

TENDER DOCUMENT

For purchase of Testing Equipment & Accessories Under the Projects CoE

Total No. of Equipment : 9

Tender No. Nitra/Pur/P- 4125

Sale of Tender Document & Downloading up to	: 04.10.2016 (05.30 PM)
Last date & time for acceptance of Tender	: 05.10.2016 (12.00 PM)
Tender opens on	: 05.10.2016 (03.00 PM)

NORTHERN INDIA TEXTILE RESEARCH ASSOCIATION
(Linked to Ministry of Textiles, Govt. of India)
SECTOR-23, RAJ NAGAR, GHAZIABAD-201 002 (U.P.), INDIA
Phone No: 0120-2786434/451, 2783334/586/592/638
Fax No: 0120-2783596, e mail: mail@nitratextile.org
Website : www.nitratextile.org

VOLUME - I
(Part - 1)
TENDER FORM

INSTRUCTION TO TENDERER

1.0 GENERAL

- 1.1. Tender form may be downloaded from NITRA's website www.nitratextile.org up to 04-10-2016 till 05.30 PM. Alternatively printed copies can be obtained from NITRA's office at free of cost.
- 1.2. Modifications if any of the above documents will be made by addenda / corrigenda, copies of which will be sent in duplicate to each tenderer before the due date of the tender. One copy shall be signed, sealed and submitted packed along with the tender documents. Tender documents to be submitted, are as detailed hereafter.

The tenderer 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 tenderer shall use only tender documents as issued for submitting his quote and shall comply to various terms and conditions.

- 1.3. E-mail, Fax, Telex or Telegraphic tenders shall not be entertained.
- 1.4. The tender shall be filled in & submitted in English only. All accompanying literature and correspondence shall also be in English.
- 1.5. No claim for costs, charges, expenses incurred by the tenderer in connection with preparation of tender submission and for subsequent clarifications of their tender shall be accepted.
- 1.6. Bidders are required to submit Earnest Money Deposit minimum @ 2% of the 'Tender Value' (quoted) through Demand Draft, favoring 'Northern India Textile Research Association' payable at Ghaziabad. Disqualified bidder/bidders will get back their EMD within 30 days from the date of opening of financial bid/bids. Demand Draft submitted towards EMD shall be returned after receipt of performance Bank Guarantee from successful bidder.
- 1.7. Nitra reserves its right to alter, change, cancel partially or fully, rescind or modify the terms and conditions of tender without assigning any reason thereof.

2.0 TENDERER TO STUDY DOCUMENTS

- 2.1. Submission of the tender by the tenderer implies that he has read tender documents and has made himself aware of the specifications of machinery and the terms and conditions.

- 2.2 The tenderer shall be deemed to have full knowledge of documents and no extra charges consequent on any misunderstanding or otherwise shall be allowed.
- 2.3 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 shall issue all clarifications, interpretations, meanings and specific directions if any in duplicate in writing to all the tenderers. **One copy of these shall be returned duly signed and seal affixed along with tender submission.**

3.0 SUFFICIENCY OF THE TENDERER

- 3.1 The tenderer 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.

4.0 METHOD OF TENDERING

Each and every paper of tender documents shall be signed by the authorized person(s) and seal affixed.

4.1.0 Authority of signing

- 4.1.1 If the tender is submitted by an individual, it shall be signed by him.
- 4.1.2 If the tender is submitted by a proprietary firm, it shall be signed by the proprietor.
- 4.1.3 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 tender.
- 4.1.4 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 tender.
- 4.1.5 All witnesses and sureties shall be persons of respectable status and probity and their full name, occupations and addresses shall be stated below their signatures.

4.2.0 Stating of Rates

- 4.2.1 The tender shall be filled in English with a neat hand / type and all the figures and words shall be legible.

- 4.2.2 The rates shall be written both in words and in figures. The tenderer shall also show the amount for each item, the total of each section and the grand total of the whole tender.
- 4.2.3 Correction if any shall make Correction, initialing, dating and rewriting.
- 4.2.4 In case of conflict between the figures and words in the rates, the latter shall prevail.
- 4.2.5 The tenders will be verified for accuracy in the arithmetical calculations.

4.3.0 Packing and Submission

- 4.3.1 The tender shall be submitted on or before and at the address given in Appendix-TF given in Tender Form. Any tender received after this date and time shall not be accepted. Tenders shall be packed, marked and sealed and submitted in original with documents listed below. **Tender shall be submitted in three separate sealed cover e.g. “Qualification Bid”, “Technical Bid” & “Financial Bid”.**
- 4.3.2 Sealed cover “**Qualification Bid**” shall contain
 - a) EMD - DD of not less than 2% of tender value to be submitted from any Scheduled Bank. The applicant without EMD will be out rightly disqualified.
 - b) SSI Certificate if the Manufacturer/supplier, are registered as small industries with the Government. The SSI Manufacturer/supplier are exempted to deposit EMD. (Self attested copy of the Registration Certificate is to be submitted).
 - c) Profile of bidder's organization.
 - d) Copy of PAN Card
 - e) Copy of the Registration Certificate of the organization.
 - f) Vendor Evaluation Form (Annexure-II) duly filled along with supporting documents. Failing of which, Chairman, Purchase Committee may disqualify the bid.
 - g) If the bidder does not manufacture the equipment, authorization of the manufacturer to the bidder for marketing and servicing the equipments in India should be enclosed along with the tender. In the absence of such authorization, the tender will not be considered.
 - h) Tender documents, which shall be signed by the authorized person(s) and seal affixed.
- 4.3.3 Sealed cover “**Technical Bid**” shall contain
 - a) Volume II, - Technical Specifications in details of equipment/machine for which bid has been submitted.

- b) List of items including spare parts with quantities for which the financial bid has been submitted.
- c) The equipment for which bid has been submitted should contain the list of clients to whom the respective equipment with same specification has been supplied.
- d) Detailed catalogue for each machine/equipment for which bid has been submitted.

4.3.4 Sealed cover “**Financial Bid**” shall contain financial Specification

- a) Bill of Quantities duly completed with price.
- b) The undertaking that Tender Form is duly completed signed and sealed for entering into agreement with terms and conditions for this contract.
- c) Covering letter in duplicate bringing out the tenderer’s reservations, if any, regarding compliance with the tender document and his own specific assumption, if any.
- d) Bills/Schedule of Quantities duly completed with price which will be inclusive of all taxes (Service Tax, Sales Tax without ‘C’ Form/Concessional Rate), duties (Excise Duty, Custom Duty etc.) any other Govt. levies & all other charges (packing, forwarding, loading-unloading, erection and commissioning, insurance and any other incidental charges by what ever name called). No concessional Sales Tax Form will be provided
- e) It is necessary to fill the Tender Value precisely. In case, all individuals’ items are not quoted, it will be deemed that that Tender Value is inclusive of quotes of all the individual items as per the tender document.
- g)
- h) Volume I (Part -1) Instruction to Tenderer, Volume I (Part-2) - Tender Form, Appendix – TF , Volume-1 (Part-3) Terms & Conditions and addenda / corrigenda /clarification issued before due date of tender duly signed and sealed (in token of acceptance of documents) and Annexure - Format of Bank Guarantee.

4.3.5. Separate bid for each of the items should be submitted in an envelope super scribed **with the name of the item at the top, last date of submission, name and address of the bidder.**

4.3.6. The sealed envelope containing covers ‘**Qualification Bid**’, ‘**Technical Bid**’ & ‘**Financial Bid**’ as above shall be marked in the name of the **Chairman Purchase Committee, NITRA, Ghaziabad** clearly indicating the name of the item for which the bid is submitted.

5.0 **TENDER TO BE VALID FOR**

Rates quoted by the tenderer shall be valid for a period as given in Appendix-TF from the date of submission or till an extended date mutually as agreed on expiry of the said period.

The Tenderer shall not withdraw or revise or alter any conditions, rate(s) quoted within a stated period, unless he is called upon to do so in mutual agreement / negotiations. NITRA reserves the right to cancel the bid if the tenderer revokes or withdraws the tender within a stated period.

5.1 OPENING OF TENDER

5.1.1 The tender shall be opened by the Purchase Committee NITRA on the designated date and time in the confidence or event of any change in the date and time of tender opening, the same would be informed to the tenderer through public notice or individual correspondence

6.0 AGREEMENT

6.1 The successful tenderer shall be bound to implement the contract on receipt of intimation of acceptance from the Purchase Committee, NITRA.

6.2 The successful tenderer shall bear stamp duty and other expenses pertaining to preparation and execution of contract document / agreement.

7.0 PROCEDURE FOR REJECTION

7.1 The Purchase Committee, NITRA Ghaziabad reserves the right to accept or reject any tender or reject all tenders without giving any reasons for their decision.

7.2 Tenders are liable to be rejected in which any of the particulars / prescribed information is either missing or incomplete in any respect and or if the prescribed conditions are not fulfilled.

7.3 Canvassing in connection with tender is strictly prohibited and tender submitted by tenderers who resort to canvassing will be liable to rejection.

7.4 Tenders containing uncalled remarks or any additional conditions are liable to be rejected. Tenderer can bring out in his / their covering letter along with submission of tender cover “Financial Bid”, his / their’s any reservations, additions, omissions, and assumptions they might have made while pricing the tender. Tender Issuing Authority reserves the right to ignore such additions, deletion other than brought out in covering letter packed in cover “Financial Bid”, by the tenderer. Decision of the Purchase Committee NITRA, Ghaziabad, in this regard shall be final and any non-compliance shall reject the bid.

VOLUME – 1
(Part – 2)

TENDER FORM

To,
The Chairman
Purchase Committee
NITRA
Sector-23, Raj Nagar
Ghaziabad – 201 002 (U.P.).

Sub : Supply of textile testing equipment/ machinery to NITRA, Ghaziabad and sub-units (PLSCs) as per the specifications and Quantities mentioned in the tender.

Dear Sir,

- a. Having examined the conditions of Tenders / Specifications of the machinery / equipments, we, the undersigned, offer to supply equipment/machines as mentioned in the Annexure as per the quantity and specifications given in the tender.
- b. We agree to abide by this tender for the period given in Appendix TF 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.
- c. If our tender is accepted, we undertake to supply the Equipment/machinery and install the same in Nitra, Ghaziabad mentioned in the tender within the specified periods in Appendix-TF on receipt of written order from the Purchase Committee, NITRA.
- d. If our tender is accepted we will, obtain and arrange:
 1. Transit insurances
 2. Any other statutory obligation, if any, prior of commencement of supply of machinery.
- e. We agree to your right to cancel the order or stop payment without prejudice to any other right or remedy for the following failures on our part.
 1. Changes to tender are made within Validity Period as specified in Appendix-TF.
 2. Supply and installation of equipment/machineries is not commenced within specified period as given in Appendix-TF.
 3. Obligations under (e) above are not fulfilled.

- f. Unless and until a formal agreement/purchase order is prepared and executed, this tender together with your written acceptance thereof, shall constitute a binding contract between us.
- g. We understand that you are not bound to accept the lowest or any tender you may receive.
- h. We agree to make a presentation of the products to be supplied by us, before the Purchase Sub-Committee on the date specified by it.
- i. Fluctuation in foreign exchange rates in respect of the imported equipment/machinery shall be borne by the equipment/machinery suppliers / authorized Agents.
- j. We hereby declare that the rates quoted by us are the lowest rates.
- k. In case of Imported Items, Please quote Free On Board value (at nearest foreign Airport/ Sea port) & Also quote separately CIP charges up to IGI Airport, New Delhi or ICD Patparganj / Tughlakabad, Delhi (whatever applicable). Also specify compulsorily the packing dimension, Nos. of Box / Cartoon & gross weight of each Box/Cartoon (Packing list). Please specify the name of the port &Country, from where the goods will be dispatched.

Authorized Signatory
to tenderer

Signature dated
Designation / Capacity
Name
Address

WITNESS 1

Signature

ADDRESS

Name

DATE

WITNESS 2

Signature

ADDRESS

Name

DATE

APPENDIX - TF

Sr. No.	Particulars	Remarks
1	Validity of Tender	180 days
2	Address, date and time of submission of the Tender Documents.	The Chairman, Purchase Committee, NITRA, Sector-23, Raj Nagar, Ghaziabad, U.P.-201002, India.
3	Supply, installation and commissioning of the machinery etc.	Within 3 months from the date of placement of order or advance paid failing which order may be cancelled.
4	Period of warranty / performance guarantee of machines.	3 Years
5	Submission of the Programme for delivery.	Within 21 days from the date of the acceptance of the order placed.

SEAL AND SIGNATURE OF TENDERER

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VOLUME – I
(Part – 3)

TERMS AND CONDITIONS

1. Before submissions of the tender, the prospective bidders are expected to examine Technical Specifications of the equipment/machineries allied items required, terms and conditions, etc., given in the Tender Documents. Failure to furnish all information required by the Tender documents may result in the rejection of the bid. Detailed specifications of the items tendered and other accessories should be given, in the bid.
2. The descriptive leaflet giving the technical details of the equipment/machineries allied items should be supplied along with the quotation.
3. All accessories required for using the main equipment/machinery to make it fully operational for production are to be specified.
4. The suppliers of the machinery / equipment should provide both theoretical and practical training after commissioning the machinery or at an appropriate stage.
5. The price quoted should be exclusive of duty, ST, installation etc., which should be shown separately in the bid, if applicable. Freight and Insurance charges are to be indicated separately and the same will be paid at actual against supporting documents produced. Packing, forwarding and other charges as applicable are to be indicated separately in the tender.
6. The terms of payment in case of indigenous equipment/ machinery & accessories shall be as under :
 - a) 20% of the machinery cost ex-factory will be paid as advance against confirmation of orders.
 - b) 70% payment will be made against successful installation, commissioning and demonstration of satisfactory performance of the machinery / equipments at site.
 - c) Balance 10% payment will be made within one month from the date of installation & submission of Performance Guarantee (Annexure-1) for 12 months.
7. In case of Imported Items, 100% Payment will be made through Irrevocable Letter of Credit.
8. Delivery of the equipment/machineries should be as per the commitment from the date of receipt of initial payment against acceptance of order in case of Indigenous machinery and should not be extended.

9. **The pre-installation requirements including space, nature of civil work, power point, power requirement etc. are to be mentioned clearly in the technical bid.**
10. Separate bid for each of the items should be submitted in an envelope super scribed with the name of the item at the top, **“LAST DATE OF SUBMISSION: 05.10.2016 (12.00 PM), NAME AND ADDRESS OF THE BIDDER.** The sealed envelopes shall be marked in the name of **“The Chairman Purchase Committee, NITRA, Ghaziabad”.**
11. The list of organizations (with full addresses, telephone / fax no., e-mail addresses etc.) in India and abroad to which the equipment/machinery were supplied is to be provided in the bid for our reference. Preference will be given if the supplies are made to internationally reputed test houses both in India and other countries particularly for the bided equipment.
12. Validity of the tender should be available up to 180 days. The tender may be rejected if the validity is not given up to 180 days.
13. The supplier should take responsibility for delivering, installing and commissioning of the machinery inside the premises of NITRA, Ghaziabad at the places specified in the tender. The address will be specified in the Purchase Order.
14. Late / delayed tender offers will not be considered at all.
15. Any non-fulfillment of the stipulation given above will make the bid invalid.
16. If the tenders received are not sealed properly, they will not be considered at all.
17. Purchase Committee, NITRA reserves the right to accept or reject any or all the bids either in full or part without assigning any reason thereof.
18. The local supplier shall be entirely responsible for all taxes duties, license fees etc., incurred until delivery of the contracted goods (to the purchaser) up to place of delivery.
19. The delivery installation & commissioning period of the equipment/machinery as agreed to should not be extended under normal conditions. Suitable penalty for non-execution of the order may be enforced to the extent of 1% of the cost of machinery for every week extended. In case of the delay beyond scheduled period due to some unforeseen reason, written permission is required from the Chairman, Purchase Committee, NITRA, with proper justification to avoid penalty.
20. The equipment/machinery & accessories should be delivered, installed and commissioned at the address specified in the order. Service / operation / instruction / calibration manuals (in English) tool kit and gauges must also be supplied along with the machinery and accessories.

21. During the guarantee / warrantee period, servicing / maintenance should be undertaken regularly, subsequently Servicing/maintenance should be undertaken by the manufacturer or authorised agency of the manufacturer.
- 22. Warranty / performance guarantee period of three years should be given in respect of all the machinery and accessories supplied. Terms for service contract after the expiry of said warranty period are to be quoted separately.**
23. The manufacturer / supplier may indicate the Status of the Manufactured Product / or of the performed services as regards to ISO 9000 quality system..
24. List of servicing centres in India is to be indicated with detailed address, telephone no. / fax no. / e-mail address etc.
25. All pre-installation requisites such as Cables, Plugs, Compressor, Stabilizer etc. should be provided by the supplier along with the equipment/ machinery. NITRA, Ghaziabad concerned will provide adequate space, electricity & water, as the case may be, for the successful installation and commissioning of the equipment/ machinery.
26. The Capacity statement of equipment, plant and past performance details should be provided.

NOTE: The bidder has to specifically state that the clauses one to all as above have been read and understood and agree to comply all the above mentioned clauses individually.

ANNEXURE -1

FORMAT OF BANK GUARANTEE OF 10% OF CONTRACT VALUE (ON NON-JUDICIAL STAMP PAPER OF RS.10/-)

Bank guarantee No. _____ Date :
This deed of guarantee made this _____ day of _____ 20____ (Two Thousand
----- 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 Chairman, Purchase Committee, Nitra, which expression shall unless repugnant to the context of the meaning thereof include its legal representatives, successors and assignees.

WHEREAS the Nitra has placed its Purchase Order bearing No. _____
dated _____ on (name and address of the party) _____

(hereinafter called 'the supplier' for the supply of _____.

AND WHEREAS the Chairman, Purchase Committee, Nitra has agreed to pay to the supplier final 10% of the value of the equipment on submission of a Bank Guarantee of equal amount, which will be kept valid upto _____ being the period of 12 calendar months from the date of Bank Guarantee.

In consideration of the Chairman, Purchase Committee, Nitra having agreed to pay to the supplier Rs. _____ Rupees _____ only) being the last 10% of the value of the equipment, we (name of the Bank) hereby undertake and guarantee to make repayment to the _____ of the said 10% amount or any part thereof which does not become payable to the supplier by the Chairman, Purchase Committee, Nitra 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 Chairman, Purchase Committee, Nitra in writing and this guarantee shall be a continuous and irrevocable guarantee up to 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 Chairman, Purchase Committee, Nitra with or without the consent of the Bank or any alterations in the obligation of the parties or by any indulgence, forbearance shown by the Chairman, Purchase Committee, Nitra 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 Chairman, Purchase Committee, Nitra. We (name of the Bank) do hereby undertake to pay an amount equal to 10% of the order value being the amount due and payable under this guarantee without any demur, merely on demand from the Chairman, Purchase Committee, Nitra stating that the amount claimed is due to the Chairman, Purchase Committee, Nitra. In case the Chairman, Purchase Committee, Nitra 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 the Chairman, Purchase Committee, Nitra in the purchase order and payment shall be made to the Chairman, Purchase Committee, Nitra 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 Chairman, Purchase Committee, Nitra may have to hereinafter possess against the supplier and the Chairman, Purchase Committee, Nitra shall be under no obligation to marshal in favour of the Bank any such securities or fund or assets that the Chairman, Purchase Committee, Nitra may be entitled to receiving or have a claim upon and the Chairman, Purchase Committee, Nitra 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 Chairman, Purchase Committee, Nitra on the Chairman, Purchase Committee, Nitra 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 Chairman, Purchase Committee, Nitra under the guarantee shall cease and Bank shall be released and discharged from all liability hereunder.

(SIGNATURE)

PLACE :

DATE :

SEAL

CODE NO.

NOTE : SUPPLIERS SHOULD ENSURE THAT SEAL AND CODE NO. OF THE SIGNATORY IS PUT BY BANKER, BEFORE SUBMISSION OF THE BANK GUARANTEES.

ANNEXURE-II

VENDOR EVALUATION FORM

S.No.	Parameter	Unit	Document to be submitted as proof
1.	Average Sales Turnover in India (Average of Last 3 Financial Years)	Rs.Crores	
2.	No. of clients served in last 3 financial year	Nos.	Year-Wise Client List
3.	Does the manufacturer have its own office in India	Yes/No	Letter from the manufacturer
4.	How Long is the manufacturer operating in India	No. of Years	Letter from the manufacturer
5.	Does the manufacturer have an authorized representative in India or its operates directly	Yes/No	Mention details of the authorized Representative
6.	Does the manufacturer/ authorized representative have an office in NCR	Yes/No	Address of the office in NCR
7.	Does the manufacturer have a technical support team in India	Yes/No	None
8.	Does the authorized representative have a technical support team in India	Yes/No	None
9.	No. of technical support personnel employed in NCR	Nos.	Provide list of technical support team
10.	Have the manufacturer/authorized representative supplied machines/equipment to Government Institutions in India	Yes/No	List of Govt. Institutions along with list of Machines/Equipment supplied to them.

SEAL AND SIGNATURE OF TENDERER

TECHNICAL SPECIFICATIONS (Volume-II)

List of Equipment and Machinery

Sr. No.	Description	Quantity (Nos.)	Location
1	Double Decker Braiding Machine	1	GZB
2	Yarn Covering Machine	1	GZB
3	Automatic Cone Winding Machine	1	GZB
4	Rapier Loom	1	GZB
5	Air Jet Loom	1	GZB
6	Moisture Vapour Transmission Rate (MVTR or WVTR)	1	GZB
7	Flammability Tester (as per NFPA 701- Method-1)	1	GZB
8	Induction Furnace	1	GZB
9	Stab Resistance Tester	1	GZB

(1) Double Decker Braiding Machine: for Ghaziabad

Type of machine : Vertical type capable of duplex braiding on cables used in iron presses

No. of spindles : 16 – 24 each head

Desirables : 1. Rubber feeder attachment
2. Auto thread stop
3. Complete set of accessories including 2 sets of bobbins, thread guides of different diameters etc. for ready to run condition
4. One additional set of all electronic cards, specific cables and wiring with socket if any.
5. Standard spares for 5 years

Note: Preference will be given to flat and circular both braiding systems.

(2) Yarn Covering Machine : for Ghaziabad

a. Model	Lab model having 6-10 spindles
b. Covering type	single / double – optional
c. Take-up speed	40 to 100 mtr / min
d. Final package	cone / cheese
e. Wraps per mtr	150 to 4500
f. Spindle pitch	standard (200 mm)

(3) Automatic Cone Winding Machine : for Ghaziabad

- i. No. of drums – Lab Model (minimum capacity not less than 4 spindles)
- ii. Electronic yarn clearing system
- iii. M/c speed > 1300 mpm
- iv. Individual splicer

(4) Rapier Loom : for Ghaziabad

Type – Rigid/ Flexible rapier

Working width – 210 / 220 cm

Speed – 600 picks per minute or higher

Shedding – 1 looms with positive tappet drive

Take-up & Let off – Automatic motorized

Friction type Piezo-electric weft sensor

Weft selector – 8 colours

Number of accumulators – 4

Weft creel Capacity – 8 cones

Weave Designing – on loom & off loom designing / editing facility

Essential: 1. Point for fitting Stroboscope

2. All accessories required for ready to run condition

3. One extra set of all electronic cards and wiring with sockets if any

4. Standard spares for 5 years with tool box

(5) Air Jet Loom : for Ghaziabad

Type – multiple nozzle (with relay nozzle) with profile reed

Working width – 210 / 220 cm

Speed – 800 picks per minute or higher

Shedding – positive cam drive

Take-up & Let off – Automatic motorized

Friction type Piezo-electric weft sensor

Measuring device – Tube / drum type

Weft selector – 4 colours

Number of accumulators – 4

Weft creel Capacity – 8 cones

Essential: 1. Point for fitting Stroboscope

2. All accessories required for ready to run condition

3. One extra set of all electronic cards and wiring with sockets if any

4. Standard spares for 5 years with tool box

(6) Moisture vapour Transmission rate (MVTR or WVTR): For, Ghaziabad.

Objective: To measure the breathability of single or multilayer fabric/garments used for Protective textiles especially for defence personnel.

Scope: Fabric and other textile materials

Instrument Details:

Specifications	Textile Material
Number of Specimens	Minimum 3 independent test results can be taken
Temperature Range	15°C to 55°C (standard)
Humidity Range	10%RH to 98%RH
Air Velocity	0.5 to 2.5 m/s (customization should be available)
Test Area	As per ASTM E96 latest std
Specimen Thickness	≤3 mm
Specimen Size	As per ASTM E96 latest std
Test Chamber Size	To house whole assembly

- Facility to control airflow inside the chamber
- Instrument shall follow latest standard ASTM E96
- All the accessories required for testing shall be provided.
- Necessary traceability certificates shall be provided.

(7) Flammability Tester as per NFPA 701 (Method-I) : For Ghaziabad

Objective: To measure flame resistance properties of protective textiles especially for curtain type material.

Instrument Details:

Flammability Tester with following specifications:

- It shall conform NFPA 701 (Method-1)
- A standard laboratory hood, minimum 820 mm wide × 750 mm high × 630 mm deep (32 in. × 30 in. × 25 in.), or other suitable enclosure shall be used and shall provide a draft-free environment around an open-face test chamber.
- The hood or other enclosure shall be equipped with an exhaust fan for exhausting the smoke. Proper exhausting system shall be provided by the supplier.
- All the dimension shall be as per NFPA 701 Method-1
- All interior surfaces of the cabinet shall be painted with a flat black paint that withstands the heating that occurs in the cabinet.
- At least 3 sample holders (pin bar for mounting) shall be provided.
- All the accessories required for testing shall be provided.
- Necessary traceability certificates shall be provided.
-

(8) Induction Furnace: For, Ghaziabad.

Objective: The induction furnace shall be used for laboratory testing purpose. It will be used to test Molten metal splash on work-wear.

Instrument Details:

- It shall be able to provide molten metal of Aluminum, Copper, Iron & Steel.
- At least 10 crucibles shall be providing with the induction furnace.
- At least 2 crucible holders shall be provided
- All the safety gadgets like Gloves, Apron, and Shoes etc. shall be provided
- Temperature measuring device shall be provided to measure the temperature of molten metal.
- All the accessories required for testing shall be provided.
- Necessary traceability certificates shall be provided.

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(9) Stab resistance tester: For, Ghaziabad.

Objective: For analysis of stab resistance property of protective material.

Instrument Details:

- It should follow NIJ standard 0115.00
- It should determine minimum performance requirements for stab resistance of personnel body armor intended to protect the users against slash & stab threats
- It should test level 1, level 2 & level 3 protections.
- Various types of knives & blades shall be provided.
- Instrument shall be able to test strike energy & over test strike energy.
- Instrument shall be automatic & data/results shall be providing on computer's laptop shall be provided with the instrument.
- All the accessories require for the instrument shall be provided by the supplier.