

TENDER DOCUMENT

**For purchase of Testing Equipment & Accessories Under the Projects CoE/
Modernization/up gradation of Power Loom Service Centers (PLSCs)**

Total No. of Equipment : 38

Tender No. Nitra/Pur/P- 6084

Sale of Tender Document & Downloading up to	: 05.01.2016 (05.30 PM)
Last date & time for acceptance of Tender	: 06.01.2016 (12.00 PM)
Tender opens on	: 06.01.2016 (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 05-01-2016 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 Nitra reserves it 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 two separate sealed cover e.g. “Financial Bid” & “Technical Bid”.**

4.3.2 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.
- f) Validity of bid/bids (technical & financial) should be 180 days.
- g) 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.

4.3.3 Sealed cover “**Technical Bid**” shall contain

- a) Volume II, - Technical Specifications in details.
- 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 Cliental List of internationally reputed Testing Laboratories located in India and other countries,
- d) Profile of bidder’s organization.

- e) 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.

4.3.4. 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.**

4.3.5. The sealed envelope containing covers ‘**Financial Bid**’ & ‘**Technical 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 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: 06.01.2016 (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

**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 be considered 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.

TECHNICAL SPECIFICATIONS
(Volume-II)
List of Equipment and Machinery

Sr. No.	Description	Quantity (Nos.)	Location
1	Stelometer with torsion balance	1	VNS
2	Fabric Stiffness tester	2	VNS-1; KNP-1
3	Felting Shrinkage Tester	1	LDH
4	Hard Card Punching machine	1	VNS
5	Powerloom with 24 hook dobby	1	VNS
6	Automatic Pirn Winding Machine	1	VNS
7	D. G. Set 10 KW	1	VNS
8	Double Decker Braiding Machine	1	GZB
9	Quardant Balance	1	GZB
10	Digital Thickness gauge & compressibility Tester	1	GZB
11	Yarn Covering Machine	1	GZB
12	Automatic Cone Winding Machine	1	GZB
13	Rapier Loom	3	GZB/ VNS
14	Mechanical Jacquard (400 Hooks)	1	VNS
15	Circular Knitting Machine	1	GZB
16	Straight Knife Cutting Machine	1	GZB
17	Band Knife Cutting Machine	1	GZB
18	Fusing Machine (Heavy Duty) Lab Model	1	GZB
19	Direct Drive S/N Lockstitch M/c with Automatic Thread Trimmer	20	GZB
20	Direct Drive D/N Lock Stitch M/c with Organized Split Needle Bar	1	GZB
21	Overlock M/c for Heavy Weight Material	1	GZB
22	Computer Controlled High Speed, Lockstitch Button Sewing M/c	1	GZB
23	Computer Controlled, High Speed, Lockstitch Button Holing M/c	1	GZB
24	Computer Controlled, High Speed, Bartacking m/c	1	GZB
25	Computer Controlled Shape Tacking M/c with Heat Cutter	1	GZB
26	High Speed, Flat Bed, 2-Needle Double Chain Stitch M/c	3	GZB
27	High Speed, Flat Bed Top and Bottom Cover Stitch M/c	3	GZB
28	Computer Controlled Eyelet Button Holing M/c	1	GZB
29	Computer Controlled Direct Drive S/N Lock Stitch M/c for Zig-Zag Sewing	1	GZB

Sr. No.	Description	Quantity	Location
30	Belt Loop Making Machine	1	GZB
31	Elastic Band Attaching Machine	1	GZB
32	Computerized Cyclic Machine	1	GZB
33	Plotter	1	GZB
34	Digitizing board	1	GZB
35	Design Concept Software for Technical Textiles	20	GZB
36	Yarn Faults Classification system	1	GZB
37	Yarn Un-evenness Tester	1	GZB
38	Single Yarn Strength Tester	1	GZB

(1) Stelometer : for Varanasi

Objective : To determine strength & elongation of fibre tufts

Scope : Cotton , wool and synthetic fibres

Instrument Details:

Based on constant rate of loading .

Strength reading on graduated scale from 0-7 Kpa (step 0.1 kpa) elongation reading on a graduated scale from 0- 50 % .

Complete with 0” clamps and 1/8” spacer, Fibre Pretension Tweezers, clamps holder, Tweezer Holders, and relating tweezers .

A torsion balance with a capacity of 5 mg and an accuracy of 0.02 – 0.05 mg or Electronic Balance of similar capabilities

Built in accordance with ASTM D 2524 , IWTO 32 , 82

Accessories Required :

Pressly clamp with 1/8” spacer, torque vice, fibre clip, pair of comb, sample clip, wrench and tweezer.

Related Standard :

ASTM D 1445 , ISO: 3060 , BS 5116

(2) Fabric Stiffness Tester (Pneumatic): for Varanasi & Kanpur

Electronic Battery operated Fabric Stiffness Tester with following features -

A plunger of 25.4 mm (1 inch) diameter pushes the fabric through a 38 mm (1.5 inch) hole and the maximum force is recorded.

Force measurement up to : 50 Kgf

Electronic Measurement

Built in accordance of ASTM D 4032

Digital display

Accessories : Templates to cut the specimen

(3) Felting Shrinkage Tester: for Ludhiana

Objective: To test felting shrinkage of woolen textiles

Instrument details & requirements:

The instrument should include all the accessories required to perform felting shrinkage test on wool fabric.

The standard brand washing machine (5-6 kg capacity) Front Loading should be provided

A tumble dryer matching the capacity of washing machine shall be provided with the item

Shrinkage measuring template should be provided along with the item

Related Standard: It should fulfill the felting shrinkage as per IS 1313

(4) Hard Card Punching Machine : for Varanasi

- Suitable for punching standard hard cards upto 400 hooks
- foot operated
- with graph mounting board, parallel ruler and ruler sliding device

(5) Power loom with 24 hooks doobby : for Varanasi

- working width – 52” with warp & weft stop motions
- Peg doobby – medium – 24 hooks
- in ready to run condition

(6) Automatic Pirn Winding Machine : for Varanasi

- with bunch motion
- number of spindles – 04
- auto pirn trolley with rotary magazine
- auto thread stop motion
- suitable for spun & filament yarn winding
- suitable to accommodate pirns from 180 mm to 220 mm

(7) Silent D. G. Set 10 KVA, 3phase for Varanasi

- with AVR system
- 3 phase, 50 Htz
- Brushless, Class H insulation
- starting system 12 V DC Battery
- Air /Water cooled type
- Fuel tank capacity – sufficient for working 8 to 10 hrs.

(8) 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
1. Auto thread stop
 2. Complete set of accessories including 2 sets of bobbins, thread guides of different diameters etc. for ready to run condition
 3. One additional set of all electronic cards, specific cables and wiring with socket if any.
 4. Standard spares for 5 years

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

(9) Quardant Balance : for Ghaziabad

- Suitable for measuring count of sliver, roving & yarn in Ne

(10) Digital Thickness gauge & compressibility Tester: for Ghaziabad

- Electronic Hand operated micrometer with following features –
- Measuring Range : 0-10 mm
- Accuracy : 0.02 mm
- Head Diameter(Pressure Foot) : 50 mm
- Lower Plate diameter(Anvil) : more than 50 mm
- Test Pressure : 0.5 , 1 , 2 , 5 , 10 & 20 Kpa

(11) 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) |

(12) 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 > 1600 mpm
- iv. Individual splicer

(13) Rapier Loom : 3 for Varanasi / Ghaziabad

Type – Rigid/ Flexible rapier

Working width – 190 cm

Speed – 400 picks per minute or higher

Shedding – 2 looms with positive tappet drive & 1 loom with Electronic dobbie – capacity – 20 to 24 shafts

Take-up & Let off – Automatic motorized

Friction type Piezo-electric weft sensor

Weft selector – 8 colours

Number of accumulators – 16

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

Essential:

1. All accessories required for ready to run condition
2. One extra set of all electronic cards and wiring with sockets if any
3. Standard spares for 5 years

(14) Mechanical Jacquard 400 hooks : for Varanasi

- number of hooks – 400 with chain / lever drive from loom shaft

- double lift double cylinder type – suitable for fine to medium variety fabrics

- with all required accessories for ready to run condition

(15) Circular knitting Machine: for Ghaziabad

Type- Single Jersey

Machine Diameter -30 inches

Number of feeders-96

Machine Gauge-24

4 cam track with all Knit type

Positive feeders

Lycra feeding attachment on 50 % of feeders

Central processor Unit with display

Yarn Creel - Aluminium Tubes & Creel with reserve

Central Stitch Length Adjustment

Thread feed measuring and Monitoring device

Essential Spare Parts including followings

- 1) Needles ----25% of all four type of needles (A,B, C, D).
- 2) Sinkers----200.
- 3) Tuck cams --- 25% of total Cams (feeders x4)
- 4) Float cams ---25% of total Cams (feeders x4)

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

All accessories required for ready to run condition

(16) Straight Knife Cutting Machine: for Ghaziabad

Requirements :

Speed	:	Dual Speed
Blade	:	High Speed Steel
Blade Size	:	5", 6", 7", 8", 9", 10", 11.5" & 13"
		12.7 cm – 33.0 cm
Cutting Capacity	:	3.5" – 11.5"
		8.89 cm – 29.2 cm
Stroke size	:	1 ¹ / ₈ " 1 ¹ / ₄ " 1 ¹ / ₂ "
		8.89cm 11.4cm 13.9 cm

(17) Band Knife Cutting Machine: for Ghaziabad

Requirements :

Cutting capacity	180 mm
Table size	1500 x 2100mm
Table height	720 ~ 790mm
Arm size	900mm
Speed control	Variable
	570m/min ~ 1140m/min

(18) Fusing Machine (Heavy Duty) Lab Model: for Ghaziabad

Requirements:

Fusing width	900mm
Max. Belt speed	10.2 m/min
Max. Pressure	41 N/cm (4.02 kgf/cm)
Max. Temperature	195°C
Heating time	6 - 28 sec.

(19) Direct Drive S/N Lockstitch M/c with Automatic Thread Trimmer : for GZB

Requirements :

Machine head type	Dry-head type
Application	Light , Medium and Heavy weight
Max. sewing speed	4,000 rpm
Max. stitch length	5mm
Presser foot	By knee 15mm

(20) **Direct Drive D/N Lock Stitch M/c with Organized Split Needle Bar: for GZB**

Requirements:

Application	Standard, Light-weight materials, Jeans and heavy-weight
Max. sewing speed	3,000 rpm
Max. stitch length	5mm
Presser foot	By knee: 12mm, By knee with wiper: 9mm

(21) **Overlock M/c for Heavy Weight Material : for Ghaziabad**

Requirements:

Stitch type	Safety stitch
Max. sewing speed	6,000 rpm
Needle gauge (mm)	4.
Over edging width	4.8, 6.4
Differential feed ratio	Gathering 1:1.75 (max.13.8) Stitching 1:0.6

(22) **Computer Controlled High Speed, Lockstitch Button Sewing M/c : for GZB**

Requirements:

Max. sewing speed	2,700 rpm
Button size	Type: Round-shaped, flat button (2- holed, 4-holed) Size: ϕ 9~20mm
Stitch length	0.1 ~ 10mm (0.1mm step)
Work clamp foot	Max. 11mm
No. of standard patterns	50 patterns
No. of data that can be input	200 patterns (for up to 150 patterns, sewing data can be added)
Memory medium	EPP-ROM / EP-ROM
Button feed mode	Automatic feed mode, non-feed mode, and small-lot sewing mode

(23) **Computer Controlled, High Speed, Lockstitch Button Holing M/c : for GZB**

Requirements :

Max. sewing speed	4,200 rpm
Size of cloth cutting knife	6.4~31.8mm (1/4'~1-1/4')
Bartacking width	Max. 5mm (with special specification part Max.10mm)
Buttonhole length	Max. 41mm (optional 70mm, 120mm)
Work clamp	14mm (17mm when the reverse-rotation needle-up function is used)
Number of standard patterns	30 patterns
Number of patterns that can be input	Max. 99 patterns

(24) **Computer Controlled, High Speed, Bartacking m/c : for Ghaziabad**

Requirements :

Application	Standard
Max. sewing speed	3,000 rpm
Sewing area	30mm (L) x 40mm (W)
Stitch length	0.1~10mm (0.1mm step)
Work clamp foot	Standard 14mm (17mm when the reverse-rotation needle-up function)
Hook	Standard shuttle hook
Number of standard patterns	50 patterns
Number of data that can be input	200 patterns (for up to 150 patterns, sewing data can be added)

(25) **Computer Controlled Shape Tacking M/c with Heat Cutter : for Ghaziabad**

Requirements :

Application	Extra heavy-weight
Sewing area	60mm (L) x 100mm (W)
Max. sewing speed	2,200 rpm
Max. stitch length	0.1 ~ 10.0mm
Number of data that can be input	Max. 64 patterns

(26) **High Speed, Flat Bed, 2-Needle Double Chain Stitch M/c : for Ghaziabad**

Requirements:

Max. sewing speed	6,000 rpm
Stitch length	1~4mm
Pressure foot	By knee: 10mm

(27) **High Speed, Flat Bed Top and Bottom Cover Stitch M/c : for Ghaziabad**

Requirements :

Application	Universal
Max. sewing speed	6.500 rpm
Needle gauge	4.8, 5.6, 6.4mm
Max. stitch length	1.2~3.6mm

(28) **Computer Controlled Eyelet Button Holing M/c : for Ghaziabad**

Requirements:

Thread trimming style	Longer remaining thread
Max. sewing speed	400~2,200rpm (100rpm step)
Sewing length	10~38mm (with thread trimmer) 10~50mm (in case looper thread trimming device is removed)
Needle throwing width	2~3.2mm*
Taper bar length	0mm, 3~15mm

(29) **Computer Controlled Direct Drive S/N Lock Stitch M/c for Zig-Zag Sewing : for Ghaziabad**

Requirements :

Machine head type	Dry-head type
Type	Standard
Max. sewing speed	4,000 rpm
Max. zigzag width	10mm (in increments of 0.1mm)
Max. feeding amount	5mm
Number of patterns for standard stitching	8 types / 14 patterns
Custom pattern memory capacity	Internal memory, Max.20 patterns, Extended memory, Max.999 patterns
Continuous stitching pattern	Max. 10 patterns, 20 step, 500 stitches/step

(30) **Belt Loop Making Machine : for Ghaziabad**

Requirements :

No. of needle	2
No. of Thread	3
Gauge (inch)	$\frac{3}{16}$, $\frac{7}{32}$, $\frac{1}{4}$
No. of stitch (Stitch/inch)	9 ~ 12
Pressure foot lift (mm)	8 mm
Needle bar stroke (mm)	34 mm
Max. speed (rpm)	4500

(31) **Elastic Band Attaching Machine : for Ghaziabad**

Requirements :

No. of Needle	4
No. of Thread	8
Gauge (inch)	$\frac{3}{4}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$, $\frac{1}{4}$ - $\frac{1}{2}$ - $\frac{1}{4}$
Stitch/inch	8 ~ 14
Presser foot lift (mm)	10
Needle Bar Stroke (mm)	34
Max. Speed (rpm)	4500

(32) **Computerized Cyclic Machine : for Ghaziabad**

Requirements:

Sewing area	130mm (X) x 60mm (Y)
Feeding frame type	Motor-driven feeding frame (Lifting amount : 25mm)
Application	Heavy-weight material

(33) **Plotter : for Ghaziabad**

Requirements:

- Maximum print width 24"
- Inkjet plotter
- Web connectivity, Wi-Fi and LAN
- Print resolution up to 2400 dpi
- Should be able plot to various formats such as jpg, jpeg, bmp, tiff, cdr,
- Visual ink level indicators

(34) **Digitizing board : for Ghaziabad**

Requirements:

- Active work area should not exceed 42x58 inches
- Should be equipped with Photo digitizing feature
- Should be compatible with leading CAD pattern design software used in India

(35) **Design Concept Software for Technical Textiles : for Ghaziabad**

The software should have following minimum features:

- All standard tools used for pattern creation such as lines, curves & notches.
- Fabric stress analyzing tools
- Provision for Virtual simulation
- Digitizing 2D patterns
- Flattening 3D patterns
- Automatic nesting
- Pattern distortion analysis based on type of fabric
- All standard features for Marker making such as part duplication, rotation, symmetry, Analogy
- Plotting single, nested pattern, Maker
- Online support for maintenance and software updates
- Can be used for automotive textiles, protective textiles, medical textiles and sportech applications

(36) **Yarn Faults Classification system: for Ghaziabad**

The instrument is required for classification (length / dia) & counting of the seldom occurring yarn faults and foreign matter (contamination) by sensing the running yarn.

Instrument should possess following features and specifications :

- Offline Classification system should have features like determining yarn profile and automatic clearing curve including classification of foreign fibre and PP faults for white PP contamination
- Capable for testing of all types of cleared and un-cleared Spun yarn (natural, synthetic and blends) based on measuring principle for mass- capacitance , for hairiness-Optical ,for foreign matter-Visible light and White PP based on InfraRed , Count Range -3^s to 200^s
- Electronic Measuring device – capacitance and optical units with guide alignment of the yarn in a straight path through the measuring zone.
- Control Unit – that supplies the signal to operate the measuring device and , also in return , receives the registration signal from the measuring device , stores the information received , responds to this information according to a predetermined setup , and outputs computed data at the end of the test.

- Winder – A power driven take up device equipped with a winding drum (06 Nos.) of uniform diameter and capable of operating at constant take-up speed (300 to 1200 m / min)
- Yarn Tensioning Device – A unit for the control of the yarn in the measuring zone so that the yarn travels in a straight path , free from kniks , without stretching the yarn.
- Operating Mode : Cut and classification mode
- Faults Classess : Mass -45 (STK -16 , Extended STK -3 , LTK -3 ,Extended LTK-4,STN-6, Extended STN-1 ,LTN-4 ,Extended LTN -4) Foreign Fibre - 34 , PP -12
- Measuring Heads :06 ;
- Auto air blow system
- Scatter plot of yarn faults in yarn faults matrix and Scatter plot of foreign matrix
- Determination of optimum clearing curve , based on scatter plot
- On line visualization of yarn faults
- On line simulation of defects in fabric or garment
- Cut prognosis indicating the number of cuts with particular setting
- Monitoring of yarn count
- Detection of incorrect material
- Information on length / weight of wound yarn

Other requirements : All accessories as required (Provide list of the accessories with Technical Bid)

(37) Yarn Un-evenness Tester : for Ghaziabad

Instrument is required for testing of un-evenness of textile strand viz. sliver , roving & yarn , and also imperfections and hairiness of the spun yarn by means of continuous runs based on capacitance measurement for un-evenness and photoelectric measurement for yarn hairiness.

Instrument should possess following features and specifications :

Measuring Device , featuring

- Several measuring condensers ,grouped into one unit for strands of varying linear density.
- Package holders , guides , tension Devices and take-up mechanism , which allows for , or assist in , uniform delivery of the strand at the specified speed without undue acceleration or deceleration and at a reasonably constant tension.
- An adjustable speed motor to advance the strand
- Signal processing unit & recorder which indicates the values of CV or U and can calculate the imperfections , hairiness index in yarn and can present

various graphs / Test details of the periodic variations of the linear density and hairiness.

- Numerical Results required : U_m , CV_m , CV_m at various cut lengths (1,3,10,50,100m, inert and half inert) ,Irregularity index , Max & Min value of mass (1,3,10m, and half inert cut lengths) , Imperfections (Thin -30,-40,-50 -60%) , Thick (+35 ,+50 ,+70 ,+100) , Neps (+140 , +200 , +280 ,+ 400%) , Relative Count , Hairiness Index &sh ,Max & Min value of hairiness (1,3,10 m cut length)
- Graphical Results for mass and Hairiness : Diagram , Diagram at different cut lengths , 2D & 3D spectrogram , 2D & 3D Variance length curve , Histogram
- Analysis Reports :Spectrogram Analysis , VL curve Analysis , Exception highlighting (Graphical & Numerical) , Trend Report & comparison Reports
- Selection of running speed ; Yarn -25 ,50,100,200,400m / min ,Sliver & Roving :25, 50 and 100 m / min
- Testing Time : 0.5 , 1.0 , 2.5,5,10 & 20 Min
- Inspection (stop) facility
- Option for Flexible and consolidated test reports .
Other requirements : All accessories as required (PI Provide list of the accessories with Technical Bid)

(38) **Single Yarn Strength Tester :**

Instrument is required for testing of tensile properties such as Single Yarn strength , Tenacity & Elongation % of yarns , either in single , plied , or cabled form based on CRE principle .

Instrument should possess following features and specifications :

- Automatic measurement of tensile properties up to 100N by high precision load cell based on CRE principle . Accuracy 0.001N
- For 500 mm test length up to 50 % , accuracy $\pm 1\%$
- Fully automated operation with pneumatic control
- Auto pre-tension depending upon the count selected
- Specimen length – Adjustable from 200 to 500 mm , cross Head Resolution : 1 mm
- Testing speed : 100 to 5000 mm / min
- Pneumatic Jaw grips .
- Calibration-Multipoint –standard mass
- Electronic Display of the test results
- Numerical Results for -breaking force , Elongation , tenacity , time to break and stress – strain curve .
- Graphical Results – Force Elongation curve and Scatter plot

Other requirements : All accessories including Yarn Hooks , Lea clamps , calibration weight as required (Provide list of the accessories with Technical Bid)