

## CONTENTS

Sr. No.	Subject	Page No.
I)	Introduction	2
II)	Details of Tender and Tender Notice	3
III (A)	Terms and conditions - <b>General</b>	4
III (B)	Terms and Conditions- <b>Special</b>	10
	<b>Annexure I:</b> Technical specification of the Equipment/Machines	14
	<b>Annexure II:</b> Details of EMD payable for each item	24
	<b>Annexure III:</b> Format for filling up of cost details	25
	<b>Annexure IV:</b> Format for Bank Guarantee	27
	<b>Annexure V:</b> Delivery Schedule for indigenous / imported equipment	29
V	( <b>Annexure VI</b> ) Format to be filled up and submitted in the letter head of the bidder	30
VII	( <b>Annexure VII</b> ) Check List to Bidder	32

**Note: Interpretation of any term /word /clause lies with the BTRA, Mumbai.**

## INTRODUCTION

**THE BOMBAY TEXTILE RESEARCH ASSOCIATION** (BTRA) is a premier institute for R & D in Textiles and allied Sciences. The aim of the organisation is to provide day to day technological inputs to the industry and meet the Science & Technological objectives set at the national level. The Institute also provides solutions to various technical and techno-economical problems faced by the industry in a cost effective and stipulated time frame.

**1.0** Ministry of Textile, Government of India has designated the BTRA as “**Centre of Excellence in Geotextiles**”. Various activities are described in brief as under:

- BTRA as Centre of Excellence (COE) in Geotextiles is providing various services to the trade and industry including testing of Geo synthetic products.
- Testing facilities to test Geotextiles, Geomembranes, Geocomposites, Gabions, Geosynthetic Clay Liner, Geogrids, Prefabricated Vertical Drain etc
- To create awareness for the use of geosynthetic products and to facilitate the evaluation and development of geosynthetics
- To encourage the entrepreneurs to develop geosynthetics indigenously by providing know how and developing samples at BTRA pilot plant.
- Conducting workshop on ‘Nonwoven Technical Textiles’.
- Information resources on Geotech by procuring various books and international test methods such as ASTM, INDA, EDANA, ISO, etc
- Conducting seminars

**2.0** Accordingly, BTRA has decided to upgrade the equipment/procure new instruments/Machines for various laboratories of BTRA to broaden the spectrum of testing/R&D services to the textile and clothing industry. The various testing/ research equipments required by these laboratories are now being procured through the current tender.

**3.0** The tender document contains the following:

- (i) Tender Notice
- (ii) Terms and Conditions - General and Special
- (iii) Technical Specification of the items
- (iv) List of instrument/equipment/accessories being procured
- (v) EMD payable in respect of each of the items
- (vi) Format for filling up the cost of items
- (vii) Format for Bank Guarantee
- (viii) Delivery schedule for each of the items.
- (ix) Guidelines for the bidders

**THE BOMBAY TEXTILE RESEARCH ASSOCIATION (BTRA)**  
**Lal Bahadur Shastri Marg, Ghatkopar (W)**  
**Mumbai-400086**

**TENDER NOTICE No. BTRA/COE/IB/09/2016 Dated 01/06/2016**

Tenders in two separate sealed covers viz; Technical (Cover- A) and Commercial (Cover – B) are invited by the BTRA bonafide manufacturers/ authorized agents for the supply of textile machines / equipment for **BTRA**. Details of the machines/equipment, number of units, their specifications, payment terms and other details are given in the tender document. **Interpretation of the terms & conditions and other related issues in the tender would lie with BTRA only.** Tenders can be purchased from The Director, **BTRA, LBS Marg, Ghatkopar (West), Mumbai – 400 086.** Tel: 2500 3651, 2500 2652 upon payment of a non-refundable fee of Rs.500/- in cash or Demand Draft drawn in favour of “**The Bombay Textile Research Association**” payable at Mumbai. The tender document can also be downloaded from the website of BTRA at [www.btraindia.com](http://www.btraindia.com) If the document is downloaded from the website, the document fee of Rs. 500/- has to be enclosed as a D. D in favor of “**The Bombay Textile Research Association**” along with the Technical bid. The bidders who purchase tender documents or have downloaded tender document are only eligible for submission of tenders. An Earnest Money Deposit (EMD) has to be submitted as per the details given in the tender document for each of the equipment. **Tenders without EMD will not be considered at all.**

**Sale of tender documents: From 01/06/2016 (10.30 a.m. to 4.30 p.m).** **Pre-bid clarification meeting will be held on 15/06/2016 at 2.30 p.m. to clarify the queries of the bidders, if any.** **Last Date for Submission of Duly Filled Up Sealed Tender at BTRA, Mumbai is 29/06/2016 up to 12.00 Noon. On 29/06/2016 the technical bids will be opened at 2.30 p.m. in the BTRA Conference Room “A” Block.** The bidders or their authorized representatives may remain present at the time of opening of the tenders, if they so wish. After detailed analysis of technical bids, the bidders who are found to be technically responsive will be informed about the time, date and venue of opening of the commercial bids. **The BTRA reserves the right to accept or reject any or all the bids either in full or any part at its discretion without assigning any reason thereof.** After detailed analysis of technical bids, the bidders who are found to be technically responsive will be informed about the time, date and venue of opening of the commercial bids. **Address for communication: The Director, BTRA, LBS Marg, Ghatkopar (W), Mumbai – 400 086. Tel:2500 3651, 2500 2652.**

### **III (A) TERMS AND CONDITIONS- GENERAL**

1. Tender documents shall be issued by the Office of the BTRA at Mumbai to manufacturers/authorized agents, on payment of Rs.500/- (non refundable) by cash or DD in favour of BTRA payable at Mumbai, towards cost of tender documents. **The Director, BTRA, Mumbai will be the tender issuing authority.**
2. Modifications, if any, made in the above documents will be done by addenda / corrigenda, copies of which will be sent in duplicate to each bidder before the due date of the tender. One copy should be signed, sealed and submitted along with the technical bids. Tender to be submitted, is as detailed hereafter. The bidder shall not make any additions / deletions to or amend the text of the documents except in so far as may be necessary to comply with any addenda / corrigenda issued. **The bidders shall use only tender documents as issued for submitting his bid and shall comply with various terms and conditions.**
3. All pages of tender documents shall be signed by the person authorised to file the tender.
4. The full name of the person authorised to file the tender, designation, current and main office address, Phone No., Fax No. & E-mail address shall be indicated in the tender.
5. Tenders sent through E-mail, Fax and Telex will not be entertained.
6. The tender should be filled in and submitted in English. All accompanying literature and correspondence shall also be in English.
7. No claim for costs, charges, expenses incurred by the bidder in connection with preparation of tender submission and for subsequent clarifications of their tender shall be accepted.
8. BTRA will not be responsible for any typographical errors/ambiguity/ additions /omissions committed by the bidder while filling up of the tender.
9. Submission of a bid by a tenderer implies that he has read all terms & conditions, and has made himself aware of the scope and specifications of the items to be supplied, availability of materials, local conditions and other factors bearing on the execution of the supply.
10. The bidder shall be deemed to have full knowledge of documents and no extra charges consequent on any misunderstanding or otherwise shall be allowed.
11. Any question regarding the tender document and discrepancies shall be directed to the Tender Issuing Authority in writing minimum 10 days prior to the due date of submission of tender. The Tender Issuing Authority will issue all clarifications, interpretations, meanings and specific directions, if any, in duplicate in writing to all the bidders. **One copy of these shall be returned duly signed and seal affixed along with the technical bids.**

12. The bidder shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender and about the rates quoted by him and cover all his obligations under the tender.

13. Bids submitted by manufacturers and authorised agents only shall be considered.

#### **14. EARNEST MONEY DEPOSIT (EMD)**

14.1 Tender must be accompanied by Earnest Money Deposit (EMD) either in the form of DD or pay order or Bank Guarantee in favour of "BTRA, Mumbai" and shall be interest free. The amount of EMD for each of the items is given at **Annexure- II**. The DD / pay order can be for the combined amount of EMD payable for individual items, for which the bidder has quoted.

14.2 EMD shall be paid in Indian currency only. In case of receipt of EMD in Indian currency from abroad, same shall be refunded in Indian currency only. BTRA will not be responsible for refunding the EMD in foreign currency.

14.3 The EMD deposited by the successful bidder shall be held back towards the security deposit as stipulated in the terms & conditions. No interest would be paid to the EMD deposited / held back.

14.4 Tenders not accompanied by Earnest Money Deposit shall be rejected.

14.5 The EMD of the unsuccessful bidder will be returned within 3 months from the date of opening the technical bids.

#### **15. SECURITY DEPOSIT**

15.1 The successful bidder shall have to deposit an amount of 5% of the cost of the machinery/equipment (including the retained EMD amount) towards interest free security deposit and retention money, in the form of Demand Draft (DD) or Bank Guarantee (BG) as per the format given at **Annexure – IV**. This BG or DD should be submitted along with the acceptance of the Purchase Order. The security deposit (BG or DD) should cover the entire warranty period of the items to be supplied.

#### **16. AUTHORITY OF SIGNING**

16.1 If the tender is submitted by an individual, it shall be signed by him.

16.2 If the tender is submitted by a proprietary firm, it shall be signed by the proprietor.

16.3 If the tender is submitted by a partnership firm, it shall be signed by all the partners of the firm or by a partner holding the power of attorney for the firm for signing the tender, in which case, a certified copy of power of attorney shall accompany the technical bid.

16.4 If the tender is submitted by a limited company or a corporation, it shall be signed by a duly authorized person or the person holding the power of attorney for signing the tender, in which case a certified copy of the power of attorney shall accompany the technical bid.

## 17. PRICE & CURRENCY BID

- 17.1 The tender shall be filled in English with a neat hand / type and all the figures and words shall be legible.
- 17.2 The rates shall be written both in words and in figures. The bidder shall also show the amount of each item, the total of each section and the grand total of the whole tender.
- 17.3 Correction, if any, shall be made by crossing out, initialing with date and rewriting.
- 17.4 In case of conflict between the figures and words in the rates, the latter shall prevail.
- 17.5 The tenders shall be verified by the bidder for accuracy in the arithmetical calculations, prior to submission.
- 17.6 The price may be offered in either Indian Rupee or any foreign currency viz; US Dollar, Euro, etc for all imported items.

## 18. PACKING AND SUBMISSION

- 18.1 The tender shall be submitted before the scheduled date & time and at the address mentioned in the Tender Notice. While (i) technical bids (**Cover – A**) of more than one item can be combined and kept in one cover, (ii) commercial bids (**Cover – B**) shall be submitted for each equipment/item separately in sealed covers.
- 18.2 The sealed covers should be superscribed (i) cover- "**A**" as "Technical Bids" and (ii) cover -"**B**" as "Commercial bids"- **along with other relevant details such as name of the equipment and name of the bidder.**
- 18.3 **Cover “A” (Technical bids) shall contain**
  - a) **Earnest Money Deposit (EMD)** in the form of a DD for an amount as mentioned in the document.
  - b) **D.D for Rs.500/-** in case the document has been down loaded from website.
  - c) Original Tender document **duly signed** by the authorised person on all pages.
  - d) Compliance to technical specifications of the equipment/item for which bids are submitted – Authorised person to indicate the **compliance of technical specifications in the respective pages** of the tender document and sign the same.
  - e) **Compliance to the terms and conditions** of the tender document - Authorised person to specify, "All the above terms and conditions will be complied with" and sign in respective pages of the tender documents, where "terms and conditions" are given.
  - f) Adherence to the stipulated **delivery schedule** of the equipment/item – Authorised person to specify "delivery schedule given above will be complied with" and sign in respective pages of the tender documents, where "delivery schedule of each of the items" is given

- g) **Proof that the bidder** is (i) either manufacturer or (ii) an authorised agent for the equipment/item for which the bid is submitted.
- h) List of organisations in India and abroad, along with Contact Person, address, Tel. No., Fax No. etc., to which **similar make/model** of the equipment were supplied.
- i) Compliance that the bidder has manufactured or supplied the equipment during the past 2 years and **performance report from at least 2 such users** for the past 2 years.
- j) Covering letter, in the letter head of the bidder stating:
  - a. That the minimum **warranty period of one year**,
  - b. That the bid **conforms to the terms and conditions** of the tender;
  - c. Confirmation about the **supply of Certified Reference Materials/Samples** for checking the performance of the testing instruments, wherever applicable.
  - d. Confirmation that the quoted rates are valid till **30/09/2016**
  - e. The details regarding the service centres, stocking of spares etc.,
- k) Addenda / corrigenda /clarification issued by BTRA before due date of tender, duly signed by the authorised person.
- l) Descriptive leaflet/brochure giving the technical details of the equipment/instruments/looms.
- m) A letter indicating assumptions, criterion, technical alternative etc., if any. However, the alternatives suggested by the bidder would not be taken as the basis for technical/commercial evaluation of the bids.
- n) Details of pre-installation requirements including space, size of the table required, power point ampere, etc.
- o) Power of attorney authorizing the person who has filed the tender, if applicable.
- p) **A copy of the certificate for the calibration of the similar makes and model equipment/instrument for which bid is submitted from an accredited calibration laboratory or National Physical Laboratory, wherever applicable.**

**18.4 COVER "B" (COMMERCIAL BIDS) SHALL CONTAIN-**

- a) Total cost of the main equipment/instrument and accessories (imported/indigenous), required for the functioning of the equipment, including the test control system, computer, printer, packing & forwarding etc., duly filled and signed **in the format prescribed in the tender document at Annexure-III**. No money other than the total indicated above will be payable on any account.

- b) Minimum required essential spare parts for next 2 years after the warranty period are to be specified. The cost of the spares is to be quoted separately along with the commercial bids, as optional as per the details given in **Annexure-III**.
- c) Annual Preventive Maintenance charges for the next 3 years, after the expiry of the warranty period, in the format prescribed in the tender document at **Annexure-III**.
- d) All the pre-installation requirements such as Voltage stabilizer, surge arrestor, necessary length of cables, plugs etc. should be provided by the bidder along with the equipment/item. The bidder shall quote for these items separately. The Centre will provide adequate space, furniture and electricity only for the installation and commissioning of the equipment/item.

**19. VALIDITY OF THE TENDER: -**

Rates quoted by the bidder and the earnest money deposit submitted shall be valid till **30/09/2016** or to an extended date as agreed on mutually.

The Bidder shall not withdraw or revise or alter any conditions, rate(s) quoted within this stated period, unless he is called upon to do so on mutual agreement / negotiations. The Director, BTRA reserves the right to forfeit the earnest money deposit if the bidder revokes or withdraws the tender within this stated period.

**20. OPENING OF TENDER**

The tender shall be opened by a Purchase Committee constituted by the competent authority, BTRA, at Mumbai, at the time, date and venue as given in the "Tender Notice".

**21. AGREEMENT**

The successful bidder shall sign and return copy of Purchase Order placed with him, as a token of acceptance of the terms and conditions of the Purchase Order. The bidder shall also enclose the applicable security deposit in the form of BG or DD as specified at **Clause No. 15**.

**22. CRITERION FOR REJECTION**

- 22.1 The BTRA reserves the right to accept or reject any tender or reject all tenders without giving any reasons whatsoever for their decision.
- 22.2 Tenders are liable to be rejected in which any of the prescribed particulars / information is either missing or incomplete in any respect and/or if the prescribed conditions are not fulfilled.
- 22.3 Tenders which are found to be technically non- responsive shall be rejected and their commercial bids shall not be opened.
- 22.4 Canvassing in connection with tender is strictly prohibited and tender submitted by bidder who resorts to canvassing will be liable to rejection.



- 22.5 Tenders containing specific conditions of the bidder other than the terms and conditions given in the tender document and not acceptable to the BTRA are liable to be rejected.
- 22.6 If the validity of the tender is not up to **30/09/2016** the tender will be rejected
- 22.7 If the tender document duly signed by the authorized person on all pages is not submitted, the tender will be rejected**
23. The BTRA caters mainly to the manufacturers/exporters. Hence, Purchase Committee may at its discretion give preferences to more popular brands of instruments, which give results that are widely accepted internationally by buyers abroad and the decision of the Committee will be final.
24. Before submission of the tender, the prospective bidders are expected to examine technical specifications of the equipments required, terms and conditions, etc., given in this tender document. Failure to furnish all information required in the tender document may result in the rejection of the bid.
25. The BTRA reserves the right to cancel items, from the list of requirement of instruments without assigning any reason thereof.
26. The number of instruments required is tentative so also the location mentioned where the supply has to be effected. BTRA at its discretion may delete/add the number of requirement of instruments and change the location where the supply has to be effected.

### III (B) TERMS AND CONDITIONS- SPECIAL

1. Cost details are to be filled up in the prescribed format as given at **Annexure – III** for all the instrument as applicable to imported /indigenous indicating therein ex-works price, agency commission payable to Indian agents, FOB, insurance, packing and forwarding and total CIF charges, applicable taxes etc. including that of the accessories like voltage stabilizers etc
2. Agency commission for imported equipments/instruments will be paid in Indian Rupees, only after the successful installation of the equipment and imparting training to the technical personnel of the laboratory concerned
3. All accessories, start up kit required for installation & commissioning the main equipments are to be specified and quoted
4. The terms of payment in case of indigenous machinery/equipment shall be:  
  
100% of the total price of the machinery/equipment will be paid on (i) delivery and successful commissioning of the equipment, demonstration of satisfactory performance and imparting training to the technical personnel of the laboratory concerned (ii) applicable security deposit in the form of BG or DD and (iii) Bank Guarantee for an equal amount valid for the duration upto delivery of the equipment. (**Format of BG given at Annexure- IV**).
5. The bidder should take responsibility for delivering the equipments inside the premises of the respective laboratories of BTRA as specified in the Purchase Order.
6. The foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, bank charges and other such levies imposed outside India.
7. The Local supplier shall be entirely responsible for all taxes duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser. Viz. BTRA.
8. **Training:** The successful bidder of the equipment should provide adequate training for at least one technical personnel of the laboratory per equipment including trouble shooting etc., and making them confident of operating the equipment independently. In case of major and sophisticated equipment, the successful bidder should give training in the following 3 phases:
  - i) Basic theory and technique of the equipment: The purpose is to train BTRA officials in fundamental aspects of the technique. This will be open house classroom training at a mutually convenient venue. To & fro, lodging and boarding charges for one person per equipment is to be borne by the successful bidder.
  - ii) This will be conducted at the time of actual installation of the instrument. This involves hands on experience on the instrument explaining complete capabilities of the software and brief trouble shooting, routine maintenance including technique, if any.

- iii) This will be conducted aboard after completion of the 2<sup>nd</sup> stage. Boarding, lodging, to & fro airfare and training expenses of the trainee has to be borne by the successful bidder. In addition to above trainings, continuous ongoing support in application area from the supplier and its principal abroad are to be provided.
9. The bidder shall adhere to the delivery period of the equipment/item as committed by him as indicated in **Annexure V** of the tender document, whichever is earlier. Penalty for non-execution of the order within the delivery period shall be 1% of the cost of the equipment/item for every week of delay.
  10. The installation and commissioning of the equipment/item should be completed within 30 days from the date of delivery, failing which penalty shall be levied @ 1% of the cost of the equipment/item for every week of delay.
  11. The bidder shall give warranty for at least one year in respect of items quoted.
  12. During the warranty period, regular servicing/maintenance should be undertaken free of charge, including replacement of defective parts/travel cost, etc. Subsequently, servicing/maintenance should be undertaken by the authorised agency of the manufacturer / supplier as per the annual maintenance contract conditions.
  13. Operation/maintenance manuals, calibration procedures and other instruction manuals should be provided along with each of the equipment.
  14. Terms for service contract (comprehensive or non-comprehensive) after the expiry of warranty period for atleast 3 years are to be included.
  15. **The Test Control/operating Systems like computer and printer, compatible to the main instrument, are to be supplied indigenously with latest configuration and licensed operating system. Assembled models and unlicensed operating system will not be entertained.**
  16. If the equipment/item is not manufactured by the bidder, authorization of the manufacturer to the bidder for marketing and servicing the equipments in India should be enclosed along with the technical bid of the tender. In the absence of such authorization, the tender will not be considered at all.
  17. It is the sole responsibility of the supplier to process insurance claim in case of machine/equipment/instrument is received in fully or partly damaged condition or missing in transit. No extra payment will be borne by BTRA towards clearing charges, freight, cost towards deputation of service person or any other charges whatsoever for rectifying/replacement of the damaged parts/ equipment/instruments.
  18. The responsibility for customs clearance (in case of imported equipments), transporting and delivering the equipment/instrument inside the laboratory at the respective places, as the case may be, lies with the bidder only. All the relevant documents required for the customs clearance and transportation will be provided to the bidder or his representative by the BTRA within a reasonable period of time. In case of delay in the customs clearance of imported equipments, the demurrage has to be paid by the bidder

only. Hence, suppliers may inform their principals abroad to give timely information regarding the dispatch of equipment/item.

19. In case of short supply or wrong supply of equipment/instrument, its parts or accessories or supply of items in damaged conditions, it is the responsibility of the bidder to arrange for the supply of the required items in working condition as per the purchase order, within a reasonable time. Any additional expenditure, whatsoever, for the above will be borne by the bidder only.
20. The specifications given in this document are the minimum requirement. The bidders are free to offer equipment/instruments with better features also. However, the evaluation shall be based on the features mentioned in the tender document. If different model are quoted, the cost details may be given in separate sheet
21. Orders for the supply of items, once placed with successful bidder is non transferable and no sub-contracting is permitted. BTRA reserves the right to cancel the order in such event.
22. The items and no. of units of the items being procured are tentative and liable to change without assigning any reason.
23. Financial statement of the manufacturer incorporating the turnover of business for the last 3 years should be submitted along with the commercial bids. In case of authorized agents who are submitting the bids, income tax returns for the last 3 years have to be submitted along with the commercial bids.
24. Any non-fulfillment of the stipulation given above will make the bid invalid.
25. BTRA at its liberty has the right to exercise to issue purchase order of similar instrument to more than 1 bidder if the number of such items is more than one to have the different makes and models of instruments for different laboratory, if these are conforming to the tender specification.
26. The full payment will be released to the bidders only after completion of satisfactory performance check of the instrument/equipment.
27. In case of computer related equipment, the bidders have to quote for indigenous computer only instead of imported computers, if any.
28. The bids shall first be evaluated for their “technical responsiveness” which shall inter-alia include,
  - (i) Compliance to EMD requirement;
  - (ii) Proof that the bidder is (i) either manufacturer or (ii) an authorized agent for the equipment/item for which the bid is submitted,
  - (iii) Compliance to technical specifications of the machinery/equipment for which the bid is submitted,
  - (iv) Adherence to the warranty period,

- (v) Documents in support of compliance to the calibration of the equipment and its traceability to national/international standards of measurement and proven performance through proficiency testing, wherever such requirement is specified,
- (vi) Necessary documentary proof that the bidder has manufactured or supplied the equipment during the past 2 years along with the list of such customers and performance report of the equipment from at least 2 such customers/users for the past 2 years,
- (vii) Details regarding the service centres, stocking of spares etc.
- (viii) Confirmation about the supply of Certified Reference Materials/Samples for checking the performance of the testing instruments, wherever applicable.
- (ix) Compliance to all other relevant and critical terms and conditions of the tender.
- (x) DD for Rs. 500/- if the document is down loaded from website
- (xi) Validity of the tender up to **30/09/2016**
- (xii) For the equipment under category 1 and some of the automatic equipment under category 2, the tender document will be evaluated by grading system based on the following criteria:
  - a. The range, sensitivity / detection limit, technique used calibration traceability, overall technical compliance, satisfactory user certificate etc, will be reviewed for its technical responsiveness.
- (xiii) **If any of the above mentioned parameters are not fulfilled, the bid will be considered as technically non-responsive.**

29. The commercial bids of those bidders who are technically responsive only shall be evaluated based on the following criterion :

- (i) Total price of the equipment inclusive of accessories/ancillary equipment, taxes, duties etc.
- (ii) AMC charges for three years after the expiry of the warranty period.

## Technical Specification of the Machines/Equipment

### 1. Carbon Black Dispersion Tester

Sl. No.	Specification	Requirement	Compliance with Yes or No
1	Basic	<p>The test equipment shall confirm ASTM D 5596</p> <p><b>1. Main equipment</b>                      Microscope                      Image analyzer ( PC, Monitor ) with suitable software                      microtome section (8-15 mm thick)                      microscope magnification 50 to 200X                      Microscope Accessories—A calibrated reticle (eyepiece micrometer) positioned in one of the eyepieces between the eyepiece-lens and the objective.                      This should include a movable specimen stage.                      Lenses should include two 10x wide field eyepieces and objectives in the range of 5 to 20x..                      (final magnification shall be 50 to 200x)                      Pixel x dispersion analysis                      10 grade automatic judgment                      Agglomeration determination range setting &amp; statistical analysis                      Automatic calculation threshold values &amp; eliminate bubbles after thresholding.                      Light Source—An external white light source with variable intensity.                      Balsam cement or suitable, clear substitute (for example, clear nail polish)</p> <p><b>2. Microtome</b>                      Motorized suitable for slicing HDPE, PVC, LDPE, LLDPE etc                      geomembrane with size up to 20 microns                      A rotary or sledge-type microtome equipped with a sample clamp and knife holder is required.                      Microtome Accessories—Lubricant, dust cover, and tweezers                      An optical microscope with binocular viewing (trinocular)</p>	

		type, micrographs ) Dispersion grading chart.	
2	Other Accessories		
3	Optional		
4	Others	Warranty : One year Spare parts : for two years	
5	Suitability to supply voltage	~220-240V, 50Hz or 440 V, 50Hz	

## 2. Water Permeability under Load Test Apparatus

Sl. No.	Specification	Requirement	Compliance with Yes or No
1	Basic	<p>The test equipment shall confirm ASTM D 5493 &amp; ISO 10776</p> <p>The test apparatus shall consist of a cylindrical cell as follows,</p> <p>a) The apparatus shall be capable of installing a 50 mm head loss on the specimen and maintaining a constant head, for example, by adjusting the flow rate for the duration of each test with water on both sides of the specimen.</p> <p>b) The apparatus shall have an internal diameter of at least 95 mm <math>\pm</math> 2 mm.</p> <p>The diameter of the apparatus shall remain identical on both sides of the specimen.</p> <p>c) The upper and lower porous circular plates bounding the sample shall consist of metallic plates of diameter that is lower than or equal to 0,5 mm less than the nominal internal diameter of the apparatus. The thickness of each plate shall be greater than or equal to 15 mm. The porous central area of the plate shall be perforated by a series of 2,5 mm <math>\pm</math> 0,2 mm holes that are perpendicular to the face of the plate. The pattern of holes shall be uniformly distributed about the horizontal and vertical diameter of the plate in accordance with Figure 3. The plates shall have markings that facilitate alignment of the holes The diameter of the specimen that is exposed to flow shall be greater than or equal to 85 % of the internal diameter of the apparatus.</p> <p>d) A loading mechanism shall be capable of sustaining a constant normal compressive stress</p>	

		<p>on the specimen of 2, 20 and 200 kPa with a tolerance of <math>\pm 5</math> %. For the purpose of calculating the compressive stress, the area to be used shall be the gross area of the upper plate. The normal compressive stress shall be applied to the upper and lower porous plates by a circular stainless steel ring of outer diameter 1 mm less than the internal diameter of the apparatus and a thickness lower than or equal to 2,5 mm. The height of the ring shall be greater than 25 mm. The transference of load from the loading mechanism to the loading ring above the porous plates shall not reduce the flow area of the apparatus by more than 1 000 mm<sup>2</sup>.</p> <p>e) The apparatus shall be capable of maintaining the proposed normal compressive stress on the specimen without deformations.</p> <p>f) The apparatus shall be capable of preventing flow at the edge of the specimen.</p> <p><b>Measuring devices</b>  A dissolved-oxygen meter.  <u>Measurement by weighing on balance:</u>  A measuring vessel for determining the volume of water which has a maximum permissible error lower than or equal to 20 ml.  The balance, a having a maximum permissible error lower than or equal to 2 % of the measured value, for measuring volume by weight.  <u>Measurement by flow meter</u>  For direct measurements of flow velocity , the gauge shall be calibrated to a maximum permissible error of 5 %.  A measurement device to determine the 50 mm head loss with an accuracy of 3 %.</p>	
2	Other Accessories		
3	Optional		
4	Others	Warranty : One year Spare parts : for two years	
5	Suitability to supply voltage	~220-240V, 50Hz or 60 Hz	



### 3. Filtration Efficiency Tester

Sl. No.	Specification	Requirement	Compliance with Yes or No
1	Basic	<p>The equipment shall have the following devices            Pressure applying &amp; controlling device.            Flow measuring device.            Particle counting device.            The equipment shall confirm following standards:            ASHRAE 52.1, 52.68, 52.76 or equivalent            EN 779            Range of particle counting : 0.1to 1000 micron            with accuracy            of 0.1 micron.            All the gauges shall be calibrated to a maximum            permissible            Error.            A measuring facilities for particle count passing            through filters at different pressures. A pressure            measuring device to measure the pressure of air            before &amp; after filter media. A test rig suitable for            HEPA filters &amp; other industrial filters. Sampler for            bacterial filtration</p> <p>Air flow suction type 2000CFM up to 3500CFM            Dust type ASHRAE 52.1 type</p> <p>Pressure drop measurement manual type            Duct size 2’x2’-12m long            Inlet and outlet HEPA filter for filtering the air that            gets into the environment.            Particle counter five channel            Software to print test report            Dust generator and aerosol generator in the            mentioned test rig.            Aerosol: DOP or potassium chloride.            Test rigs: two stages            Measuring range of filtration efficiency : up to            99.9%            Particle counter measuring range 0.1 to 5.0            micrometer with the sensitivity of 0.1 micrometer            Particle concentration :<math>2.5 \times 10^7</math> particles/cm<sup>3</sup>            (p/cm<sup>3</sup>)            Range of air velocity in test rig: 0.5 to 25cm/sec            Aerosol requirement: the aerosol used for testing</p>	

		<p>should have a hereto disperse size distribution in the sub micrometer diameter range from 0.1 to 10 micrometer</p> <p>Specifications for Test Bench:</p> <ul style="list-style-type: none"> <li>. Filter flat sheet test area:100cm<sup>2</sup></li> <li>. Air flow velocity from 0.5m/s to 90m/s as needed by customers</li> <li>. Test aerosol: DEHS, KCl, DOP etc</li> <li>. Aerosol generator</li> <li>. Dust generator</li> <li>. Corona discharge unit for discharging dust.</li> <li>. Anderson's sampler as per ASTM D 2101.</li> </ul>	
2	Other Accessories	Test rig for HEPA filters as per ASHRAE 52.1 & 52.2 standard or equivalent.	
3	Test methods	ASHRAE 52.2, EN 779, ISO CD 19713, ISO 5011, DIN EN 1822-3, DIN 71460-1 & 2, ISO 11155-1 & 2, ASTM D 2101.	
4	Optional	Laser based dust measuring device : PALAS, ATI, MET or equivalent	
5	Others	<p>Warranty : One year</p> <p>Spare parts : for two years</p> <p>Calibration certificates for all measuring device</p> <p>Free Installation</p> <p>Free training</p>	
6	Suitability to supply voltage	~220-240V, 50Hz or 60 Hz	

#### 4. Tensile Tester (Multi-Station Universal Tester)

Sr. no.	Specification	Requirement	Compliance (Vendor to provide exact values against each field)
1.	<b>Basic features</b>	Machine shall have multi stations i.e. 5 units ( or more ) with load cells and capable of analysis of 5 specimens ( or more ) together. Machine shall confirm ASTM D 76 specifications.	
2.	<b>Application</b>	To perform tensile, tear & grab tests on geo-synthetics & other similar materials as per ASTM D4533, D4595, D4632, D5035 & other technical textiles & non-textile standards. Machine shall have facility to test 5 or more samples simultaneously. Sample width shall be 100mm or more per station.	
3.	<b>Frame</b>	Floor standing frame with high precision low-backlash ball screws & additional two guide columns for extra stiffness	

Sr. no.	Specification	Requirement	Compliance (Vendor to provide exact values against each field)
		Precise brushless servo motor Emergency stop Programmable limit switches Touch screen control panel Ethernet or USB PC connectivity Adjustable machine feet Alignment arrangement to avoid bending moment when no. of tests are not symmetrical Free standing frame on shock absorbers, no need of foundation High frame stiffness 100kN or better PC connectivity: USB or Ethernet Data acquisition rate: 8kHz or better on all channels No. of test stations: 5 or more in single frame Load capacity: 50kN or more Vertical opening: 1300mm or more Horizontal opening: 800mm or more Minimum test speed: 0.0005mm/min Maximum test speed: 500mm/min Speed accuracy: $\pm 0.01\%$ of set speed Shall conform to all relevant European CE Health and Safety Directives.	
4.	<b>Digital control system</b>	High resolution control system with 64 bit control processor, 24 bit data acquisition & control Multi-functional touch screen remote control to be supplied for simple operation. Features shall include: <ul style="list-style-type: none"> <li>• Digital display of load, displacement or any auxiliary channel</li> <li>• Zeroing of all channels</li> <li>• Test setup &amp; operation of machine</li> </ul>	
		All necessary signal conditioner/amplifier cards for supplied force & displacement sensors to be provided. $\pm 10V$ analog input/output card with 4 or more channels to be provided (2 input & 2 output minimum)	
5.	<b>Application software</b>	<ul style="list-style-type: none"> <li>• Shall offer complete setup, testing &amp; analysis functionalities</li> <li>• Shall have built-in methods for geo-synthetics, technical textiles, other materials</li> </ul>	

Sr. no.	Specification	Requirement	Compliance (Vendor to provide exact values against each field)
		<ul style="list-style-type: none"> <li>• Closed loop control in any mode – load, strain, displacement or external input</li> <li>• Shall analyse outputs from all tests &amp; provide results &amp; statistics</li> <li>• Shall have facility to create new method</li> <li>• Shall be able to regenerate results</li> <li>• Shall have facility to incorporate additional test parameters e.g. strength @ specific elongation &amp; vice versa, modulus etc.</li> <li>• Shall save the data when power fails &amp; recall the same test for continuing.</li> </ul>	
6.	<b>Load measurement</b>	Through high precision strain gauge type load cell – 10kN capacity (5 no.) & 50kN (1 no.) <ul style="list-style-type: none"> <li>• Self identification, scaling &amp; calibration</li> <li>• Shall meet or exceed requirements of ISO 7500-1, ASTM E4</li> <li>• Load range: 1% to 100% or better</li> <li>• Accuracy: <math>\pm 0.5\%</math> or better</li> <li>• Overload protection: 150% or better</li> </ul>	
7.	<b>Extension measurement</b>	Shall meet or exceed requirements of ASTM E83 & ISO 9513.	
8.	<b>Grips &amp; fixtures</b>	5 sets of pneumatic parallel grips with corrugated faces & foot switches - 5kN or more capacity, 70mm sample width Vendor to quote for suitable air compressor with all necessary accessories in options. 1 set of geo-textile grips with corrugated faces for grab & tensile testing as per ASTM D4632, D4595 – 50kN capacity, 200mm sample width	
9.	<b>Video extensometer</b>	Vendor to offer non-contact video extensometer with 12MP or better CCD camera, lens & mounting bracket. It shall simultaneously measure strain on 5 samples with resolution of $4\mu\text{m}$ or better.	
10.	<b>PC &amp; printer</b>	Vendor to offer branded PC with i5 or i7 processor, 8GB RAM, 500GB or 1TB HDD, Windows licensed OS, 22" TFT monitor, CD RW/DVD ROM, optical mouse,	

Sr. no.	Specification	Requirement	Compliance (Vendor to provide exact values against each field)
		keyboard & laser printer. PC shall be supplied with pre-installed test software by OEM.	
11.	<b>Documentation</b>	<p>Calibration certificates for following shall be provided</p> <p>Force (ISO 7500-1 or ASTM E4)</p> <p>Displacement (ISO 9513 or ASTM E83)</p> <p>Extensometers, if any (ISO 9513 or ASTM E83)</p> <p>Operating &amp; maintenance manuals, circuit diagrams &amp; all other necessary documentation shall be provided.</p>	
12.	<b>Installation &amp; training</b>	Cost of installation & training, if any, to be indicated separately.	
13.	<b>Warranty</b>	3 years from the date of installation to be provided.	
14.	<b>Annual maintenance contract</b>	Vendor shall be capable of undertaking AMC of the supplied instrument including calibration. AMC offer for 3 years to be provided.	
15.	<b>Spares</b>	Vendor to quote necessary spares for 5 years trouble-free operation.	
16.	<b>Optional accessories</b>	<ul style="list-style-type: none"> <li>• Hydraulic parallel grips with corrugated faces – 50kN capacity, 200mm sample width</li> <li>• Additional load cells of 1kN, 5kN &amp; 10kN with signal conditioner/amplifier cards &amp; calibration certificates</li> </ul>	
17.	<b>Compliance</b>	<p>Vendor to specify correct values again each field. Yes/No type compliance is not acceptable.</p> <p>Purchaser reserves the right to reject any incomplete or incompetent bid partially or totally.</p>	
18.	Supply voltage	~220-240V or 440 V, Single / Three phase, 50/60Hz	

## 5. Thickness Gauge

Sr. no.	Specification	Requirement	Compliance with Yes or No																		
1.	Basic feature	<p>The equipment shall be universal so that different products with different pressures &amp; presser foot area can be used.</p> <p>It shall confirm both test methods ASTM D 5199, ISO 9863-1 (for geo-synthetics) &amp; ASTM D 1777 (for nonwoven &amp; other textiles).</p> <p>The loading system can be dead weight or pneumatic.</p> <p>If it is dead weight system then provision should be available to calibrate each &amp; every part of the loading assembly to ensure actual pressure exerted on the sample.</p> <p>If it is pneumatic then pressure measurement facility either digital or analogue should be provided with proper calibration certificate.</p> <p>The deviation in pressure shall be as specified.</p> <p>The parallelism of presser foot &amp; anvil shall not be affected with change of pressure foets.</p> <p>In case of dead weight system the loading – unloading shall be made easier.</p> <p>Measuring range : 0 to 10 mm ( max. 25 mm )</p> <p>Accuracy : 10 micron ( 0.01 mm )</p> <p><b>Parallelism</b></p> <p><b>Anvil / Foot parallelism : 0.01 mm</b></p> <table border="0"> <tr> <td>Different presser foets</td> <td>&amp;</td> <td>Pressure (kPa)</td> </tr> <tr> <td>1. Diameter 56.4 mm (25 cm<sup>2</sup>)</td> <td></td> <td>2 ± 0.02</td> </tr> <tr> <td>2. Diameter 6.35 mm</td> <td></td> <td>20 ± 0.2 &amp; 200</td> </tr> <tr> <td></td> <td></td> <td>172 ± 14</td> </tr> <tr> <td>3. Diameter 28.7 ± 0.02 mm</td> <td></td> <td>4.14 ± 0.21</td> </tr> <tr> <td>4. Diameter 9.5 ± 0.02 mm</td> <td></td> <td>23.4 ± 0.7</td> </tr> </table> <p>Anvil diameter : at least 80 mm</p> <p>Thickness gauge : Digital with calibration certificate..</p> <p><b>Thickness Tester having facility as per ASTM D 5199 &amp; ISO 9863 will be preferred.</b></p>	Different presser foets	&	Pressure (kPa)	1. Diameter 56.4 mm (25 cm <sup>2</sup> )		2 ± 0.02	2. Diameter 6.35 mm		20 ± 0.2 & 200			172 ± 14	3. Diameter 28.7 ± 0.02 mm		4.14 ± 0.21	4. Diameter 9.5 ± 0.02 mm		23.4 ± 0.7	
Different presser foets	&	Pressure (kPa)																			
1. Diameter 56.4 mm (25 cm <sup>2</sup> )		2 ± 0.02																			
2. Diameter 6.35 mm		20 ± 0.2 & 200																			
		172 ± 14																			
3. Diameter 28.7 ± 0.02 mm		4.14 ± 0.21																			
4. Diameter 9.5 ± 0.02 mm		23.4 ± 0.7																			
	<b>Optional</b>	Certified reference material : 60 mm diameter 1 to 5 mm thick SS plates or any other																			
	<b>Test Method :</b>	<b>ASTM D 5199, ASTM D 1777</b>																			
4.	Others	<p>Warranty : One Year</p> <p>Spare parts : Necessary or frequently required</p> <p>Calibration certificate</p> <p>Free Installation</p> <p>Free training</p>																			

## 6. Wet sieving apparatus

Sr. no.	Specification	Requirement	Compliance with Yes or No
1.	Basic feature	<p>The equipment should consist of a sieving unit which allows testing of a specimen with an exposed sieving area corresponding to a minimum of 130 mm complying with the following requirements:</p> <ol style="list-style-type: none"> <li>1. Sieving device with a frequency of 50 Hz to 60 Hz</li> <li>2. Predominantly vertical sieve motion capable of maintaining a 1.5mm amplitude ( 3 mm swing height) over the period of test;</li> <li>3. Water supply system;</li> <li>4. Spray nozzle ( capable of water discharge of approx. 0.5 l/min at a pressure of 300 kPa ) to ensure even wetting of the test specimen enclosed in a transparent cylinder or covering cap to avoid soil / granular material loss;</li> <li>5. Sample clamping device;</li> <li>6. Pan fixed on the sieving apparatus, with a tube connection to the device for collection of the water and granular material passing through the specimen.</li> <li>7. Grid with 1 mm diameter wire &amp; mesh of 10 + 1 mm to support the specimen during the test, to avoid excessive deformation of the specimen under the weight of the granular material.</li> <li>8. Suitable constant stirring unit to avoid agglomeration.</li> </ol>	
	<b>Optional</b>	<p><b>Filter paper of sieving size of 10 micron or any other suitable filter</b>  <b>Sets of sieves as per ISO 556 / R20</b></p>	
	<b>Test Method :</b>	<b>ISO 12956</b>	
	Others	<p>Warranty : One Year  Spare parts : Necessary or frequently required  Calibration certificate  Free Installation  Free training</p>	
	Suitability to the supply Voltage:	Suitable to 220 ± 10 V, 50-60 Hz power supply	

## 7. HAND OPERATED STATIC CONE PENETROMETER, 30KN CAPACITY

Sr. no.	Specification	Requirement	Compliance with Yes or No
1.	<b>Basic feature</b>	<p>The equipment should consist of :</p> <p><b>Steel cone:</b> It should have an apex angle of <math>60^\circ \pm 15</math> minutes and overall base diameter of <math>35.7 \pm 0.1</math> mm having cross sectional area of <math>10 \text{ cm}^2</math>. Friction jacket should satisfy the specifications given in IS: 4968 (Part III)</p> <p><b>Sounding rod:</b> steel rod of 15 mm diameter which can be extended with additional rods of 1m each in length.</p> <p><b>Mantle tube:</b> The mantle steel tube should be one meter in length with flush coupling.</p> <p><b>Driving mechanism:</b> The driving mechanism shall have the load of 3 tonne for manual operation.</p> <p><b>Measuring equipment:</b> It should satisfy the specifications provided in IS:4968 (Part III) Load Measuring Head with Automatic Cut-off Valve, and Oil Can without Pressure Gauges 1 No. Pressure Gauge 0-160 <math>\text{kg/cm}^2</math> 1 No. Pressure Gauge 0-60 <math>\text{kg/cm}^2</math> 1 No. Screw Anchor with Bolt 4 No Anchor Driving Handle 1 No T-Rod 1 No. Spanner 1 set Extension Pipe 0.5 m long for Anchor Driving Handle 1 No.</p>	
2.	<b>Test Method</b>	IS:4968 ( PART III ), AASHTO T208	
3.	<b>Others</b>	<p>Warranty : One Year Spare parts : Necessary or frequently required Calibration certificate Free Installation Free training</p>	



## 8. BULK DENSITY APPARATUS

Sr. no.	Specification	Requirement	Compliance with Yes or No
1.a	<b>Basic feature</b>	<p><b>CORE CUTTER :</b>            For quality control of compacted earth fill, the measurement of in-situ density is essential. All type of earthwork constructions like embankments, dams, roads, airfields and trenches need density determination.            Core cutter of known volume is driven into the soil by a rammer. The core cutter is dug out, trimmed and the soil inside weighed and dried for moisture and density check.            The equipment should consist of :</p> <ol style="list-style-type: none"> <li>1. Cylindrical core cutter made of steel, 100mm dia x 130mm long with 3mm of wall thickness.</li> <li>2. Steel dolly 25mm high and 100mm dia, fitted with a lip, to enable it to be located on top of the core cutter</li> <li>3. Rammer with steel rod with 140mm diameter and 75mm height.</li> </ol>	
1.b	<b>Basic feature</b>	<p><b>Sand replacement method:</b>            This apparatus is used for the determination of the dry density of compact, fine, medium grained soils and for layers not exceeding 50cm thickness. A circular hole is dug into the ground, all the soil from within collected, weighed and dried, and the hole back-filled with a standard uniform sand or fine gravel, poured from a calibrated container for calculating the volume of hole.            The equipment should consist of :</p> <ol style="list-style-type: none"> <li>1. Sand pouring cylinder fitted with conical funnel and shutter, with capacity               <ol style="list-style-type: none"> <li>(a) Inner dia of 100mm and depth of 150mm with 5mm thickness.</li> <li>(b) Inner dia of 200mm and depth of 250mm with 5mm thickness.</li> </ol> </li> <li>2. Cylindrical calibrated container 100mm inner dia x 150mm height</li> <li>3. Metal tray size 30x30x4 cm, with 10cm central</li> </ol>	

Sr. no.	Specification	Requirement	Compliance with Yes or No
		<p>hole.</p> <p>4. Metal tray 45cm square and 5cm deep with 20cm dia hole in the center.</p> <p>5. Cylindrical calibrated container 200mm inner dia x 250mm height.</p> <p><b>Tools for Excavating Holes-</b> suitable tools, such as bent spoon, dibber , large screw driver, pointed steel rod about 300 mm long and 5 to 10 mm dia with a wooden handle <b>(2 No's each)</b></p>	
2.	<b>Miscellaneous (Compulsory)</b>	<p><b>Metal Containers with 150mm dia and 200mm deep (5 No's),</b></p> <p><b>Metal Containers with 150mm dia and 300mm deep (5 No's),</b></p> <p><b>Weigh balance for field testing with an accuracy of 0.1g -capacity 15kg.</b></p>	
3.	<b>Test Method</b>	<b>IS 2720 Part-29, IS 2720 Part-28</b>	
4.	<b>Others</b>	Warranty : One Year	

**Annexure – II**

**Details of EMD in the form of D/D or Bank Guarantee to be submitted for each of the equipment**

<b>Sr.No.</b>	<b>Name of the item</b>	<b>Quantity</b>	<b>EMD in Rs.</b>
1	Carbon Black Dispersion Tester	1	12,000.00
2	Water Permeability under Load Test Apparatus	1	16,000.00
3	Filtration Efficiency Tester	1	22,000.00
4	Tensile Tester (Multi-station universal tester)	1	1,20,000.00
5	Thickness Gauge	1	14,000.00
6	Wet Sieving Apparatus	1	12,000.00
7	Hand Operated Static Cone Penetrometer - 30KN Capacity	1	5,000.00
8	Bulk Density Apparatus	1	5,000.00

**FORMAT FOR COST DETAILS**

(Cost particulars should be given in this format instrument wise/ accessories wise separately)

**Note: All the cost particulars should be furnished either in Indian Rupees or foreign currency. If more than one model of the instrument is quoted, use separate sheets****Part 1: Cost details of imported equipments/instruments/Machine****Name of the Instrument/Machine:**

<b>S. No.</b>	<b>Cost Details for foreign components</b>	<b>Cost in Rs / foreign currency (PI. Specify)</b>
i)	Total landed cost of the equipment inside the laboratory of BTRA as per the destination mentioned in the tender document. including installation, agency commission, packing, forwarding, insurance, custom clearing etc.	
ii)	BTRA will provide only custom duty exemption certificate and applicable duty for R&D purpose.	
iii)	AMC details: - (a) AMC rate/per year (comprehensive/non- comprehensive) for the next 3 years, after the expiry of warranty period including the accessories (Two preventive and one breakdown visits)	1 <sup>st</sup> Year: 2 <sup>nd</sup> Year: 3 <sup>rd</sup> Year:
	(b) Travelling cost /conditions	
	(c) Any other conditions	
<b>Delivery schedule of the equipment:-</b>		<b>months</b>

**Part 2: Cost details of Indigenous equipments/instruments**

<b>Name of the Instrument :</b>		
<b>S.No.</b>	<b>Cost Details of indigenous items</b>	<b>Cost in Rs.</b>
i)	Total Cost ( inclusive all taxes, installation charges )	
ii)	AMC details (including the accessories):- (a) AMC rate comprehensive/non- comprehensive cost for the next 3 years, after the expiry of warranty period	1 <sup>st</sup> Year: 2 <sup>nd</sup> Year: 3 <sup>rd</sup> Year:
	(b) 2 preventive visits/1 breakdown visits per annum	
	(c) Travelling cost /conditions	
	(d) Any other conditions	
<b>Delivery schedule of the equipment:-</b>		

**Cost details of optional items/spare parts required for the next 2 years**

**Part-I (imported items)**

Sr. No.	Cost Details for foreign components	Cost in \$/£/ ₹/any other specify
i)	Total cost at the specified laboratory including agency commission, packing and forwarding, insurance, etc.	

**Cost details of optional items / spare parts required for the next 2 years.**

**Part 2 : ( Indigenous items ) :-**

Sr. No.	Cost Details of indigenous items	Cost in Rs.
i)	Total Cost ( inclusive installation charges )	
ii)	Any others (to be specified)	
iii)	Total Cost	

Sr. No.	Details of Requirement for Opening L/C.(for imported items only)
1.	Foreign Supplier's Name and Complete address on whom L/C will be opened.
2.	Foreign Banker's Name & Address
3.	Foreign supplier's Bank Account No.
4.	Port of shipment
5.	Country of Origin
6.	Period to keep open the L/C – (Validity of L/C)
7.	Period of negotiation will be 21 days
8.	Delivery Schedule from the date of issuance of purchase order

**Note:**

1. Additional copies may be taken for each instruments
2. BTRA will not provide any excise or sales tax exemption certificates. However, duty exemption certificate will be given plus applicable duty for equipment/machines for R&D purpose. Please verify the same with specific equipment as some of the equipments are exempted from payment of duties completely.
3. Octroi , if paid , will be reimbursed separately at actuals

## ANNEXURE-IV

FORMAT OF BANK GUARANTEE **FOR GUIDANCE PURPOSES ONLY** (ON NON-JUDICIAL STAMP PAPER OF Rs.100/-) (Applicable for successful bidders, to be submitted in lieu of security deposit)

Bank guarantee No. \_\_\_\_\_ Date: \_\_\_\_\_  
This deed of guarantee made this \_\_\_\_\_ day of \_\_\_\_\_ 2016 (Two Thousand Sixteen only (Name and address of the Bank) hereinafter referred to as 'the Bank') which expression shall where successors and assignees of the Bank and the Bombay Textile Research Association, (hereinafter referred to as the BTRA) which expression shall unless repugnant to the context of the meaning thereof include its legal representatives, successors and assignees.

WHEREAS the BTRA has placed its Purchase Order bearing No. \_\_\_\_\_ dated \_\_\_\_\_ on (name and address of the bidder) (hereinafter called 'the supplier' for the supply of \_\_\_\_\_.

AND WHEREAS the BTRA has agreed to pay to the supplier 100% of the value of the equipment on delivery, installation and commissioning of equipment and on submission of a Bank Guarantee of an amount of 5% of the cost of the machinery/equipment (including the retained EMD amount) towards interest free security deposit and retention money which will be kept valid upto \_\_\_\_\_ being the period of 12 calendar months from the date of Bank Guarantee.

In consideration of the BTRA having agreed to pay to the supplier Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) being the 100% cost of the value of the equipment on delivery, installation and commissioning of equipment and on submission of a Bank Guarantee, we (name of the Bank) hereby undertake and guarantee to make repayment to BTRA the said 5% amount or any part thereof which does not become payable to the supplier by the BTRA in accordance with the subject to the terms and conditions of the said order within \_\_\_\_\_ days from the date of dispatch/from the date of receipt of the material at site. The Bank further undertakes not to revoke this guarantee during its currency except with the previous consent of the BTRA in writing and this guarantee shall be a continuous and irrevocable Guarantee upto a sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only).

The Bank shall not be discharged or released from this guarantee by any arrangement between the supplier and the BTRA with or without the consent of the Bank or any alterations in the obligation of the parties or by any indulgence, forbearance shown by BTRA to the supplier and the same shall not prejudice or restrict remedies against the Bank nor shall the same in any event be a ground of defence by the Bank against the BTRA. We (name of the Bank) do hereby undertake to pay an amount equal to 5% of the order value being the amount due and payable under this guarantee without any demur, merely on demand from the BTRA stating that the amount claimed is due to the BTRA. In case the BTRA puts forth a demand in writing on the Bank for the payment of the amount in full or in part against this Bank guarantee, the Bank shall consider that such demand by itself a conclusive evidence and proof that the supplier has failed in complying with the terms and conditions stipulated by BTRA in the purchase order and payment shall be made to the BTRA without raising any dispute regarding the reasons for any such lapse/failure on the part of the supplier.

This guarantee shall be in addition to and without prejudice to any other securities or remedies which the BTRA may have to hereinafter possess against the supplier and the BTRA shall be under no obligation to marshal in favour of the Bank any such securities or fund or assets that the BTRA may be entitled to receiving or have a claim upon and the BTRA at its absolute discretion may vary, exchange renew, modify or refuse to complete or enforce or assign any security or instrument.

The Bank agrees that the amount hereby guaranteed shall be due and payable to the BTRA on BTRA's serving with a notice requiring the payment of the amount and such notice shall be deemed to have been served on the bank either by actual delivery thereof to the Bank or by dispatch thereof to the Bank by Registered Post shall be deemed to have been duly served on the Bank notwithstanding that the notice may not in fact have been delivered to the Bank.

In order to give full effect to the provisions of this guarantee, the Bank hereby waives all inconsistent with the above provisions and which the Bank might otherwise as guarantor be entitled to claim and enforce.

NOTWITHSTANDING anything contained herein before, the liability under this guarantee is restricted to Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only). The guarantee shall remain in force till the \_\_\_\_\_ and unless the guarantee is renewed or a claim is preferred against the Bank within three months from the said date all rights of the BTRA under the guarantee shall cease and Bank shall be released and discharged from all liability hereunder.

\_\_\_\_\_  
(SIGNATURE)

PLACE:

DATE:

SEAL

CODE NO.

NOTE: 1. SUPPLIERS SHOULD ENSURE THAT SEAL AND CODE NO. OF THE SIGNATORY ARE AFFIXED BY BANKER, BEFORE SUBMISSION OF THE BANK GUARANTEE.

**DELIVERY SCHEDULE OF EQUIPMENT**

<b>Sr.No</b>	<b>Equipment</b>	<b>Delivery Schedule from the date of acceptance of Purchase Order – maximum</b>
1.	Indigenous equipments	2 Months from the date of issuing Purchase Order
2.	Imported equipments	3 Months from the date of opening of LC



**FORMAT TO BE FILLED UP AND SUBMITTED  
IN THE LETTER HEAD OF THE BIDDER**

To,

The Director,  
BTRA,  
LBS Marg  
Ghatkopar(W),  
Mumbai – 400 086.

Sub: Supply of testing instrument to the laboratories of BTRA as per the specifications and quantities mentioned in the tender.

Dear Sir,

- a) Having examined the conditions of Tender and Specifications of the instruments & equipment, we, the undersigned, offer to supply instruments and equipment as mentioned in the **Annexure I** as per the quantity and specifications given in the tender along with standard spares/accessories as specified.
- b) Earnest Money Deposit (EMD) as given in **Annexure II** in the form of Bank Demand Draft / Pay order in favour of 'The BTRA payable at Mumbai as detailed in Tender Conditions is enclosed.
- c) **The original tender document duly signed on all pages is enclosed.**
- d) We agree to abide by this tender for the period from the opening date fixed for receiving the same and it shall remain binding upon us for a mutually extended period agreed in writing by us.
- e) If our tender is accepted, we undertake to supply the instruments and equipments and install the same in the Laboratories as mentioned in the tender within the specified periods mentioned in **Annexure V** from receipt of the order from the BTRA in writing.
- f) We agree to supply consumable spare parts and replacement of the broken/damaged/non-compatible parts during the guarantee / warrantee period, free of charge, as per the terms & conditions.
- g) We agree to train the personnel of laboratories free of charge, as per the terms and conditions.
- h) If our tender is accepted we will, obtain and arrange:
  1. Security Deposit / Bank Guarantee as defined
  2. Insurances
  3. Any other statutory obligation, if any, prior to commencement of supply of machinery.

- i) We agree for the validity of our tender up to **30/09/2016**
- j) We agree to your right to forfeit our EMD/Security deposit without prejudice to any other right or remedy for the following failures on our part.
  - 1) Changes in terms and conditions of tender are made within validity period.
  - 2) Supply and installation of instrument and equipment is not commenced within specified period as given in the Tender document.
  - 3) Obligations under (e) above are not fulfilled
- k) The bidders shall use only tender documents as issued for submitting his bid and shall comply with various terms and conditions.
- l) Unless and until a formal Agreement/order is prepared and issued, this tender together with your written acceptance thereof, shall constitute a binding contract between us and BTRA.
- m) We understand that you are not bound to accept the lowest or any tender you may receive.
- n) We agree to make a presentation of the products to be supplied by us, before the Purchase Committee if need be on a mutually convenient date.

Authorized Signatory  
of the tenderer

Signature dated  
Designation / Capacity  
Name

**CHECK LIST TO BIDDERS**

1. Get all the clarification regarding terms and conditions, specification etc during the pre bid meeting or by writing to the Director BTRA, prior to submission of bids.
2. The original tender document purchased / downloaded in full has to be submitted along with the technical bids duly signed on all the pages. Adequate copies of the format of the cost details may be taken separately for each instrument.
3. If the tender document is downloaded, separate DD of exact amount as of tender fee is to be enclosed and also the required EMD for each instrument as mentioned in the tender document are to be enclosed. A combined D.D. covering the EMD for all instruments quoted can be drawn and kept in one of the technical bids. Copies of this D.D. can be kept in other technical bids.
4. A covering letter duly signed by the authorized person as per the specimen given at **Annexure VI** of the tender document.
5. Ensure that User certificates from atleast two users, on their letterhead stating that the performance of similar make and model supplied to them is satisfactorily, is enclosed
6. **No commercial terms of reference should be given in the technical bid at all.**
7. Descriptive leaflet / brochure of the equipment quoted are enclosed along with the technical bid.
8. Copy of the certificate for the calibration of similar make and model of the equipment / instrument for which bid is submitted from an accredited calibration laboratory or NPL, if applicable, is enclosed.
9. Ensure that all document are enclosed in **Cover "A"** as mentioned at **Clause No. 18** (page no. 8 to 10 of the tender document).
10. The Technical and commercial bids are submitted separately superscribing "Cover 'A' – Technical bid for ----- instrument or Cover 'B' – Commercial bid for ----- instrument. Last date ..... Though technical bids can be kept together in 1 envelope, ensure that commercial bids are kept separately for each instrument.
11. Proof regarding manufacturer / authorized agent, as the case may be, is enclosed.
12. Prior to submission of bids, bidders have to ensure that the equipment quoted by them is suitable for testing as per the national / international standard mentioned in the specification.
13. Cost details are to be given in the prescribed format only. If more than one model of instrument is quoted, separate sheet may be enclosed.

**Note: If the bidder fails to furnish all the relevant document/ information as mentioned in the tender document, the tender will be rejected.**