ in matrix H₂, O₂ and analysis of H₂ in matrix O₂ & CO₂. User friendly operation to manage the work from LCD Screen with Keypad as when require. The system should have capability to install minimum four or more numbers of Injectors and Detectors. Automatic heated gas sampling valves should be quoted for Gas sample injection, bypass and backflush. Moisture should be backflushed to enhance the system performance. The system should be upgradable in future for different application.

Application:

CH₄, CO & CO₂ – 5ppm and above in matrix H₂ & O₂

H₂ – 50ppm and above in matrix O₂ & CO₂

1 to 5% Moisture will be present in the sample and should be backflushed the moisture to enhance the system performance.

Column Oven

Column Oven Size should be 22 ltrs or more

Operating Temperature range: Ambient +5 °C to 450 °C or better

Temperature Set Point Resolution: 1 °C

Temperature Accuracy: ±1 %

Temperature deviation should be < 2 °C along a 200 mm dia circle

Number of Ramps/Plateaus: 7/8 ramps or more

Maximum Heating Rate: 50 °C/min or more

Oven Cool-Down (22 °C ambient): 400 °C to 50 °C in < 6 min

Column Overheat Protection

Performance Specifications

Typical Retention Time Repeatability: 0.008 min or better

Typical Peak Area Repeatability: <2% RSD or better

Automatic / Electronic Pressure Control

Up to 10 channels or more of integrated electronic gas control

Pressure Set Points Minimum Increments: 0.01 psi in all ranges

Electronic Carrier Gas Control for Capillary/Packed Column Injector & Auxiliary

Pressure Range: 0–145 psi or more

Modes: Constant Pressure, Constant Flow and Programmed Pressure

Auxiliary Electronic Carrier flow/pressure Control – Qty 1

Injector

Can be installed minimum Number of Injectors: 4 or more

Packed Column Injector with electronic gas controller – Qty 1

Suitable for different OD Packed columns and wide bore Capillary columns with adaptor

Temperature Range: 50⁰ C – 450⁰ C

Detector

Can be installed minimum Number of Detectors: 4 or more

Thermal Conductivity Detector with electronic gas controller – Qty 1

- Compatible with different OD Packed columns, narrow & wide bore capillary columns
- MDL: <800 pg Dodecane/ml He or better
- Sensitivity: 10 μ V /ppm for Dodecane or better (please specify)
- Linear Dynamic Range: >10⁴ or better
- Maximum Temperature: 400⁰C or better
- Over heat Protection facility
- Data acquisition rate : Fast data acquisition for mentioned applications in tender

Flame Ionization Detector with electronic gas controller – Qty 1

- Wide Range Flame Ionization detector for GC with Auto Ignition & Auto ranging facility
- Compatible with 1/4", 1/8", 1/16" and capillary columns
- Flameout detection
- MDL: <1.8pg C /Sec for Dodecane hydrocarbon
- Linear Dynamic Range: >10⁷
- Maximum Temperature: 450⁰C
- Nickel catalyst (Methanizer) should be quoted for trace level of CO & CO₂ analysis
- Over heat Protection facility
- Data acquisition rate : Fast data acquisition for mentioned applications in tender

Column

- Porapak Q 6 feet X 1/8' SS 80/100 or Equivalent - Qty 1
- Carboxen 15 feet X 1/8" SS 80/100 mesh or Equivalent - Qty 1

Automatic Heated Gas Sampling Valve & Startup Kit

- Automatic heated 4 port methanizer bypass valve – Qty 1
- Automatic heated 10 port inject & back flush valve – Qty 1
- Additional separate valve oven to keep all gas sampling valves – Qty 1
- 1ml & 3ml loop with fittings – each Qty 1
- Installation/Startup Kit – Qty 1
- 1ml Gas tight syringe – Qty 2
- Additional Single Mass Flow Controller for Packed Injector without Injection Port – Qty 1

Software

Suitable Chromatography Management Software 32/64 bit windows 2000 / XP/7/10 based or latest with PC, Printer to manage the entire work from software should be quoted

Delivery and Taxes

- Door delivery
- All Customs duty and service taxes must be paid by the respective company

Calibration Standard

Calibration Standard for Gas Analysis must be supplied

- Calibration Standard – 0.5 ltrs Water Capacity H₂ – 50ppm, CO – 10ppm, CH₄ – 10ppm CO₂ - 10ppm in balance Argon – Qty 1
- Calibration Standard – 0.5 ltrs Water Capacity H₂ – 100, O₂ 20ppm, CH₄ – 20ppm CO₂ 20ppm in balance Argon – Qty 1

N.B- all gas cylinders should have safety certificate from the authorised department (Govt. of India)

2) Purification certificate should be given during the delivery of cylinder

Supply of Gas with cylinder:

- **Hydrogen**-99.999% Gas filled in 47ST cylinder containing 7.0 m3 of gas.47 ltrs water capacity carbon steel cylinder fitted with IS 3224 Valve & valve Guard.
- **Nitrogen** -99.999% Gas filled in 47ST cylinder containing 7.0 m3 of gas 47 ltrs water capacity carbon steel cylinder fitted with IS 3224 Valve & valve Guard.
- **Zero Air**-99.999 % filled in 47 ST cylinder containing 7.0m3 of Gas 47 ltrs water capacity carbon steel cylinder fitted with IS 3224 Valve & valve Guard.
- **Argon**-99.999 % filled in 47 ST cylinder containing 7.0m3 of Gas 47 ltrs water capacity carbon steel cylinder fitted with IS 3224 Valve & valve Guard.

N: B- 1) all gas cylinders should have safety certificate from the authorised department (Govt. of India)

2) Purification certificate should be given during the delivery of cylinder

Pressure Regulator:

Stainless Steel Body, Double Stage, Cylinder Mounted, SS316 Diaphragm, Inlet Pressure Gauge: 0-280kg/cm², Inlet Connection: 5/8" BSP RH/LH, Outlet Pressure Gauge:0-16 kg/cm², Outlet Connection: 1/4" Ferrule Fittings, Inlet Connection suitable to H₂, N₂, Zero Air Gas, Argon cylinder

Single cylinder Manifold:

1x1 Wall Mounted Cylinder Manifold for H₂, N₂, Argon, Zero Air gas Consisting of Header, Isolation Valves, 1/4" SS Braided Flexible Hose with 5/8", BSP bull nose & nut
Cylinder Bracket

Gas Purification & Control Panel**For N₂ Gas:**

Moisture Trap, Oxytrap, Pressure Regulator, Pressure Gauges, Toggle Valves

For H₂, Argon & Zero Air:

Moisture Trap, Hydrocarbon Trap, Pressure Regulator, Pressure Gauges, Toggle Valves

- 1/8" SS Tubing with fittings, casing etc must be supplied

Warranty: Three year warranty (comprehensive). AMC charge should be mentioned in quotation and after the end of comprehensive warranty, AMC should be applicable as per quotation

Servicing facility within India is a must while service engineer stationed at Kolkata will be preferred.

A list of other places where the instrument has been installed should also be provided.

A compliance table (see below) must be prepared and submitted along with the technical bid.

Sr. No	Tender specification	Your offered instrument specification	Extent of compliance

Tender will not be accepted if the technical compliance chart is NOT provided following the above format.

2. PRICE BID

The financial bid indicating (item-wise) price for the item(s) mentioned in the technical bid should be kept in a separate sealed envelope duly super scribed as 'PRICE BID' on the outer cover of the envelop as already detailed above. Price bids of only technically qualified bidders will be opened and they will be intimated the date and time of the opening of price bid at their e-mail ids. Rest of the bidders will stand rejected.

PRICE: Price to be quoted on CIF Kolkata or FOB basis or Indian Currency.

3. BID SECURITY:

An Account payee Demand Draft of any of the Commercial Banks for Rs. 3,00,000 (Rupees three lakhs only) drawn in favour of “Indian Association for the Cultivation of Science (State Bank of India, Jadavpur University Branch, A/C No. 11079699211, IFSC: SBIN000093, MICR Code: 700002048)” is to be furnished by the bidders along with Technical Bid, except Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organisation or the concerned Ministry or Department.

Alternatively, the bidder shall have the option to furnish EMD in the form of Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the Commercial Banks. The Bid-Security should have at least 90 (ninety) days validity period beyond the final bid validity period.

In case of non-award of the work the Bid Security money would be returned to the unsuccessful Bidders.

4. PERFORMANCE SECURITY:

An Account Payee Demand Draft on any commercial bank of India or Bank Guarantee (BG) of any Commercial Bank preferably located at Kolkata of 10% of the order value in the name of “Indian Association for the Cultivation of Science” is to be furnished by the successful bidder as Performance security. Performance security money should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. Bid security money or EMD will be refunded to successful bidder on receipt of the Performance security money.

5. TERMS OF PAYMENT:

Payment will be made after successful installation and demonstration of the instrument.

6. GENERAL INSTRUCTIONS:

1. Validity of tender: Tender submitted should remain valid for at least six months from the date of opening the tender. Validity beyond six months from the date of opening of the tender shall be lapsed by mutual consent.
2. The tender should accompany a compliance chart.
3. Incomplete and conditional tenders as well as tenders received after the due date will be summarily rejected without assigning any reasons thereof.
4. At any time prior to the bid due date, IACS may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder during pre-bid meeting, modify the bidding documents. The amendment(s) will be notified on the institute website. Prospective bidders are advised to occasionally visit the website (www.iacs.res.in/tender) for any amendment.
5. Installation/Demonstration/Application training at site: Installation & user training at IACS, free of cost by the supplier.
6. Service facility: In India, preferably Kolkata, supplier should mention their details of service setup and man powers who are responsible for after sales support. Response time should be within 24 hrs.
7. The model number, make and a printed literature of the product should be submitted positively.
8. Proposed delivery schedule should be mentioned clearly.
9. Manufacturers / exclusive distributors / vendors should have history of supplying this type of instruments to this or other scientific organizations. Availability of a list in this regard would be preferred.

10. Authorized dealership certificate should be provided in case of principal manufacturing company is not quoting directly.
11. Guarantee certificate, users manuals etc. are to be handed over to the user after successful commissioning of the system.
12. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of the technical bids will be the following working day at the appointed time.
13. In case of any dispute, the decision of IACS authority shall be final and binding on the bidders.
14. In case of any litigation the matter will be dealt within the jurisdiction of the High Court of Calcutta only
15. For any clarification regarding technical specifications, information etc., please send your queries to Prof. Amitava Patra (msap@iacs.res.in).
16. The authority of IACS reserves the right to reject any or all of the tenders received without assigning any reason thereof.

Acting Registrar