



**E-TENDER  
BIDDING DOCUMENT FOR  
PROCUREMENT OF  
Equipments.**

<b>GAS FLOW CALIBRATOR</b>	<b>01NO.</b>
<b>AUTO TITRATOR</b>	<b>01NO.</b>
<b>MULTI FUNCTIONAL CALIBRATOR</b>	<b>01NO.</b>
<b>MODA</b>	<b>01NO.</b>

**ONLINE TENDER**

**NO.CIPET: IPT/AHD/CALIBRATION/2021-22/05**

**LAST DATE FOR SUBMISSION OF ONLINE BID: 06/01/2022@12:00pm**

**Central Institute of Petrochemicals Engineering & Technology (CIPET) formerly known as  
Central Institute of Plastics Engineering & Technology (CIPET)**

(Department of Chemicals & Petrochemicals)

(Ministry of Chemicals & Fertilizers)

**CIPET:IPT:Ahmedabad**

Plot No.630,Phase-IV,G.I.D.C.,Vatva,Ahmedabad-382445,Gujarat,INDIA.

Email: [cipetahdm@gmail.com](mailto:cipetahdm@gmail.com)

Website: [www.cipet.gov.in](http://www.cipet.gov.in)

Phone: +91 79 40103900-910

Fax: +91 79 40103905-06

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## SECTION I. INSTRUCTIONS TO BIDDERS

### A. INTRODUCTION

1. Central Institute of Petrochemicals Engineering & Technology (CIPET) formerly known as Central Institute of Plastics Engineering & Technology (CIPET) is an ISO 9001:2015 QMS, NABL, ISO/IEC 17025:2005 accredited premier National Institute devoted to Skill Development, Technology Support, Academic & Research (STAR) activities for the growth of petrochemicals & allied industries in the country. CIPET was established by Government of India in 1968 at Chennai. Today, CIPET has 42 centres spread across the country – 7 Institute of Petrochemicals Technology (IPT) at Ahmedabad, Bhubaneswar, Chennai, Jaipur, Kochi, Lucknow & Raipur; 29 Centre for Skilling & Technical Support (CSTS) at Ahmedabad, Agartala, Amritsar, Aurangabad, Baddi, Balasore, Bhopal, Bhubaneswar, Chandrapur, Chennai, Dehradun, Guwahati, PWMC-Borgaon, Gwalior, Hajipur, Haldia, Hyderabad, Imphal, Jaipur, Kochi, Korba, Lucknow, Madurai, Murthal, Mysore, Raipur, Ranchi, Valsad & Vijayawada and; 3 School for Advanced Research in Polymers (SARP) at LARPM – Bhubaneswar; ARSTPS – Chennai & APDDRL – Bengaluru and 3 Sub-Centres at Palakkad, Tamot & Paradip. 05 more centres are in the process of establishment. CIPET kept on expanding and diversifying its activities by establishment of centres in different parts of the country and introduction of new programs to meet the industry's requirements.

### B. BIDDING DOCUMENTS

#### 2. Content of Bidding Documents

- 2.1 The Bidding Documents includes Instruction to Bidders, Terms and Conditions of Contract, Schedule of Requirements, Technical Specifications, Manufacturer's Authorization Form, Bid Form and Price Schedules, Contract Form, Performance Security Form, Deviation Statement, declarations.
- 2.2 The Bidder is expected to examine all instructions, forms, terms and specifications in the Bidding Documents. Failure to furnish all information required by the Bidding Documents or submission of a bid not substantially responsive to the Bidding Documents in every respect will be at the Bidder's risk and may result in rejection of the bid.

#### 3. Amendment of Bidding Documents

- 3.1 At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at their own initiative or in response to a clarification requested by a prospective bidder, modify the Bidding Documents by amendment.
- 3.2 In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their bid, the Purchaser may, at their discretion, extend the deadline for the submission of bids.
- 3.3 It is the bidders' responsibility to visit the CIPET website and [www.tenderwizard.com/CIPET](http://www.tenderwizard.com/CIPET) frequently to know the latest updates/amendments/corrigendum / addendum / clarification if any.

## C. PREPARATION OF BIDS

### 4 Documents Comprising the Bid

4.1 The bid prepared by the Bidder shall comprise the following components:

- (a) A Bid Form and Price Schedule completed in accordance with Clauses 5 and 6;
- (b) Documentary evidence establishing in accordance with Clause 7 that the Bidder is eligible to bid and is qualified to perform the contract if its bid is accepted;
- (c) Documentary evidence establishing in accordance with Clause 8 that the goods (machinery/equipment/software) and ancillary services and conforming to the Bidding Documents;

### 5. Bid Form

The Bidder shall complete the Bid Form and the appropriate Price Schedule furnished in the Bidding Documents, indicating for the goods to be supplied, a brief description of the Goods, their country of origin, quantity and prices.

### 6. Bid Prices

6.1 The Bidder shall indicate on the price schedule attached to these documents, the unit prices and total Bid Prices of the goods, proposed to supply under the Contract.

6.2 Fixed Price: Prices quoted by the Bidders shall be fixed during the Bidder's Performance of the Contract and not subject to variation on any account. A bid Submitted with an adjustable price quotation will be treated as non-responsive and rejected.

6.3 Agents and service facilities in India :

If a foreign bidder has engaged an Indian agent, it will be required to give the following details in the offer:

- (i) The name and address of the local agent;
- (ii) What service the agent renders; and
- (iii) The amount of remuneration for the agent included in the offer.

### 7. Documents establishing Bidder's Eligibility and Qualifications

7.1 Pursuant to Clause 4, the Bidder shall furnish, as part of its bid, documents establishing the bidder's eligibility to bid and its qualifications to perform the Contract if its bid is accepted.

7.2 The documentary evidence of the Bidder's qualifications to perform the Contract if its bid is accepted, shall establish to the Purchaser's satisfaction:

- (a) that, in the case of a Bidder offering to supply goods under the contract which the Bidder did not manufacture or otherwise produce, the Bidder has been duly authorized (as per authorization form in Section V) by the goods manufacturer or producer to supply the goods in India.

- (b) that, in the case of a Bidder not doing business within India, the Bidder is or will be (if successfully represented by an agent in India) equipped and able to carry out the Supplier's maintenance, repair and spare-parts stocking obligations prescribed by the Conditions of the Contract and / or Technical Specifications
- (c) that the Bidder has the financial, technical, and production capability necessary to perform the Contract and meets the criteria outlined in the qualification criteria specified in **Section IX** (Bidders should furnish information on their past performance and per proforma in **Section-IX A**).
- (d) If the Bidder has already supplied / received order to supply any equipment / machine to CIPET or any Government organization, the performance, timeline and quality of supply and services will be considered as qualifying criteria.

## **8. Documents Establishing Goods' Eligibility and Conformity to Bidding Documents**

- 8.1 The Bidder shall furnish, as part of its bid, documents establishing the eligibility and conformity to the Bidding Documents of all goods and services which the bidder proposes to supply under the Contract.
- 8.2 The documentary evidence of the goods and services eligibility shall consists of a statement in the Price Schedule on the country of origin of the goods and services which shall be confirmed by a certificate of origin at the time of shipment.
- 8.3 The documentary evidence of the goods and services conformity to the Bidding Documents may be in the form of literature, drawings and data, and shall furnish:
  - (a) a detailed description of the goods essential technical and performance characteristics;
  - (b) a list giving full particulars, including available sources and current prices, of all spare parts, special tools, etc., may be quoted as an additional cost, which may be considered if required; and
  - (c) a clause-by-clause commentary on the Purchaser's Technical Specifications demonstrating the goods and services substantial responsiveness to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications (As per deviation statement in section IX Annexured)
- 8.4 For purposes of the commentary, the Bidder shall note that standards for workmanship, material and equipment, and references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutes are substantially equivalent or superior to those designated in the Technical Specifications.

## 9. Period of Validity of Bids

9.1 Bids shall remain valid for 90 days after the date of bid opening prescribed by the Purchaser. A bid valid for a shorter period may be rejected by the Purchaser as non-responsive.

9.2 In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing (or by cable or fax or e.mail). A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request is not be required or permitted to modify its bid.

## 10. Submission of Bids

10.1 The detailed technical specification of the equipment is enclosed as Section IV of Bid document, Offer should be of two parts Viz., "**TECHNICAL BID**" and "**COMMERCIAL BID**" The content of the both bids should be as under;

### (a) TECHNICAL BID should include the following:-

1.	Certificate of Registration for GST
2.	Auditor Certificate confirming the Turnover for the past three years 2018-19,2019-20,2020-21 (Separate One page Auditor Certificate confirming the turnover)
3.	Certificate of Registration for NSIC / MSME / Startup / Others
4.	Bid Form ( <b>Section VI</b> )
5.	Authorization certificate from OEM ( If not a Manufacturer for the machine / equipment) - ( <b>Section - V</b> )
6	BOQ / Packing List (each and every part of the equipment & standard accessories to run the machine) – ( <b>Section – III</b> )
7	Technical Catalogue / Brochures' / Leaflet clearly mentioning the Model number, name of equipment and technical details
8	Client Certificate for Past Three years year's supplies of similar/same goods/equipments and satisfactory performance. 1. Performa for performance statement ( <b>Section – IX-A</b> ) along with the certificate from the client/user organization. 2. Proforma for Deviation Statement ( <b>Section – X</b> )
9	Declaration - Land border with India ----- ( <b>Section – XI</b> )
10	Format for Self Certification under Preference to "MAKE IN INDIA" Policy ( <b>Section – XII</b> )
11	Format for Integrity Pact ( <b>Section – XIII</b> )
10	Any other information which the bidder would like to state about the technically of the equipment

**(b). COMMERCIAL BID should include the following:-**

1. Statement showing the price of the each items of spare parts and optional accessories which is mentioned in the Technical Bid.
  2. Conditional bids will not be accepted. The condition laid down by CIPET is final and binding on all bidders.
  3. The quote should be in Indian Currency (INR) only.
  4. CIPET is exempted for Customs Duty (CDEC) in terms of GOI Notification No.51/96 Dated 23.07.1996, Notfn.No.47/2017-Integrated Tax (Rate) dt.14.11.2017 and Notfn.No.45/2017-Central Tax (Rate) dt.14.11.2017, Notfn.No.45/2017-Union Territory Tax (Rate) dt.14.11.2017, as amended from time to time  
**Custom Duty and GST exemption certificate will be issued only for the equipment used for R&D Purpose and same will be mentioned in the Price Bid. The rate should be quoted considering the Custom duty and GST exemption eligibility.**
  5. CIPET reserves the right to accept or reject any or all tenders either in part or in full without assigning any reasons thereof.
- 10.2** The bids, which are not containing the statements, mentioned in 10.1 (a) & (b) are liable to be rejected.
- 10.3** The proforma of Annexures (Sections) in the Bidding document, wherever necessary, should be typed on the bidder's letter head and upload the same.
- 10.4** Price Schedule should be submitted in the prescribed format given under price schedule of the Bidding Document.
- 10.5** The Deviation Statement enclosed should be duly filled in and submitted along with Bidding Document.
- 10.6** Quotes received without price schedule, and deviation statement as per our prescribed format, will summarily be rejected.
- 10.7** Relaxation of Norms for Startup and Micro & Small Enterprises in Public Procurement on Prior Experience – Prior Turnover Criteria is applicable; hence the MSME / NSIC certificate should be submitted.
- 10.8** In pursuance of Rule 153(iii) of GFR-2017, preference to “Make in India” shall be given in Procurement.
- 10.9** Restriction of Bidders from Countries sharing Land Borders with India: vide Department of Expenditure, MOF, Govt. of India OM No.6/18/2019-PPD dated: 23/07/2020 and its subsequent order dated 23.07.2020 and 24.07.2020 is applicable in this tender.

**11. Deadline for Submission of Bids**

The Purchaser may, at its discretion, extend this deadline for submission of bids by amending the Bid Documents in accordance with Clause 3, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the dead-line as extended.

**12. Evaluation and Comparison of Bids**

12.1 The Purchaser will evaluate and compare the bids previously determined to be Substantially responsive.

12.2 The availability in India of spare parts and after-sales services for the equipment offered (imported goods) – in the bid; CIPET reserves right to accept any bid and to reject any bid or all bids.

**13. Contacting the Purchaser**

No Bidder shall contact/correspond / communicate the Purchaser on any matter relating to the bid at any time.

**D. AWARD OF CONTRACT**

**14. Post qualification**

14.1 The Purchaser will determine to its satisfaction whether the Bidder selected as having submitted the lowest evaluated responsive bid is qualified to satisfactorily perform the Contract.

14.2 The determination will take into account the Bidder's financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to Clause 8, as well as such other information as the Purchaser deems necessary and appropriate.

14.3 An Affirmative determination will be a prerequisite for award of the Contract to the Bidder. A negative determination will result in rejection of the Bidder's bid,

**15. Purchaser's right to vary Quantities at Time of Award**

The Purchaser reserves the right at the time of award of Contract to increase or decrease of the quantity of goods and services specified in the Schedule of Requirements without any change in price or other terms and conditions. The tendered quantity can be increased or decreased by 25 (Twenty-Five) per cent for ordering, if so warranted.

**16. Purchaser's Right to Accept any Bid and to Reject Any or All Bids**

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidders or Bidders of the grounds for the purchaser's action.



**17. Performance Security**

Within 21 days of the receipt of Notification of award of Contract from the Purchaser, the successful Bidder shall furnish the performance security in accordance with the Conditions of Contract, in the Performance Security Form provided In the Bidding Documents .

**18. Self Certification under Preference to “MAKE IN INDIA” Policy:**

Bidders can study the general conditions, definitions, Govt. Directives applicable in respect of Local content and prescribed tender condition and should submit the self certification format **(Section XII)**.

**19. Integrity Pact :-**

The Integrity Pact envisages an agreement between the prospective vendor/bidder and the buyer committing the persons/officials of both the parties not to exercise any corrupt influence on any aspect of the contract. The Integrity pact agreement to be signed by the bidder when the contract exceeds the threshold value of Rs 32.50 lakhs for the financial year 2021-22 .

All Bidders shall have to sign the Integrity Pact as per **(Section – XIII)**. Bids without a signed Integrity Pact shall be rejected

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## SECTION - II. TERMS AND CONDITIONS OF CONTRACT

**1. The following are the Terms and Conditions of Contract.**

**2. Definitions**

- (a) The purchaser is : CIPET :IPT:Ahmedabad, Plot No.630,Phase-IV,G.I.D.C.,Vatva,Ahmedabad-382445,Gujarat,INDIA.
- (b) The Supplier is .....

**3. Performance cum Security Deposit**

- 3.1 Within 21 days after the Supplier's receipt of Purchase Contract, the Supplier shall furnish performance security to the Purchaser for an amount of 3% of the contract value valid up to 60 days after the date of Completion of performance Obligations including supply, Installation and warranty obligations.
- 3.2 The Performance Security shall be denominated in the currency of the Contract or in a freely convertible currency acceptable to the Purchaser, and shall be in one of the following forms:
  - (a) A Bank guarantee or irrevocable Letter of Credit, issued by a nationalized bank located in India and in the form provided in the Bidding Documents or another form acceptable to the purchaser; or
  - (b) Demand Draft in favour of CIPET:IPTpayable at Ahmedabad,Gujarat. (INDIA).
- 3.3 The performance security will be discharged by the Purchaser and returned to the Supplier not later than 60 days following the date of completion of the Supplier's performance obligations, including any warranty obligations, under the Contract.

**4. Delivery and Documents**

**4.1 For Imported Goods**

- i. Original and three copies of Supplier's invoice showing Goods description, quantity, unit price, total amount.
- ii. Original and three copies of the negotiable clean, on –board bill of lading marked freight prepaid and three copies of non-negotiable bill of lading.
- iii. Five Copies of packing list identifying contents of each package.
- iv. Insurance Certificate.
- v. Manufacturer's /Supplier's guaranty certificate.
- vi. Inspection certificate, issued by the nominated inspection agency and the supplier factory inspection report; and
- vii. Certificate of Origin.
- viii. Relevant documents having various parameters (Quality assurance check documents) for pre-delivery inspection / dispatch clearance.

#### **4.2 For Domestic Goods:**

Original and Three copies of:

- i. Copies of the Supplier invoice showing Goods description, quantity, unit price, total amount.
- ii. Railway receipt /Acknowledgement of receipt of goods from the consignee(s);
- iii. Manufacturer's /Supplier's guarantee Certificate;
- iv. Inspection Certificate issued by the nominated inspection agency and the
- v. Supplier's factory inspection report.
- vi. Certificate of origin and
- vii. Prior intimation and co-ordination with respective CIPET:IPT:Ahmedabad for pre-delivery inspection at Original Equipment Manufacturer's / Supplier's site.

4.3 The above documents shall be received by the Purchaser before arrival of the goods (expect where the goods have been delivered directly to the consignee with all documents) and if not received, the supplier will be responsible for any consequent expenses.

4.4 Pre Delivery Inspection (PDI) will be conducted at Supplier site for contract value more than 10.00 Lakhs, by CIPET officials on or receipt of confirmation from the supplier on readiness of equipment.

4.5 In case PDI is not conducted for any equipment at supplier site, for any reason, PDI will be conducted at CIPET before installation. In this case the payment term will be 100% payment after successful installation.

#### **5. Incidental Services**

The following services covered shall be furnished and the cost shall be included in the contract price ;

- i. Complete erection of all equipments
- ii. Commissioning of all equipments. This includes trial run and proving test.
- (iii) Furnishing of detailed operations and maintenance manual for each appropriate unit of supplied Goods:

#### **6. Spare Parts**

Supplier shall carry sufficient inventories to assure ex-stock supply of consumables, spares such as gaskets, plugs, washers, belts etc., Other spare parts and components shall be supplied as promptly as possible but in any case within one month of Placement of order.

#### **7. Warranty/Guarantee**

7.1 The Supplier warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that the Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except insofar as the design or material is required by the Purchaser's Specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied Goods in conditions obtaining in the country of final destination.

- 7.1.1 This warranty/guarantee period shall remain valid as mentioned in the Technical Bid after the Goods or any portion thereof as the case may be, have been delivered and Commissioned at the final destination indicated in the Contract.
- 7.2 The Purchaser shall promptly notify the Supplier, in writing, of any claims arising under this warranty.
- 7.3 Upon receipt of such notice, the Supplier shall, with all reasonable speed, repair or replace the defective Goods or parts thereof, without cost to the Purchaser.
- 7.4 If the Supplier, having been notified, fails to remedy the defect(s) within a reasonable period, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.
- 7.5 The Supplier must provide the following warranties:**
- (a) The equipment proposed is Complete in every way
  - (b) The hardware/software specification, Capabilities and performance characteristics are as stated in the bidder's proposal and accompanying documentation.
  - (c) The supplier will offer to the Purchaser all technological updates, cost reductions and facilities, which are offered to other clients, in India, during the Contract tenure.  
If the supplier is acting directly for the manufacturer of the Goods and Services, the Manufacture must honor these guarantee.

**The MAINTENANCE SERVICE shall be as follows.**

- (a) Free maintenance services shall be provided by the Supplier during the period of warranty.
- (b) The maximum response time for maintenance complaint from any of the destination specified in the Schedule of requirements (i.e. time required for supplier's maintenance engineer to report at the installation after a request call/email is made or letter is written) shall not exceed 24 hours.

**8. Payment**

**8.1 Contract Value less than or equal to 10.00 Lakhs**

Payment of contract shall be made in the INR specified in the bid in the following manner:

**100%** payment will be released on supply, installation and final acceptance after commission at site and submission of claim supported by the acceptance certificate issued by the Purchaser's Representative.

**8.2 Contract Value more than 10.00 Lakhs**

**90%** payment will be released on completion of Pre Delivery Inspection (PDI), Supply of Goods received at the destination and submission of claim supported by the acceptance certificate issued by the purchaser's representative.

**10%** payment will be released on final acceptance after commissioning at site completion of training and submission of claim supported by the acceptance certificate issued by the Purchaser's Representative

In case PDI is not conducted for any equipment at supplier site, for any reason, PDI will be conducted at CIPET before installation. In this case the payment term will be **100%** payment after successful installation.

**9. Prices**

Prices payable to the supplier as stated in the contract shall be firm and not subject to any adjustment.

**10. Sub-contracts**

The Supplier shall notify the Purchaser in writing of all subcontracts awarded under the Contract if not already specified in his bid. Such notification, in his original bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.

Sub contracts shall be only be bought out items and sub assemblies.

**11. Resolution of Disputes**

The dispute resolution mechanism to be applied shall be as follows:

- a) If any dispute(s) or difference(s) of any kind whatsoever arise between the Parties hereto in connection with or arising out of this Contract, the Parties hereto shall negotiate with a view to its amicable resolution and settlement. In the event no amicable resolution or settlement is reached within a period of thirty (30) days from the date on which the dispute(s) or difference(s) arose, such dispute(s) or differences shall be settled under the provisions of The Arbitration and Conciliation Act, 1996. The existence of any dispute(s) or difference(s) or the initiation or continuance of the arbitration proceedings shall not permit the Parties to postpone or delay the performance by the parties of their respective obligations pursuant to this Contract.

The venue of arbitration shall be the place from where the contract is issued.

**12. Notices**

For the purpose of all notices, the following shall be the address of the Purchaser and Supplier.

**Purchaser:** Central Institute of Petrochemicals Engineering & Technology (CIPET) formerly known as Central Institute of Plastics Engineering & Technology (CIPET),  
CIPET:IPT:Ahmedabad,  
630,Phase-IV,G.I.D.C.  
Vatva,Ahmedabad-382445,Gujarat. (INDIA)

**Supplier:** (To be filled at the time of Contract Signature).....

### **13. Supplier Integrity**

13.1 The Supplier is responsible for and obliged to conduct all contracted activities in accordance with the Contract using state-of-the-art methods and economic principles and exercising all means available to achieve the performance, specified in the Contract.

### **14. Supplier Obligation**

14.1 The Supplier is obliged to work closely with the Purchaser staff, act within its own authority and abide, by directives issued by the Purchaser on implementation activities.

14.2 The Supplier will abide by the job safety measures prevalent in India and will free the Purchaser from all demands or responsibilities arising from accidents or loss of life the cause of which is the supplier's negligence. The supplier will pay all indemnities arising from such incidents and will not hold the purchaser responsible or obligated.

14.3 The Supplier is responsible for managing the activities of its personnel or sub-contacted personnel and will hold itself responsible for any misdemeanors.

14.4 The Supplier will treat as confidential all data and information about the purchaser, obtained in the execution of his responsibilities, in strict confidence and will not reveal such information to any other party without the prior written approval of the purchaser.

### **15. Technical Documentation**

15.1 The technical documentation involving detailed instruction for operation and maintenance is to be delivered with every unit of equipment supplied. The language of the documentation should be English.

### **16. Liquidated Damages:-**

If the Supplier fails to deliver any or all of the goods within the time period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to 0.5 percent of the delivered price of the delayed goods or unperformed services for each week of delay until actual delivery or performance, up to a maximum deduction of Max of 10% of the delayed goods or services Contract price. Once the maximum is reached, the purchaser may consider termination of the contract. Each case should be decided on merits and the decision for recovery of LDs or risk purchase expenditure should be taken on merit.

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<b>SECTION III. Bill of Quantity / Packing List</b>		
<b>Serial Number</b>	<b>Brief Description</b>	<b>Quantity</b>

**SECTION IV. TECHNICAL SPECIFICATIONS**  
(Aide-Memoire)

Equipments offered are required to perform as per the specification to meet the relevant standards to comply Technical Support Services and training and should be from the manufacturer's own standard of production, in supply and conforming as near as possible.

( Detailed specification for Individual equipment is enclosed separately )

**SECTION V MANUFACTURER'S AUTHORIZATION FORM  
(in Letter Head of OEM)**

Tender No.....dated.....

To

M/s. Central Institute of Petrochemicals Engineering & Technology (CIPET) formerly known as  
Central Institute of Plastics Engineering & Technology (CIPET)

CIPET:IPT:Ahmedabad,  
630,Phase-IV,G.I.D.C.  
Vatva,Ahmedabad-382445,Gujarat. (INDIA)

Dear Sir

Ref: Bid Reference

We ..... who are established and reputable  
manufacturers of .....having factories at  
.....and.....do hereby authorize  
M/s.....

(Name and address of Agents) to bid and conclude the contract with you against the above Bid  
are authorized to bid and conclude the contract in regard to this business against this specific  
Bid.

We hereby extend our full guarantee and warranty as per clause 7 of the Terms and Conditions  
of Contract for the goods offered for supply and subsequent maintenance, supply of spares &  
services in the event of award of contract, against this invitation for bid by the above firms.

Yours Faithfully,

(Name)  
for and on behalf of M/s.....  
(Name of Manufactures)

**Note:** This letter of authority should be on the letterhead of the manufacturing  
concern and should be signed by a person competent and having the power of attorney  
to bind the manufacturer.



**SECTION VI. BID FORM AND PRICE SCHEDULES**  
**(in Letter Head)**

Date:.....  
Tender No:.....

To :

M/s. Central Institute of Petrochemicals Engineering & Technology (CIPET) formerly known as  
Central Institute of Plastics Engineering & Technology (CIPET)  
CIPET:IPT:Ahmedabad,  
630,Phase-IV,G.I.D.C.  
Vatva,Ahmedabad-382445,Gujarat. (INDIA)

Gentlemen:

Having examined the Bidding Documents including Addenda Nos.(insert Numbers), the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver (Description of Goods and Services) in conformity with the said Bidding Documents and with the schedule of prices attached herewith and made part of this bid.

I/We have examined the details of the equipments to be supplied and have carefully noted the conditions of contract and the specification /drawings with all stipulations of which I/we agreed to comply.

We undertake, if our bid is accepted, to commence delivery within (Number) days and to complete delivery of all the items and perform incidental services as specified in the Contract within (Number) days calculated from the date of receipt of your Notification of Award/Letter of Credit.

If our bid is accepted, we will obtain the guarantee of a bank in a sum not exceeding 3% of the Contract Price for the due performance of the Contract.

We agree to abide by this bid for a period of (Numbers) days from the date fixed for bid opening under Clause 9 of the Instruction to Bidders and shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal Contract is prepared and executed, this bid, together with your written acceptance thereof and you notification of award, shall constitute a binding contract between us.

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

Dated this.....day of.....20.....

Signature: .....

(in the capacity of):.....

Duly Authorized to sign bid for and on behalf of .....

## SECTION VII. CONTRACT FORM

**THIS AGREEMENT** made the .....day of, .....20.....

Between **Central Institute of Petrochemicals Engineering & Technology (CIPET) formerly known as Central Institute of Plastics Engineering & Technology (CIPET), Industrial Estate,**

CIPET:IPT:Ahmedabad,  
630,Phase-IV,G.I.D.C.

Vatva,Ahmedabad-382445,Gujarat. (INDIA) (hereinafter "the Purchaser") of one part and  
(Name of Supplier) of (City and Country of Supplier) hereinafter " the Supplier" of the other part:

**WHEREAS** the Purchaser is desirous that certain equipments and ancillary services should be provided by the Supplier, Viz., (Brief Description of Goods and Services) and has accepted a bid by the Supplier for the supply and services of those Goods and Services in the sum of (Contract Price in Words and Figures) (hereinafter " the Contract Price").

### **NOW THIS AGREEMENT WITNESSETH AS FOLLOWS :**

- 1 In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the conditions of Contract hereinafter referred to.
- 2 The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
  - (a) Tender document
  - (b) the bid Form and Price schedule submitted by the Bidder;
  - (c) the Schedule of Requirements;
  - (d) the Technical Specifications;
  - (e) terms and Conditions of Contract; and
  - (f) the Purchaser's Notification of Award.
- 3 In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects there in conformity in all respects with the provisions of the contract.
4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

**Brief particulars of the goods and services which shall be supplied/provided by the supplier are as under**

SL.No	Brief Description of Goods & Services	Quantity to be supplied	Unit Price in INR	Delivery terms

**Total Value : in INR**

**Delivery Schedule:**

**IN WITNESS** whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day, month and year first above written.

Signed, Sealed and delivered by the

Said..... (For the Purchaser)

in the presence of :.....

Signed , Sealed and delivery by the

Said..... (For the Supplier)

in the presence of :.....

**SECTION VIII. PERFORMANCE SECURITY FORM**

To:

Central Institute of Petrochemicals Engineering & Technology (CIPET) formerly known as  
Central Institute of Plastics Engineering & Technology (CIPET),  
CIPET:IPT:Ahmedabad,  
630,Phase-IV,G.I.D.C.  
Vatva,Ahmedabad-382445,Gujarat. (INDIA)

**WHEREAS**..... (Name of Supplier)

Hereinafter called "the Supplier" has undertaken, in pursuance of Notification of Contract  
No..... dated, ..... 20..... To supply ..... (Description of Goods and  
Services) hereinafter called " the Contract".

**AND WHEREAS** it has stipulated by you with a Bank Guarantee by a recognized bank for the  
sum specified therein as security for compliance with the Supplier's performance obligations in  
accordance with the Contract. AND WHEREAS we have agreed to give the Supplier a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the  
Supplier, up to a total of (Amount of the Guarantee in Words and Figures) and we undertake to  
pay you, upon your first written demand declaring the Supplier to be in default under the  
Contract and without cavil or argument, any sum or sums within the limit of (Amount of  
Guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your  
demand or the sum specified therein.

This guarantee is valid until the .....day of.....20.....

Signature and Seal of Guarantors

.....  
.....

Date .....

Address :.....

**SECTION IX**  
**(Referred to in clause 7.2 C of Instruction to bidders)**

**QUALIFICATION CRITERIA**

- (a) The bidder should be a manufacturer/*authorized distributor/agent* of a manufacturer, who must have designed, manufactured, tested and supplied the equipment(s) of similar to the type specified in the Schedule of requirements preferably to the Govt. labs / R & D units / Institutions / Universities & PSU's/Industries which shall be in successful operation for at least three years on the date of bid opening.
- (b) The bidder should furnish the information on the past three year's supplies of similar/same goods/equipments and satisfactory performance in the proforma given under Section IX-A.
- (c) Bidders shall invariably furnish documentary evidence (Client's Certificates) in support of the satisfactory operation of the equipment as specified above
- (d) *The bidder should furnish the Scope of Supply in a Separate Sheet, BOQ & Pre-Installation Requirement.*
- (e) *The bidder should submit the technical Catalogue/leaflet clearly mentioning the Model number, name of equipment and technical details.*
- (f) *An undertaking from the Original Manufacturer of the supply of goods/equipments (OEM) stating that they would facilitate the bidder on a regular basis with technology/product update should be submitted.*

**SECTION IX – A**

(Please see clause 7.2 I of instruction to bidders)

**PROFORMA FOR PERFORMANCE STATEMENT**

(for Similar/Same Goods/Equipment for a period of last three years)

Bid No.....Date of opening.....Time.....Hours

Name of the Firm.....

---

Order placed By ..... (Full address of Purchaser)	Order No and date	Description and quantity of ordered equipment	Value of order	Date of completion of delivery		Remarks indicating reasons for late delivery, if any	Has the equipment been satisfactorily functioning?
1	2	3	4	As per Contract	Actual	7	8
<hr/>							

---

Signature and seal of the Bidder

(Please submit the copy of the installation / commissioning report from minimum 2 buyers

**SECTION X**

**PROFORMA FOR DEVIATION STATEMENT**

Please see Clause 8.3 I of Instructions to Bidders

Bid Ref No.

Date of Opening

Time :

Name of the Firm

Name of the Equipment quoted

Model No.:

Purchaser's Specification	Bidders Specification	Deviation, if any	Justification	Remarks

Note : Separate Deviation statements should be submitted along with the bid for all models / alternative quotes.

**SECTION XI :**

**CERTIFICATE WITH REGARD TO THE BIDDER HAVING A LAND BORDER WITH INDIA**

**Tender No.** \_\_\_\_\_

**Dt:** \_\_\_\_\_

I have read the clause (**retractions vide Department of Expenditure, MOF, Govt. of India OM No.6/18/2019-PPD dated: 23/07/2020 and its subsequent order dated 23.07.2020 and 24.07.2020** ) regarding restrictions on procurement from a bidder of a country which shares a land border with India.

I hereby certify that, M/s. \_\_\_\_\_ fulfils all requirements in this regard and is eligible to be considered. (Evidence of valid registration by the **competent authority** shall be attached wherever applicable)

(Name of the Firm/entity)  
Authorized Signatory  
Signature and Seal

---

**(OR)**

**CERTIFICATE WITH REGARD TO THE BIDDER NOT HAVING A LAND BORDER WITH INDIA**

**Tender No.** \_\_\_\_\_

**Dt:** \_\_\_\_\_

I have read the clause (**retractions vide Department of Expenditure, MOF, Govt. of India OM No.6/18/2019-PPD dated: 23/07/2020 and its subsequent order dated 23.07.2020 and 24.07.2020** ) regarding restrictions on procurement from a bidder of a country which shares a land border with India.

I hereby certify that \_\_\_\_\_ is not from such a country.

(Name of the Firm/entity)  
Authorized Signatory  
Signature and Seal



Section – XII

**Format for Self Certification under Preference to “MAKE IN INDIA” Policy**

**CERTIFICATE**

In line with Government Public Procurement Order No. P-45021/ 2 /2017-BE-II dt. 15.06.2017, as amended from time to time and as applicable on the date of submission of tender, we hereby certify that we **M/s.** -----  
----- (Supplier name) is local supplier meeting the requirement of minimum Local content \_\_\_\_% as **Class1/ Class2/ Class3( tick whichever is applicable)** defined in above orders for the material against **Tender No.**-----  
-----

Details of location at which local value addition will be made is as follows:

-----  
-----  
-----  
-----

We also understand, false declaration will be in breach of the code of Integrity under Rule 175(1)(i)(h) of the General Financial Rule for which for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

Seal and Signature of Authorized Signatory

Class1 Supplier –Local content higher than 50%,  
Class2 Supplier –Local content higher than 20%,  
Class3 Non Local Supplier – 20% and below local content.

Bidders can study the general conditions, definitions, Govt. Directives applicable in respect of Local content and prescribed tender condition.

**Section – XIII**

**INTEGRITY PACT**

**(To be signed and submitted with the technical bid)**

To

CIPET:IPT:Ahmedabad,  
630,Phase-IV,G.I.D.C.  
Vatva,Ahmedabad-382445,Gujarat. (INDIA)

**Sub: Submission of Tender No \_\_\_\_\_ for the Supply & Installation of  
\_\_\_\_\_ equipment.**

Dear Sir,

I/We acknowledge that CIPET is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part to tender documents, failing which I/We will stand disqualified from the tendering process. I/We acknowledge that the making of the bid shall be regarded as an unconditional and absolute acceptance of this condition of the NIT

I/We Confirm acceptance and compliance with Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by CIPET. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with the enclosed Integrity Agreement.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, CIPET shall have unqualified, absolute and unfettered right to disqualify the tenderer/bidder and reject the tender/bid in accordance with terms and conditions of the tender/bid.

Yours faithfully

**(Duly authorized signatory of the Bidder)**

## **INTEGRITY PACT (Agreement)**

### **(To be executed during the execution of the contract)**

Central Institute of Petrochemicals Engineering & Technology (CIPET) (Formerly Central Institute of Plastics Engineering & Technology hereinafter referred to as “The Principal”.

### **And**

..... represented by Shri  
..... hereinafter referred to as “The BIDDER / CONTRACTOR”

### **PREAMBLE**

The Principal intends to award, under laid down organizational procedures, contract/s for ..... (Name of the Contract / Project / Stores equipment / item). The Principal values full compliance with all relevant laws and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with the Bidder/s and Contractor/s.

### **Section 1 – Commitments of the Principal.**

1. The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-
  - a) No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the personal is not legally entitled.
  - b) The Principal will during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/additional information through which the Bidder(s) could obtain an advantage in relation to the process or the contract execution.
  - c) The Principal will exclude from the process all known prejudiced persons.
2. If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions.

### **Section 2 – Commitments of the Bidder(s)/Contractor(s)**

1. The Bidder(s)/Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
  - a. The Bidder(s)/contractor(s) will not, directly or through any other persons or firm, offer promise or give to any of the Principal’s employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage or during the execution of the contract.
  - b. The Bidder(s)/Contractor(s) will not enter with other Bidders into any

undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

- c. The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s)/Contractors will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or documents provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
  - d. The Bidder(s)/Contractor(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly, the bidder(s)/contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. All the payments made to the India agent/representative have to be in Indian Rupees only.
  - e. The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
  - f. The Bidder(s)/Contractor (s) who have signed the Integrity Pact shall not approach the courts while representing the matter to IEMs and shall wait for their decision on the matter.
2. The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

### **Section 3: Disqualification from tender process and exclusion from future contract**

If the Bidder(s)/Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/Contractor(s) from the tender process or to terminate the contract, if already signed, for such reasons.

### **Section 4 : Compensation for Damages**

1. If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/Bid Security.
2. If the Principal has terminated the contract according to Section3, or if the Principal is entitled to terminate the contract according to Section3, The Principal shall be entitled to demand and recover from the Contractor liquidated damages of the Contract value or the amount equivalent to Performance Bank Guarantee.

### **Section 5 : Previous Transgression**

1. The Bidder declares that no previous transgressions occurred in the last three years with any other company in any country conforming to the TII's anti corruption approach or with any other public sector enterprise in India that could justify his exclusion from the tender process.
2. If the bidder makes incorrect statement on this subject, he can be disqualified from the tender process and appropriate action can be taken including termination of the contract, if already awarded, for such reason.

### **Section 6: Equal treatment of all Bidders / Contractors / Sub -contractors.**

1. In case of sub -contracting, the Principal Contractor shall take the responsibility of adoption of Integrity Pact by the Sub - Contractor.
2. The Principal will enter into agreements with the identical conditions as this one with all bidders and Contractors.
3. The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

**Section 7: Criminal charges against violation Bidder(s) / Contractor(s) / Sub-contractors(s).**

If the Principal obtains knowledge of conduct of a Bidder(s)/ Contractor(s) which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

**Section 8 : Independent External Monitor/Monitors**

In order to achieve these goals, the Principal will appoint an External Independent Monitor who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above

**Section 9 : Pact Duration**

The validity of this Integrity Pact shall be from date of its signing and extend up to 12 months or the complete execution of the contract to the satisfaction of both the BUYER and the BIDDER/Seller, including warranty period, whichever is later. In case, BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

**Section 10 : Other Provisions**

- This agreement is subject to Indian Law. Place of performance and jurisdiction is the registered office of the Principal i.e. CIPET:IPT:Ahmedabad,Gujarat,INDIA.
- Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- If the contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- Issues like Warranty/Guarantee etc. shall be outside the purview of the IEMs.
- In the event of any contradiction between the Integrity Pact and its Annexure, the clause in the Integrity Pact will prevail.

(For & on behalf of the Principal)  
Bidder/Contractor)

(For & on behalf of

(Office Seal)

(Office Seal)

Place \_\_\_\_\_ Date

\_\_\_\_\_

Witness 1 :  
(Name & Address)

Witness 1 :  
(Name & Address)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Witness 2 :  
(Name & Address)

Witness 2 :  
(Name & Address)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Note :- Further if any e-Tender queries please contact the following officials of tenderwizard  
 Mobile Number : Mr.Sunil Patel( Ahmedabad)-(mo).+91-9714881992  
 Also Refer Contact us in Web site:- [www.tenderwizard.com/CIPET](http://www.tenderwizard.com/CIPET)

CIPET reserves the right to accept or reject any or all tenders either in part or in full without assigning any reasons thereof.

### 1.SPECIFICATIONS GAS FLOW CALIBRATOR

Flow range	0.1 to 10 slm (standard liter per minute)
Uncertainty	0.5% reading
Precision	0.025% reading
Stability	0.15% reading
Operating temperature	15 °C to 30 °C
Communication Interface	RS 232, IEEE
Power Requirements	85 V ac to 264 V ac, 47 Hz to 440 Hz.
Control	Complete front panel control
Advanced functions	totalize, average, hi/lo, deviation, on-board purge, leak test and tare
General Specification	Real time True mass flow calibration
	Both mass and volume flow with user settable reference pressure and temperature conditions
	Gas flow regulation and adjustment hardware. Modular component allows future upgrade and expansion in range
	Supports 14 different gas calibration
	Includes traceable calibration for operation in N <sub>2</sub> with corrections for other gases
	Internal valving for on-board purge, leak test and tare support

## 2.SPECIFICATION OF MULTIFUNCTIONAL CALIBRATORS

DC Voltage Measurement	Range – 0 to 55 V Resolution-0.001 V Accuracy-0.0015 %
DC Voltage Source	Range – 0 to 33 V Resolution- 30V-0.001 V, 100mV- 0.01 mV <b>Accuracy-0.0015 %</b>
DC mA Measurement and Source	Range – 24 mA Resolution- 0.001 mA <b>Accuracy-0.01 %</b>
MilivoltMeasurement and Source	Range – -10 mV to +75 mV Resolution- 0.01 mV Accuracy-0.02 %
Ohms Measurement/ Source	Range – 0 to 4.4k $\Omega$ Resolution- 1 m $\Omega$ <b>Accuracy-0.015 %</b>
<b>Frequency Measurement/Source</b>	Range – 0 to 50 kHz and CPM mode for pulse Resolution- 0.01 Hz <b>Accuracy-0.005 %</b>

	Type	Range (° C)	Resolution	Accuracy
Thermocouples	J	-200 to 1200	0.1° C	0.8°C
	K	-200 to 1370		0.5°C
	T	-200 to 400		0.5°C
	E	-200 to 950		0.5°C
	R	-20 to 1750		0.8°C
	S	-20 to 1750		0.8°C
	B	600 to 1800		0.8°C
	L	-200 to 900		0.5°C
	U	-200 to 400		0.5°C
	N*	-200 to 1300		0.8°C
	XK	-200 to 800		0.8°C
	BP	0 to 2500		0.8°C

	Type	Range (° C)	Resolution	Accuracy
RTD	Ni120	-80 to 260	0.1° C	0.15°C
	Pt100-385	-200 to 800		0.45°C
	Pt100-392	-200 to 630		0.35°C
	Pt100-JIS	-200 to 630		0.35°C
	Pt200-385	-200 to 630		0.95°C
	Pt500-385	-200 to 630		0.55°C
	Pt1000-385	-200 to 630		0.35°C
	Ramp functions	Source functions		Voltage, current, resistance, frequency, temperature
	Ramps	Slow ramp, Fast ramp, 25% step-ramp		
Loop power function	Voltage	24 V		
	Accuracy	10%		
	Maximum current	22 mA, short circuit protected		
Step functions	Source functions	Voltage, current, resistance, frequency, temperature		
	Steps	25% of range, 100% of range		
Operating temperature	-10 ° C to 55° C -10 ° C to 50° C			
Storage temperature	-20 ° C to 70 ° C (limited by battery storage specifications)			
Stability	±0.005 % of range° C outside of 23 ± 5 ° C			
Operating altitude	3000 meters above mean sea level			
Safety and EMC	IEC 61010-1, IEC 61010-2-030, Pollution Degree 2 IEC 61326-1 (Portable), CISPR 11 (Class A)			



### 3.SPECIFICATION OF AUTO TITRATOR.

Milli Volt	±2500mv
Accuracy	±0.01mV
Input Impedance	10 <sup>12</sup> Ohms
Burette Resolution	1 ul ( with 20ml Burette) Interchagelable
Filling Time	<20Sec.
Sensors	Ph,Redox,Aqueoous,Non-aqueous,Complex metric,Argentometric,ISE,Temperature
Power	230V,50Hz
Stirrer	Separate Stirrer with Touch Screen control
Display	7" Color Capacitive Touch Screen
Calibration	5 point calibration
Report & Method Storage	1000 result sand Method Storage
Technology	ARM Cortex SOC with MIPS
Cut-off Criteria	Volume,End Point,Mv/Ph
Communication Interface	Modbus( Intergrated software for multiple instruments,Data collection with 21 CFR Part II Compliance),Ethernet/WIFI(PC connectivity,printer connection over intra-network) USB Port for Data Transfer,Printer Interface
End Point Detection	Volumetric,Potentimetric
Reports	a.Analysis Report: Result,Parameter,Graphs b.Statistic Report: RSD,Average,Linearity
Units	Conc,% W/W,% W/V,ppm.gm/L,mg/L,TAN/TBN
Titration Mode	Blank,Sample,Normality,Titer( for KF Titrator)
Methods	SVD,ASD,FED & KF( with optional attachment)
Ep Detection Criteria	Largest,Last & Selected EP
Environmental Condition	Operation: indoor,Temperature: Ambient to 45° Humidity:5 to 90% non Condensing.

#### **4.GENERAL SPECIFICATIONS OF MODA( Microbial Oxidative Degradation Analyser for aerobic biodegradation(ISO :14855-2)**

##### **Data is accurate and reliable**

1. The high-precision gas mass flow controller ensures the stability and accuracy of the intake air flow.
2. Imported carbon dioxide sensor to ensure the stability and high precision of the measurement results.
3. Built-in cavity measurement calibration system, convenient to detect the accuracy of carbon dioxide and oxygen.Easy to operate
4. Professional software support, the software interface is simple and clear, easy to operate and the test process can be set flexibly.
5. Fully automatic operation, setting the corresponding parameters, one-key testing.
6. The software displays and records the experimental status and process parameters in real time.
7. Professional test report generation, can export files in Office, PDF and other formats. Technology advancement.
8. Built-in automatic mixing system, can customize mixing cycle and mixing time.
9. PID fuzzy algorithm temperature control
10. Technology to achieve high-precision temperature control.
11. Built-in leak detection system to ensure the air tightness of the gas path.
12. High test efficiency.
13. Eighteen cavity samples are independently tested, and each cavity is individually data Collected.
14. Authority management and data tracking.
15. A user name and password are required to log in to the workstation.
16. Users are divided into multiple levels of operators and administrators (such as Administrators, operators, observers, etc. but not limited to these levels).
17. The administrator can adjust the authority of various levels; for example, increase and decrease system control items of a certain level.
18. With audit trail function (system audit trail, project operation audit trail, method audit Trail), every data change is recorded; the safety and integrity of test data are guaranteed.
19. The instrument is stable, reliable and easy to maintain professional carbon dioxide, oxygen, pressure sensor, high precision, good stability, can run for a long time Functional modular design, easy to maintain. Humanized design.
20. The test process can be viewed on the computer and mobile phones and the experimental data can be monitored in real time.
21. Equipment networking status, which can provide online control, upgrade and remote service functions.

\*Direct measurement of CO<sub>2</sub> for the Bio-degradable Plastic degradation by Micro organism.

\*Should comply IS/ISO: 17088,ISO:14885:Part-II,ISO:13975 and ASTM:5338

## Technical Specifications:

1. Temperature Control Range Room Temperature ~80°C
2. Temperature Control Accuracy  $\pm 0.5^{\circ}\text{C}$
3. Flow Control Range 0.01~10L/min
4. Flow control rate  $\pm 1.0\%$ FS
5. Flow Detection Range 0.01~10L/min
6. Flow Detection Accuracy  $\pm 1.0\%$ FS
7. Carbon Dioxide Detection Range 0~10000ppm
8. Carbon Dioxide Detection Accuracy  $\pm 1\%$ FS
9. Oxygen Detection Range 0~25%
10. Oxygen Detection Accuracy  $\pm 1\%$ FS
11. Test Chambers 18 chambers
12. Pressure Detection Range 0~200KPa
13. Pressure Detection Range  $\pm 1\%$ FS
14. Air Pressure 0.1 ~ 0.5Mpa
15. Air Connection 1/4 Inch Hose
16. Test Cavity Volume 3L
17. Power 3000W
18. Power Supply AC 220V , 50Hz