

**TENDER NOTICE**

**TENDER DOCUMENT**

**FOR**

**SUPPLY**

**OF**

**10 End BASIN CAPACITY MULTI END REELING MACHINE**

**And**

**ELECTRICAL HOT AIR DRIER**

**BIHAR STATE INDUSTRIAL DEVELOPMENT CORPORATION LTD.**

**(A Govt. of India Undertaking)**

**1<sup>st</sup> Floor, Indira Bhawan, R.C. Singh Path, Boring Canal Road, Patna**

**Phone No. 0612-2532165, Email – [bsidc\\_bsidc@rediffmail.com](mailto:bsidc_bsidc@rediffmail.com)**

**Website. [www.bsidc.in](http://www.bsidc.in)**

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**BIHAR STATE INDUSTRIAL DEVELOPMENT CORPORATION LTD.**  
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Phone No. 0612-2532165, Email – [bsidc\\_bsidc@rediffmail.com](mailto:bsidc_bsidc@rediffmail.com)  
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## **Schedule of Tender**

**TENDER DOCUMENT FOR THE SUPPLY  
OF  
10 End Basin CAPACITY MULTIEND REELING MACHINE AND ELECTRICAL  
HOT AIR DRIER**

**PRICE OF TENDER DOCUMENT: Rs. 500.00**

Date of Sale of Tenders : 22-01-2019

Last date & time for sale of Tenders – 30-01-2019  
till 5:00 pm

Last Date of Submission of Tender – 16-02-2019 at  
3:00 pm

Date of opening of Tenders – 16-02-2019 at 5:00  
pm

**Chairman cum Managing Director**  
(Bihar State Industrial Development Corporation).

**BIHAR STATE INDUSTRIAL DEVELOPMENT CORPORATION LTD.**  
**(A Govt. of India Undertaking)**  
**1<sup>st</sup> Floor, Indira Bhawan, R.C. Singh Path, Boring Canal Road, Patna**  
**Phone No. 0612-2532165, Email – bside\_bside@rediffmail.com**  
**Website. www.bsidc.in**

**TENDER NOTICE**

**TENDER NOTICE FOR THE SUPPLY OF REELING INSTRUMENTS/EQUIPMENTS AND HOT AIR DRIER**

1. BSIDC Ltd., Patna invites sealed tenders in two bid form (Technical & Financial) separately from reputed manufacturer/authorized dealers in India and abroad for supply of REELING instruments/equipment and Electrical Hot Air Drier indicated below as per technical specifications specified in bidding documents.
2. A complete set of tender documents may be purchased by interested eligible bidders from **22-01-2019 to 30-01-2019 up to 5:00 pm.** on submission of a written application with a non-refundable Bank-draft of Rs. 500.00./-(Rupees Five Hundred) only towards cost of Tender Document in favour of " BIHAR STATE INDUSTRIAL DEVELOPMENT CORPORATION LTD " payable at Patna.  
The same can also be downloaded from Dept. of Industries' website <http://Dept. of Industries.bih.nic.in>. In this case bid shall be accompanied along with a demand draft Rs. 500.00 as cost of tender document.
3. Tenders (technical & financial) must be submitted in two separate envelopes on or before 16-02-2019 P.M by 5 pm at "1st Floor, Indira Bhawan, R.C. Singh Path, Boring Canal Road, Patna -800 001. Techno-commercial bids will be opened on the same day i.e.16-02-2019 **at 5:00 P.M** in the presence of bidders or their authorized representatives. Who would like to be present? The date of opening of financial bid will be communicated later on to the successful bidders whose techno commercial bid is found suitable by the Dept. of Industries.
4. All the tenders must be accompanied by bid security in accordance with the instructions given in bidding document.
5. BSIDC Ltd. reserves the right to reject any or all the bids without assigning any reason whatsoever.
6. In the event of date being declared as holiday, the date for submission and opening of bids shall be the following working day of the appointed date and time.
7. Terms and Conditions: As detailed in bidding documents.

**Chairman cum Managing Director**  
(Bihar State Industrial Development Corporation).

**PART-A**  
**General**  
**Terms and Conditions**  
**Of**  
**Tender**

**TENDER NOTICE**

1. Bihar State Industrial Development Corporation, Patna invites sealed tenders in two bid form (Technical & Financial) separately from reputed manufacturer/authorized dealers in India and abroad for supply of REELING instruments /equipment and Electrical Hot Air Drier as per technical specifications specified in bidding documents.
2. The details of tender notice, eligibility of bidder, instructions to bidders, scope of work, bidding procedure and terms & conditions are available in the bidding document. Bidding document may be downloaded from website. The schedule of bidding is hereunder;

1	Sale / issue of BOQ/bidding Document	From 22-01-2019 to 30-01-2019 up to 5:00 p.m.
2	Receipt of bids	Up to 16-02-2019.at 5:00 pm
3	Opening of technical bids	16-02-2019.at 5:00 pm
4	Opening of financial Bids	Shall be informed to technically qualified bidders
5	Cost of BOQ/bidding document	Rs. 500.00 Vide Demand Draft in favour of Bihar State Industrial Development Corporation Ltd. , Patna

3. The bids must be accompanied by bid security in accordance with the bidding documents.

**BIHAR STATE INDUSTRIAL DEVELOPMENT CORPORATION**  
**(A Govt. of India Undertaking)**  
**1<sup>st</sup> Floor, Indira Bhawan, R.C. Singh Path, Boring Canal Road, Patna**  
**Phone No. 0612-2532165, Email – bside\_bside@rediffmail.com**  
**Website. www.bsidc.in**

**1.0 GENERAL TERMS AND CONDITIONS**

**1.1** (i) The Tender Document along with detailed specifications of the instruments/equipment can be obtained in person from the office of the **Bihar State Industrial Development Corporation**, Patna or by the authorized representative on submission of prescribed tender fee in the form of demand draft drawn in favour of Bihar State Industrial Development Corporation Ltd., Payable at Patna.

(ii) The bid document may also be downloaded from BSIDC Ltd. website . Bidders using downloaded tender forms from BSIDC Ltd. website must submit cost of tender document by demand draft drawn in favour of **Bihar State Industrial Development Corporation Ltd., Payable at Patna.** Payable at Patna along with technical bid. The bid form downloaded through BSIDC Ltd. website submitted without tender fees will not be accepted.

(iii) Bid must be submitted in English. In the case of foreign manufacturers, the bids should be submitted by the authorized agents/representatives, they must Enclose authorization letter issued by their manufacturer. In case of the equipment / instruments of Indian origin the bids shall be accepted from manufacturer or its authorized representative/agent.

**1.2** The tender document is not transferable by the purchaser. The bid form in the tender document at Annexure-II will be used for technical bid. Tender document downloaded from the BSIDC Ltd. website can also be used. Bids made on photocopy etc. will not be considered. However, the additional sheets containing the same Pro-forma may be used for each item. Each sheet must be signed by the bidder. The price bid must be in the form provided herewith at Annexure-III. It should be sealed in separate envelope.

**1.3** The tender will not be accepted from the firm to whom the document has not been issued by the BSIDC Ltd. or bid form downloaded from the BSIDC Ltd. website without tender fee.

**1.4** The BSIDC Ltd. reserves the right to accept or reject any or all the tenders in part or full without assigning any reason thereof

- 1.5 The bidder is expected to examine all instructions, forms, terms and conditions and specifications mentioned in the bid document carefully. Failure to furnish all information required by the bid documents or submission of a bid not substantially responsive to the bid document in every respect will be at the bidder's risk and may result in the rejection of its bid.
- 1.6 The BSIDC Ltd. at its discretion may extend the last date of submission of tender and opening of tenders. The final authority for acceptance of a tender will rest with the BSIDC Ltd. who does not bind himself to accept the lowest tender and may accept or reject any or all of the bids received without assigning any reason.
- 1.7 Documents, literature, diagrams / leaflets, original catalogue of equipment and samples etc., enclosed with the bids shall become the property of the BSIDC Ltd. without any cost.
- 1.8 **WARRANTY:** The comprehensive warranty period will be for thirty-six months starting from the date of successful commissioning of the instrument. Under this warranty, upon the receipt of such notice, supplier / agent shall, within the period specified, repair /replace the defective instrument or spare parts thereof at the ultimate destination. The supplier/agent shall take over the replaced parts/goods, in the event of any correction of defects or replacement of defective material. In such cases, the warranty for the corrected/replaced materials shall be extended to the left over period of warranty. The comprehensive warranty includes maintenance of equipment including spare parts etc.
- 1.9 The tender would be regarded as turned down, if no award of contract has been obtained till the expiry of the tender validity. No separate communication will be made in this regard.
- 1.10 The items have to be supplied in standard packing at **Supaul and Kishanganj, office of \_\_\_\_\_**, Patna
- 1.11 In case of the date of submission and the date of opening of tender is declared as Public Holiday, the tender shall be submitted and opened on the next working day at the same time.
- 1.12 The bid shall contain no interlineations, erasures or overwriting words except as necessary to correct errors made by the bidder, in such case, correction shall be initialed by the person or persons signing the bid.
- 1.13 Late and delayed tenders will not be considered and shall be returned unopened to the Bidder.
- 1.14 It is advised that the outside suppliers should send the tender through Registered Post. However, the local supplier may drop their tenders in tender Box kept in, BSIDC Ltd., Patna for this purpose. In no case, tender should be handed over to any employee of the BSIDC Ltd..
- 1.15 Canvassing in any form will disqualify the bid.

1.16 Request for the tender document for bidding through Telex, Telegram, Telephone, Money Order and Tele-fax shall not be entertained.

1.17 **All the Tenders should be addressed to:**  
**Chairman cum Managing Director**  
**Bihar State Industrial Development Corporation**  
**(A Govt. of India Undertaking)**  
**1<sup>st</sup> Floor, Indira Bhawan, R.C. Singh Path, Boring Canal Road, Patna**  
**Phone No. 0612-2532165, Email – bsidc\_bsidc@rediffmail.com**  
**Website. [www.bsidc.in](http://www.bsidc.in)**

## 2.0 SUBMISSION OF BID

2.1 The bid prepared by the bidder and all correspondence and documents relating to the bid shall be written in English language. The check list for submission of bid is available at **Annexure - IX**

2.2 The Bidders are requested to quote the rates item-wise for each equipment on FOR destination basis including total price of each instrument separately indicating the Govt. levies, and other expenditure item-wise. The freight charges and insurance will be borne by the buyer in the case of imported items. **For indigenous items supplied by Indian firms, the rate should be FOR central REELING and Hot Air Drier** , Excise Duty excluded price should be quoted as necessary exemption certificate as applicable will be supplied by the BSIDC Ltd. Taxes and other levies, insurance freight etc. if any, should be indicated separately also. No C/D form will be issued by the BSIDC Ltd. for GST

### **IMPORTANT:**

**Bidder is expected to examine the bidding documents carefully and are deemed to have received and read all relevant documents. It shall be the responsibility of the bidder to request for copy of any missing document. Failure to do so will be at bidder's risk.**

**The Supplier should attach a copy of financial bid / Pro-forma Invoice of the Instrument quoted (without cost / price figures) along with the technical bid to assess the item / components quoted in the bid. The manufacturer will give the undertaking (Annexure IV) that he or his authorized dealer will service /repair the equipment during guaranty / warranty / maintenance contract.**

2.4 It may be noted that mere quoting lowest rates will not entitle any firm to get the order. For qualifying technical bid the quality of the item being offered, the past performance, supply etc. will also be taken into consideration. The BSIDC Ltd. may call for any details, explanation, regarding technical & financial aspect.

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2.5 **Bidder can quote the rates for all the instruments tendered or some of the instruments or one instrument. Separate price bid and technical bid should be submitted in separate envelopes for each item clearly mentioning the item code number, item name on the top of the envelopes with sender's name and address. EMD should be submitted separately against each item.** Item -wise technical specification and price should be in separate sheets i.e. there should be separate



envelope for each item containing technical, price bid & item wise EMD, incase, bidders desire to quote more than one item.

- 2.6** The tender is to be submitted "**Single Stage- Two Envelope System**" i.e. the first sealed envelope will contain full information required to judge pre-qualification signed tender document, tender fee, earnest money, complete details and specification of the instruments offered in **Annexure – II (without quoting price)** including the brochure/ leaflets and original catalogues, list of credentials with documentary evidence i.e., purchase/ work order etc., PAN-Number GST/Sales Tax Registration No., Affidavit for not being black listed. It shall be marked as technical Bid for REELING Instruments /Equipment and Electrical Hot Air Drier. The second envelope will contain only price quoted by the bidder in the form given at **Annexure –III** of this document and shall be clearly marked "**Price Bid** for REELING Instrument / Equipment and Electrical Hot Air Drier. Both the above envelopes must be separately sealed and shall be kept in one envelope bearing the address of BIHAR STATE INDUSTRIAL DEVELOPMENT CORPORATION (A Govt. of India Undertaking)  
1st Floor, Indira Bhawan, R.C. Singh Path, Boring Canal Road, Patna Phone No. 0612-2532165 and prescribed with bold letter **TENDER. FOR REELING INSTRUMENT / EQUIPMENT and Electrical HOT Air Drier NOT TO OPEN BEFORE 16-02-2019 at 5 pm.** The senders address should be mentioned in all envelopes. Instrument / equipment Code Number should be mentioned invariably on all envelopes

- 2.7** Technical part of the tender will be opened on due date i.e. at 16-02-2019 at 5 pm. in the office of the BSIDC Ltd., in presence of the representative of the tenderer, who would like to be present. Sealed Price part of technically and commercially acceptable tenders will be opened on a later day subsequently as decided by the Dept. of Industries. The date of opening of financial bid will be communicated by the BSIDC Ltd. to the successful bidders whose techno-commercial bid is found substantially responsive.

**2.8 EARNEST MONEY/ SECURITY DEPOSIT**

- (i) **The Earnest Money of Rs. 2.0 lakh** must be submitted by the Bidder along with the Tender in the form of Demand Draft only drawn in favour of Bihar State Industrial Development Corporation Ltd. payable at Patna. It should be in Indian Rupees. The Indian agent / representative should furnish an authorization letter from their foreign Principal supplier authorizing to deposit the EMD on their behalf.
- (ii) The Earnest Money shall be forfeited if a bidder withdraws or amends the tender in any respect within the period of validity of his tender or fails to

submit security deposit or agreement within the specified period as mentioned in the tender document. Tender shall not be entertained where a bidder has not furnished adequate earnest money in the prescribed and acceptable form. In case, the instrument supplied is found defective and not attended by the supplier /authorized agent, the Security Money deposited by the supplier /their authorized Indian agent will also be forfeited.

- 2.9** Earnest money/ security deposit will not be taken from the following:  
Undertakings, Corporations, Autonomous bodies, Registered Societies Co-operative Societies which are controlled/ managed by Government, Govt. Undertakings and Companies of Union Government and Government of Bihar.
- 2.10** **Return of earnest money:** Unsuccessful bidder's earnest money will be discharged/ returned without any interest after the concerned purchase is finalized and that of successful bidders will be adjusted (without interest) in security deposit.
- 2.11** **The validity of tender would be for a minimum period of 180 days from the date of opening of tenders.** A Bid valid for a shorter period may be rejected by BSIDC Ltd. as non- responsive. In case the validity is to be extended; the BSIDC Ltd. may solicit the Bidder's consent to an extension on the period of validity and the bid shall remain valid for the extended, period mutually agreed for.
- 2.12** The prices should be quoted both in words and figures.
- 2.13** Arithmetical error will be rectified on the following basis:- If there is discrepancy between the unit price and total price that is obtained by the multiplying the Unit Price and quantity, the unit price shall prevail and the total price shall be corrected. If there is discrepancy between words and figures, the amount in words will prevail.
- 2.14** Tenders not in proper sealed cover or received through telegraphically or E-mail fax/telex will not be entertained.
- 2.15** Conditional Tenders will be rejected without assigning any reason.
- 2.16** The Bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person duly authorized for this purpose. The letter of authorization should bear the signatures of only the authorized person of the firm. All pages of the Bid, except for un-amended printed literature shall be initialed by the person or persons signing the bid.
- 2.17** **Clarification of Techno- commercial bids**  
To assist the techno -commercial examination, evaluation and comparison of bids the BSIDC Ltd. may, at its discretion, ask the bidder for a clarification of its Techno-commercial bid. However, all responses to request for clarification shall be writing, and, no change in the price bids be sought, offered or permitted.
- 2.18** Eventual suggestions for modification or subsidiary Tenders are principally not admissible.

- 2.19** The specifications are clearly mentioned in the document and the Bidder is requested to submit Bid only if their offer strictly comply to these specifications. The bidding for the instruments having different specification will be on Bidder's risk as the BSIDC LTD. will not entertain such bids. Bids carrying the statement like "specification as per tender document" shall not be entertained. the product specifications supported by technical literature and list of users must be enclosed with Annexure II.
- 2.20** The placement of work order/purchase order will be according to technical evaluation of the tender and after consideration of its price worthiness.
- 2.21** The price to be given in the tender are fixed prices, irrespective of rise in Materials prices etc., till the delivery of the overall consignment. No request regarding increase in the price of instruments etc., will be entertained after the submission of the tender.
- 2.22** The nomenclature of the instruments and spares will be invariably same in Pro-forma Invoice, Invoice, Packing list and all other relevant papers in case the Bidder is awarded with the purchase order for supply against its offer.
- 2.23** With the submission of his tender the bidder accepts the conditions of the tender.
- 2.24** If the instrument supplied is not in conformity with the specification other than asked for, it will have to be replaced at the risk and cost of the supplier. No freight and other charges for export and re-shipment will be paid by the Dept. of Industries.
- 2.25** **The authorized AGENCY OF INDIAN COMPANY /representative should have minimum two years continuous agency/ partnership/ joint venture/ participation or collaboration with their principal Indian Company.** The documentary proof of such agency ship/ authorization/ MOU should be submitted along with the technical part. If the bid of the firm does not contain the proof of such nomination/authorization, bid documents shall be rejected.
- 2.26** **The installation of the instruments is the entire responsibility of the supplier. It must be done either by the principal supplier or their authorized agents within 150 days from opening of LC in case of foreign suppliers. For Indian supplier the installation should be completed within 100 days from the date of issue of purchase order.** The supplier or their authorized agent should be in touch with the Industry Dept. to know the exact day of receipt of stores supplied/ dispatched by them.
- 2.27** The list of instruments/equipment, their approximate quantity and point of delivery is given at Annexure-V and the detailed specification of the instrument are given in the tender document. The quantity mentioned in the tender document may be increased or decreased at the discretion of the Competent Authority in the Dept. of Industries without assigning any reason.
- 2.28** Each and every folio of the tender must be signed by the bidder.

- 2.29** The Bid shall be considered only for those instruments for which the rates have been specifically quoted. The BSIDC LTD. further reserves the right to accept the tender for all the instruments or some of the instruments for which the tenderer has quoted the bid. The bidder should attach a separate list for the consumable/spares required for smooth operation of the instrument at least for three years (as optional items) and two copies of trouble shooting manuals, electric circuits etc. along with the bid.
- 2.30. Bidder has to provide training on operation and maintenance to Dept. Officials for REELING unit and Electrical Hot Air Drier without any additional charges. However, training for sophisticated instrument will be provided by the bidder as specified in respective technical specifications of the instrument.**
- 2.31** The instrument for which tenders are invited will have to be supplied within **90** days from the date of opening of LC if the goods are imported. (in the case of foreign suppliers the date of arrival of consignment at Indian port will be considered as the date of delivery). **A period of 60 days will be allowed for delivery of equipment from the date issue of purchase order in the case of Indian manufacturers/suppliers. In case of delay in delivery the liquidated damages will be levied as per Para no 13 from successful bidder.**
- 2.32** After sales service is most important to be considered for comparison of the bids. Bid of those firms who do not have Indian / Local Agents to provide after sales and service during warranty period will not be considered. After sales service must be provided at the premises of the Bihar State Industrial Development Corporation, Patna, by the manufacturer or authorized service provider. The instrument will not be sent to the service provider for the repair.
- 2.33** In case of imported instruments, the bid from Principals or their authorized agents will only be considered. The instrument price should be quoted on documents submitted to Bihar State Industrial Development Corporation, Patna, the delivery shall be taken at Branch office of Bihar State Industrial Development Corporation, Patna, Outside Patna (Will be mentioned at the time of issue of purchase order).
- 2.34** The foreign bidders must indicate the following information in their Pro-forma invoice along with the Price Bid separately for each instrument/equipment.
- a)** Country of Origin.
  - b)** Port of Shipment.
  - c)** Name & Address of beneficiaries Bank, Branch name with Account No.
  - d)** Whether trans-shipment/partial shipment is required or not.
  - e)** The Indian Agent's complete address, telephone & fax number.
- 2.35** **(a)** The items have to be supplied in standard packing. The foreign supplier should use the minimum possible packets and should reduce the size of the packing in volume to avoid extra demurrage in the bonded warehouse in India, if any.

**(b) Important Bank charges:** - All Bank charges within the country (in India) will be buyers account and all Bank charges outside the country should be borne by the supplier / beneficiary. The bidders may note this and quote the price of the instrument/equipment accordingly. In the case of Foreign Suppliers, they will have to ensure shipment of the consignment as per the validity of the letter of credit established in this

regard. In case of extension of supply date is sought, the bank charges towards the amendment of L.C. should be borne by the Beneficiary/Supplier.

- 2.36** Foreign Principals/their authorized Indian Agent shall intimate the buyer regarding the date of shipment well in advance. A copy of the invoice documents, air way bill, packing list, certificate of country of origin may be forwarded to the purchaser by fax immediately after shipment of the consignment to clear from custom authorities so as to avoid demurrage charges. The consignment is to be get cleared by supplier from custom and he will deliver the item at Central and Regional laboratories.
- 2.37** At any time prior to the deadline for submission of bids ,the buyer may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by an amendment.
- 2.38** The Amendment made by the competent authority in the tender document if any will be binding on the bidders.
- 2.39** In order to offer prospective bidder reasonable time in which to take the Amendment into account in preparing their bids, the purchaser may at its discretion, extend the deadline for the submission of bids.
- 2.40** According to the bidder, if the tender documents contain unclear points which could influence price calculations, the bidder has to inform the authority who is issuing the call of Tenders before submission of its Tender, either in writing or by fax, even if he has pointed out this earlier in any other form/reference.
- 2.41** The Packing, Forwarding, charges must be quoted according to the place of delivery at BSIDC Ltd., Patna. The supplier will be held liable for any damage, theft or loss during transit. The instruments are to be dispatched to the respective places directly and to be installed there, by the supplier under intimation to Bihar State Industrial Development Corporation Ltd., Indira Bhawan, Patna, please **note that Performa Invoice must be separate for each instrument / equipment.**
- 2.42** For the comparison of the rates quoted in different currencies by the bidders, the comparison will be done on the basis of conversion of currency in **Indian Rupees on the date of opening of technical bid of the tender.**

### **3.0 PAYMENT CONDITIONS**

- 3.1** (i) **For Foreign Bidders:** - The foreign bidders should quote the price in foreign currency. In case, they have components and services of Indian agent, the same may be quoted in Indian Rupees.

100% payment will be released through irrevocable Letter of Credit in the name of foreign bidders for stores of foreign origin.

**80% payment** will be made on shipment of the instrument/Equipment and on furnishing **Bank Guarantee/Bank Draft for 10 % of the purchase order as**

**performance security**, for release of payment the supplier shall submit documents as specified in **Annexure VI A**

**20% will be released** on satisfactory installation, training and commissioning of instrument / equipment.

- (ii) **For Indian bidders** 100% payment will be released on satisfactory supply installation, training and commissioning of the instrument and on furnishing **Bank Guarantee/Bank Draft for 10 % of the purchase order Value as performance Security**. The supplier shall provide the documents with each instrument as mentioned at **Annexure- VI B**.

**3.2 The Performance Security** shall be furnished by the principal supplier or their authorized Indian agent from any Nationalized Bank as **Bank Guarantee. Performance security shall be valid up-to expiry of the warranty period.**

**3.3** The defective, substandard and contrary to the specification of instruments, if supplied have to be replaced by the supplier at their cost and responsibility. In case of indigenous instrument/ equipment quoted by Indian firms/ representatives/ Indian agents of foreign supplier / manufacturers in rupee terms the payment will be made in Indian rupees directly after supply and satisfactory installation / commissioning.

**3.4** Single bills against one order as per supply order mentioning item code and other details will be accepted.

**3.5** The reference of supply order should be submitted for payment.

#### **4.0 SETTLEMENT OF DISPUTE, ARBITRATION**

**4.1** All disputes or difference arising out of or in connection with the contract and supply of any item/equipment assigned under the same (whether during the progress of the works or after their completion, determination, abandonment or breach of the contract) shall be settled by the Chairman, Bihar of Industries State Pollution Control Dept. in accordance with the Arbitration and Conciliation Act, 1996. The arbitrators appointed by the Chairman, Bihar State Pollution Control Dept. of Industries. The Chairman, Bihar State Pollution Control Dept. of Industries, Patna shall appoint a sole arbitrator. The decision of the sole arbitrator shall be final and binding on both the parties. It will not be an objection to any such appointment that the arbitrator is the any interest in the BSIDC Government servant and had Ltd. or the contract entered in to directly or indirectly. In all cases, the arbitrator shall state his Decision in writing. Arbitration proceedings shall be held at Patna, Bihar (India) and the language of arbitration proceeding and that all documents and communications between the parties shall be in English.

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**4.2** It is a term of the contract that the party invoking the dispute shall specify the dispute or disputes to be referred to the arbitrator under this clause together with the amount or amount claimed in respect of each such dispute.

**4.3** It is also a term of the contract that if the supplier (s) do not make any demand in respect of any claim (s) or dispute in writing within 90 days of submission of the final bill for payment, the claim of the supplier will be deemed to have been waived and absolutely barred and the BSIDC will be discharged and released of all liabilities under the contract in respect of these claims.

#### **4.4 LAWS AND REGULATIONS**

The formation, validity and performance of this Contract shall be governed as to all matters by and under the laws and regulations of India and courts of Patna shall have exclusive jurisdiction in all matters arising under this Contract.

The Supplier shall respect and abide by all laws and regulations of India and shall make its best effort to ensure that the personnel of the Supplier and their dependents, while staying in India, shall respect and abide by all laws and regulation of India.

The Supplier shall protect, absolve and indemnify the Dept. of Industries, and their representatives from any claim, loss or damage arising from any non compliance alleged or proved, without claiming them for payment.

#### **4.5 FORCE MAJEURE**

Vendor shall not be considered in default if delay in delivery occurs due to causes beyond his control such as acts of God, natural calamities, civil, wars, strikes, fire frost, floods, riots and acts of usurped power. Only those causes which have a duration of more than seven calendar days shall be considered cause of force majeure. A notification to this effect duly certified by the Local Chamber of Commerce/Statutory Authorities shall be given by the Vendor to the buyer by registered letter. In the event of delay due to such cases a length of time equal to the period of force majeure or at the option of the buyer may be extended, the order may be cancelled. Such cancellation would be without any liability whatsoever on the part of buyer. In the event of such cancellation the vendor shall refund any amount advanced by the Purchaser and deliver back any material issued to him by the Purchaser and release facilities, if any, provided by the Purchaser.

#### **5.0 INJURY AND DAMAGE**

##### **5.1 Injury or Death of Persons**

The Supplier shall be liable for and shall indemnify the BSIDC LTD. against any liability, loss, claim or proceedings, whatsoever arising under any statue or law in respect of personal injury or death or any disability caused by the carrying out the Works.

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##### **5.2 Damage to Property**

The Supplier shall be liable for and shall indemnify the BSIDC LTD. against and insure and cause any Manufacturers and subcontractors to insure against any expense, liability, loss claim or proceedings in respect of any damage whatsoever to any real or personal property for any one occurrence in so far as such damage arises out of or in the course of or by reason of the carrying out of the Works and is due to any negligence, omission or default of the Supplier or any person for whom the supplier is responsible or any Manufacturers and subcontractors or person whom the Manufacturers and subcontractors are responsible.

#### **6.0 ROYALTY AND PATENTS**

**6.1** The Supplier shall pay all royalties and licenses fees for the use of any patented item, whether it may be an invention, method, arrangement, article, process or appliance used in connection with the performance of the Contract. The supplier shall indemnify and save harmless the BSIDC Ltd. against any and all costs, damages and expenses of any nature or kind whatsoever which may arise out of or result from a claim by any person, firm or corporation that the manufacture, purchase, use of sale of any of the inventions, methods, arrangements, articles processes or appliances used in connection with the performance of this Contract infringes any patent of such other rights.

**6.2** In case any such patented item used on or in conjunction with the Works is in suit held to constitute and infringement of its use enjoined, the supplier shall either secure for the BSIDC Ltd. the right to continue using the said item by suspension of the enjoinder, by procuring for the BSIDC Ltd. a license or otherwise, or will replace such items with a non-infringing item or modify it so that it becomes non- infringing or with the BSIDC Ltd. approval remove the said enjoined item and refund to the BSIDC Ltd. the sums paid thereof.

## **7.0 EFFECTIVENESS**

This Contract shall come into force and effect on the date of the Letter of Award and shall be in force until the expiry of the warranty period and all the payments have been made to the Supplier.

**8.0 Forfeiture of earnest money:** - The earnest money will be forfeited in the following cases:

- (i) When bidder withdraws or modifies the offer after opening of tender but before acceptance of tender.
- (ii) When bidder does not execute the agreement if any, prescribed within the specified time.
- (iii) When the bidder does not deposit the security money .

## **9.0 Performance Security Deposit: -**

1. Successful bidder will have to deposit performance security equal to 10% of the value of the contract price.
2. Within thirty (30) days of notification of award from the Dept. of Industries, the successful Bidder shall furnish the Performance Security in the form of bank guarantee issued by a reputable bank having license to do business in India or as bank draft payable to Bihar State Industrial Development Corporation Ltd., payable at Patna for an amount equivalent to 5 % of the Contract Price, for the guaranty/warranty period.

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3. Remaining 5 % shall be deducted from the bill after adjustment of earnest money (2 % of estimated value) submitted during bid submission.
4. No interest will be paid by the BSIDC Ltd. on the performance security money.
5. The performance security money shall be refunded after the expiry of the period of guarantee / warranty and after satisfied there are no dues outstanding against the bidder
6. In case of non-submission of performance security of 5%, the same will be deducted from the bill after adjustment of earnest money. The decision in this regards shall be obtained from BSIDC Ltd. on request of the bidder.

## **10.0 Forfeiture of Performance Security Deposit-**



Performance Security amount in full or part may be forfeited in the following cases: -

- (a) When any terms and conditions of the contract is breached.
- (b) When the bidder fails to make complete supply satisfactorily
- (c) Notice of reasonable time will be given in case of forfeiture of security deposit.

**The decision of the Chairman cum Managing Director in this regard shall be final.**

**11.0** The expenses of completing and stamping the agreement shall be paid by the bidder and the State BSIDC shall be furnished free of charge with one executed stamped counter part of the agreement.

**12.0 Insurance: -** The goods will be delivered at the destination in perfect condition. The supplier, if he so desires, may insure the valuable goods against loss by theft, destruction or damage, by fire, flood, under exposure to whether or otherwise viz., (war rebellion, riot, etc.,). The insurance charges will be borne by the supplier and State BSIDC Ltd. will not reimburse such charges

**13.0 Liquidated damages: -**

(1) The time specified for delivery in the tender form shall be deemed to be the part of the contract and the successful bidder shall arrange supplies within the period from the date of supply order issued by the **Bihar State Industrial Development Corporation, Patna, Bihar**

(2) In case of extension in the delivery period with liquidated damages the recovery shall be made on the basis of following percentages of value of Stores which the bidder has failed to supply:-

(a) Delay up to one month of the prescribed delivery period 2.5%

(b) Delay exceeding two month of the prescribed period. 5%

(3) The maximum amount of liquidated damages shall be 5%

(4) If the supplier requires an extension of time in completion of contractual supply on account of occurrence of any hindrance he shall apply in writing to the authority, which has placed the supply order, for the same immediately on occurrence of the hindrance but not after the stipulated date of completion of supply of goods.

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(5) **Delivery period may be extended with or without liquidated damages if the delay in the supply of goods is on account of hindrances beyond the control of the bidder.**

**14.0 Recoveries: -** Recoveries of liquidated damages, short supply, breakage, rejected articles shall ordinary **be made from bills**. Amount may also be withheld to the extent of short supply, breakage, rejected articles and in case of failure in satisfactory replacement by the supplier along with amount of liquidated damages shall be recovered from his dues and, security deposit available with the department. In case recovery is not possible appropriate action will be taken under Bihar PDR Act or any other relevant law in force.

**15.0 Inspection: -**

- (a) The BSIDC Ltd., Patna or his duly authorized representative shall have right for inspection of the instrument/equipment at premises of the bidder. In case of foreign supply, the bidder is required to submit the certificate of testing, materials and workmanship of the instrument /equipment machineries during manufacturing process or afterwards as may be decided.

- (b) The bidder shall furnish complete address of the premises of his office, godown and workshop with contact number of responsible person where inspection can be made together with name and address of the person who is to be contacted for the purpose. In case of those dealers who have newly entered in business a letter of introduction from their bankers will be necessary.

**16.0 Clearance of consignment from Customs: -**

For imported items, Clearance of the consignment from Customs will be done by the bidder. Any custom duties paid as applicable under registration of Dept. of Science and Technology for clearance of the consignment shall initially be paid by the bidder and the same shall be reimbursed by BSIDC Ltd. after production of documentary evidence at actual as per Govt. Rules. **THE BSIDC Ltd. WILL REIMBURSE THE CUSTOM DUTY ONLY, NO OTHER CHARGES WILL BE BORNE BY THE BSIDC Ltd.** The delivery of goods will be taken at Central laboratories.

**17.0 Demurrage charges: -**

**In case, any demurrage charges are paid to release the consignment from custom, it will be borne by bidder.**

**18.0 Rejection: -**

- i. Articles not approved during inspection or testing shall be rejected and will have to be replaced by the bidder at his own cost within the time fixed by the BSIDC Ltd..
- ii. If, however due to exigencies of work, such replacement either in whole or in part, is not considered feasible, the BSIDC Ltd. after giving an opportunity to the bidder of being heard, shall for reasons to be recorded, deduct a suitable amount from the approved rates. The deduction so made shall be final.

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- iii. The rejected articles shall be removed by the bidder within 15 days of intimation of rejection, after which BSIDC Ltd. shall not be responsible for any loss, shortage or damage and shall have the right to dispose of such articles as he thinks fit, at the bidder's risk and on his account.

**19.0** The bidder shall be responsible for the proper packing so as to avoid damage under normal conditions of transport by sea, rail and road or air and delivery of the material in good condition to the consignee at destination. In the event of any loss, damage, breakage or leakage or any shortage the bidder shall be liable to make good condition such loss and shortage found at the checking/inspection of the materials by the consignee. "No extra cost" on such account shall be admissible.

**20.0** The BSIDC Ltd. can repudiate the contract for the supply, at any time, if the supplies are not made to his satisfaction after giving an opportunity to the bidder of being heard and recording of the reasons for repudiation.



## Annexure-I

**BIHAR STATE INDUSTRIAL DEVELOPMENT CORPORATION Ltd.**  
**(A Govt. of India Undertaking)**  
**1<sup>st</sup> Floor, Indira Bhawan, R.C. Singh Path, Boring Canal Road, Patna**  
**Phone No. 0612-2532165, Email – bside\_bside@rediffmail.com**  
**Website. www.bsidc.in**

### APPLICATION FORM (To be filled by the bidder)

1. Name and full address of the: \_\_\_\_\_  
Bidder including Telegraphic \_\_\_\_\_  
Address/Telex No. and Fax No. \_\_\_\_\_
  
2. Name and designation of the \_\_\_\_\_  
Head of the Firm/supplier \_\_\_\_\_  
and his Telephone No. \_\_\_\_\_
  
3. i) In case the supplier is located out of Bihar; specify the authorized Distributor's or Agent's Address in Patna, if any.  
  
ii) Name, Designation, Address \_\_\_\_\_  
Telephone & Fax Numbers of the \_\_\_\_\_  
Authorized Person who may be \_\_\_\_\_  
Contacted during the process of the \_\_\_\_\_  
Purchase concerned under this document  
(Applicable for all the suppliers)
  
4. Instrument item Code Number(s) quoted for \_\_\_\_\_ :
  
5. Whether Earnest Money Deposited: Yes / No If yes (Amount: in Rs.) \_\_\_\_\_ ,  
/Demand Draft No, Date, \_\_\_\_\_ and Name of Issuing Bank \_\_\_\_\_
  
6. Tender document fees Rs 500/- details DD / Cash receipt No \_\_\_\_\_, Date \_\_\_\_\_ and  
Name of Issuing Bank \_\_\_\_\_
  
7. Income Tax Clearance Certificate:  
Attached (Latest) with PAN Number \_\_\_\_\_ Yes or No  
.  
All the terms and conditions of the tender documents have been read carefully and are accepted.

Place:

Date :

Legally Binding Signature with stamp

**ANNEXURE - II**  
**BIHAR STATE INDUSTRIAL DEVELOPMENT CORPORATION**  
**(A Govt. of India Undertaking)**  
**1<sup>st</sup> Floor, Indira Bhawan, R.C. Singh Path, Boring Canal Road, Patna**  
**Phone No. 0612-2532165, Email – bside\_bside@rediffmail.com**  
**Website. www.bsidc.in**

**Bid Form for (Name of the Instrument) \_ \_\_\_\_\_**

**BID FORM FOR TECHNICAL BID Please do not write the Price**

**Details showing quantity, specification and other details of the instruments offered (Instrument / Equipment code No. \_ \_\_\_\_\_)**

**(to be filled by the bidder and must be kept marked as Technical Bid" part of the Tender)**

S. No.	Name of Item	The Specification offered by the Bidder	Difference in Specifications of tender document and that	Qty.	Unit Price (excluding col. no. 7) indicate the name	Taxes and expenditures freight, installation & training (in case	other (Sales cost of &	Total Amount DEPT. OF INDUSTRIES in Rupees)
1	2	3	4	5	6	7	8	
					<b>PLEASE DO NOT WRITE RATES / PRICE HERE</b>			

NOTE:- If this sheet is not sufficient to accommodate the bid, the additional sheets may be used containing the same proforma but all such sheets including this one must be signed on each sheet by the Bidder along with the seal. Separate Bid form should be attached for each equipment, quoted for.

**Signature with date & stamp of the bidder**

## ANNEXURE -III

**BIHAR STATE INDUSTRIAL DEVELOPMENT CORPORATION LTD.,  
(A Govt. of India Undertaking)  
1<sup>st</sup> Floor, Indira Bhawan, R.C. Singh Path, Boring Canal Road, Patna  
Phone No. 0612-2532165, Email – [bsidc\\_bsidc@rediffmail.com](mailto:bsidc_bsidc@rediffmail.com)  
Website. [www.bsidc.in](http://www.bsidc.in)**

**Bid Form For Price Bid For ( Name Of The Instrument )\_ \_\_\_\_\_  
Details showing quantity, specification and other details of the instruments offered (Instrument / Equipment code No. \_\_\_\_\_)  
(To be filled by the bidder and must be kept in "Price Bid" part of the Tender)**

S. No.	Name of Item	The Specification offered by the Bidder	Difference in Specifications of tender document and that of Bid, if any	Quantity	Unit Price (excluding rates at col. no. 7)  indicate the name of the currency (in figure & words)	Taxes and other expenditures (Sales Tax/GST, C.S.T, freight, etc.	Total Amount (FOR DEPT. OF INDUSTRIE S) including all charges (in figure & words)
1	2	3	4	5	6	7	8

NOTE:- If this sheet is not sufficient to accommodate the bid the additional sheets may be used containing the same Proforma but all such sheets including this one must be signed by the Bidder along with the seal. This Annexure must be enclosed in the Proforma Invoice price bid for item wise. Separate Bid form should be attached for each equipment / instrument, quoted for.

**Signature with date & stamp of the bidder**

**ANNEXURE - IV**  
**UNDERTAKING**

**To be given by Principal Manufacturer**

**TO**  
**CHAIRMAN-CUM-MANAGING DIRECTOR**  
**BIHAR STATE INDUSTRIAL DEVELOPEMNT CORPORATION Ltd.**  
**INDIRA BHAWAN, PATNA**

Sir,

We have examined the conditions of tender document and specifications of the instruments/ equipment, the receipt of which is hereby acknowledged. We, the undersigned, offer to supply, deliver and install the (Name of equipment / instrument):

(Please add additional pages, if required) The above supply, installation shall be in conformity with the specifications and conditions of tender.

We undertake, if our bid is accepted to deliver the instruments quoted by us, we shall deliver and install within the period indicated in the tender document.

We agree to abide by this bid for a period of 180 days from the date fixed for Bid opening and it shall remain binding upon us and may be accepted at any time before expiration of that period.

We are submitting a demand draft (Payable at Patna) for Rs..... in favour of "Bihar State Industrial Development Corporation Ltd.", Patna towards the Earnest Money.

This bid, together with your written acceptance thereof in your notification of award shall constitute a bidding contract between us.

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

We or our authorized dealer shall provide the spares/service of equipment under warranty / guarantee and also during AMC after expiry of warranty / guarantee. If authorized dealer is not available or authorized dealer is changed, we (manufacturer) will be responsible for service / repair of the equipment supplied by us.

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

Signature of authorized Person,  
Name with Stamp & full Address.

ANNEXURE-V

**Schedule of Earnest Money**

SL	Bank Name	Date of Instrument	No of Instrument	Value of Instrument	Validity of Instrument



## **Annexure – VI A**

### **LIST OF DOCUMENTS FOR RELEASE OF PAYMENT THROUGH L/C.**

#### **Equipment of Foreign Origin:**

- 1) Four (4) copies of the Manufacturer / supplier's invoice showing the Equipment's description, quantity, unit price and total amount
- 2) Original and Four (4) copies of the negotiable clean, on bill of landing marked freight prepaid and four copies of non-negotiable bill of landing;
- 3) Four copies of the packing list identifying contents of each package
- 4) Insurance certificate
- 5) Manufacturer and Suppliers warranty certificate
- 6) Factory test and inspection certificate
- 7) Certificate of country-of origin

## **Annexure – VI B**

### **Equipment to be Supplied by Indian Manufacturer:**

Upon delivery of the Equipment to the transporters, the Supplier shall notify the BSIDC Ltd. and mail the following documents to the Dept. of Industries.

- 1) Four copies of the Supplier's invoice showing the Equipment's description, quantity, unit price and total amount
- 2) Supplier's and/or Manufacturer's warranty certificate
- 3) Factory test & inspection certificate by manufacturer.
- 4) Insurance certificate

## Annexure - VII

### **For Instruments and Equipment only.**

#### **Guidelines for Service Contract**

#### **(Annual Maintenance Contract / Comprehensive Maintenance Contract)**

- 1. The proposals for maintenance of equipment should be submitted for 5 years (Charges per year) after guarantee period of minimum 36 months with spare & parts. The amount for the maintenance contract be mentioned for each equipment per year with tender document**
2. Two preventive maintenance & at least two break down visits per annum as & when required will be provided under service contract.
3. The firm shall depute service engineer to attend break down calls within 72 hrs from the receipt of the call from client. In the event of failure on the part of the firm in attending to the preventive maintenance visit or in attending breakdown calls within 72 hrs., Bihar State Industrial Development Corporation Ltd., Patna or an authorized officer of BSIDC Ltd. will have the right to make the recovery by way of compensation @ 2% of the AMC Contract value per day. However, firm shall not be responsible for delay in services due to non-availability of spares or due to any reason beyond its control & the duration of service contract will be increased /extended by such period.
4. The payment will be made on half yearly basis after satisfactory service within 60 days from the date of receipt of the bill. Notwithstanding anything here-in-above provided it will be the responsibility of firm to see that the system including equipment as a whole (including accessories, software) is kept in well working condition during the full period of contract besides the time reasonably & naturally required in rectification / servicing etc. The points of disputes being mutually decided circumstantially on which the decision of the undersigned shall be final & binding on firm subject to arbitration.

Signature of bidder  
With Date, Seal & Address

Director  
\_\_\_\_\_

## **Annexure - VIII**

### **CHECK LIST FOR THE BIDDER**

1. Bid on original Tender form only.
2. Separate EMD against each instrument / equipment.
3. Earnest money or necessary documentary proof for exemption of earnest money with the part 1 of the bid. The technical specification should be in Annexure II without quoting rate in the column no. six to eight.
4. Price bid must be Part II of the bid in the form provided at Annexure-III of the tender document. It should be in a separate envelope.
5. The Basic Price, Taxes, Packing, Forwarding, Handling, Transportation Insurance, Installation charges, Training etc. must be quoted clearly. Do not use vague terms like "As Actual, Approximately etc".
6. Do not use the terms as per Specification of Tender Documents' in respect of instruments. There should be proper write up of product quoted for supported with printed leaflets literature.
7. In case the bidder desires to quote more than one item, separate envelope should be submitted (technical bid in Annexure II & price bid in Annexure III) for individual item super scribing item code number and name.
8. With technical bid, the bidder should provide a copy of the price bid format (giving details of the items, accessories, spares etc.) without specifying the price other than one mentioned in Annexure-III of this tender document.
9. The delivery of equipment/ accessories/ spares will be taken at location specified in the order for outside Patna.
10. The manufacturer will give an undertaking that during warranty and after expiry of comprehensive warranty period, if required, be responsible for annual Maintenance of the supplied item/equipment for providing AMC. Annexure- IV & VIII
11. The supplier has to provide Bank Draft as performance security deposit after receiving the supply order.
12. The documents required for release of payment are mentioned at Annexure- V IA & VI B
13. The Guidelines for AMC is available at Annexure- V II and format for submitting AMC charges is at Annexure- X

**Annexure –IX**

**Form for submitting the AMC charges**

**Name of Equipment / Instrument**

(.....)

**Equipment / Instrument code No.....**

The AMC charges per year

S.No.	Year	AMC Charges per year in Rs
1.	I	
2.	II	
3.	III	
4.	IV	
5.	V	

Place:  
Date:

Signatures of Authorized Signatory  
Designation  
Seal

**PART-B**

**Specifications  
Of  
Instruments / Equipment**

**SPECIFICATIONS FOR CSTRI MULTIEND REELING MACHINE – Specifications may increase or decrease at the time of procurement and according cost may also increase or decrease**

The list of the machinery / equipment of 10 end basin capacity Multi-end reeling package is given

#	Name of the Machine or Equipment	Qty.
1	Multi-end reeling machinery (10 ends per basin) with spare parts 1	2
2	Circular pressurized cooking m/c / vacuum permeation cooking Equipment	2
3	Two pan cooking table	2
4	Small reel permeation chamber	2
5	Re-reeling (6 windows, 5 ends / window) with spare parts	2
6	Electrical hot air drier (100 kg Capacity)	2
7	Cocoon sorting table	2
8	Generator (5 KVA capacity)	2
9	Epprouvette and electronic balance of 600 g capacity with 0.01 g sensitivity	2
10	Boiler 100 Kgs – As per the requirement of Above Unit.	20

**i. FRAME:**

- a) Cast iron frame made of k-20 material, Bottom frame, Centre frame, and Top frame with two side brackets weighing minimum 60 to 63 Kg, machined wherever necessary.
- b) Each of the frames to its length is tied up with 16 mm MS rod, 3 numbers, (Two at bottom and one at top).

**ii. MOTOR AND DRIVE ARRANGEMENT:**

- a) 1 H.P. 960 rpm, 380 / 440 volts 3phase, 50 cycles induction motor shall be provided as per BIS specifications. The motor shall be from ISO certified companies.
- b) The drive arrangement shall be covered by 20gauge M.S. sheet with locking system.

**iii. MAIN SHAFT:**

- a) 25mm main bright shaft fitted with self-aligning sealed type pillow block ball bearings.

**iv. TRANSMISSION MECHANISM:**

- a) Fitted with V belt B section (ISI mark) chain & M.S. sprockets, EN-8 metal helical gear, CI gear and Nylon gears. The gears should be hobbled and hardened wherever necessary to minimize wear and sound.
- b) All moving parts in the machine such as gears, 'V' pulleys shall be tightened by high tensile fasteners of standard make.

**v. REELING BASINS:**

- a) 10 reeling ends shall be accommodated in each basin and distance between ends (between the Jetteboutte centers) shall be 105 mm.

- b) Made of Salem stainless steel, 304 grade with inner dimensions measuring length 42", width 15" & height 4" weighing minimum 6 kgs, with water holding capacity of 42 liters. The 3 sides of the basin are 20 mm square fold finished.
- c) Basin over flowing water arrangement connected with brass or Nylon nipples.

- d) Reeling basins with four partitions for the working convenience made of stainless steel.
- e) Each basin fitted with two stainless steel vessels (Bowl) for keeping silk waste and basin refuse.
- f) The S.S Reeling basin is positioned over the bottom frame using 1 ½" X ¼" M.S. Angle.
- g) From the top, reeling basin is positioned at a height at 32" from floor level.
- h) Drain out nut of 25 mm size made of polypropylene or nylon material shall be provided for each basin.

**vi. STEAM PIPES:**

- a) Steam inlet is fitted with 1" M.S. pipe with 1" IBR steam valve with SS working parts and all the steam pipe lines and connected fittings should resist 35Kg/cm<sup>2</sup> (500lb/inch<sup>2</sup>) hydraulic test pressure.
- b) Steam pressure gauge 0 – 7 kg/cm<sup>2</sup> capacity is provided with siphon pipe.
- c) 1 ¼" "C" class M.S. pipe for steam line with 3/8" or 1/2" S.S. Ball Valve, inter connected with 3/8" X 20G copper pipe, Brass flair union and M.S. Fittings with perforations 3/8" 20 gauge copper tube for providing steam to reeling basin. The copper steam pipe shall be tapered towards end and have 3 mm diameter holes. The holes shall be at the side of the steam pipes. All the steam pipe lines and connected fittings should resist 35 Kg/cm<sup>2</sup> (500lb/inch<sup>2</sup>) hydraulic test pressure.
- d) For draining out the condensed water, ½" IBR wheel value with M.S fittings provided at the end of the machine. All the steam pipe lines and connected fittings should resist 35 Kg/cm<sup>2</sup> (500lb/inch<sup>2</sup>) hydraulic test pressure.

**vii. WATER PIPES:**

- a) Water inlet pipe shall be fitted with 1" G I pipe along 1" G.M. plug cock.
- b) 1 ¼" "C" class G.I. Pipe for water line, with 3/8" or ½" S.S. ball valve inter connected with 3/8" X 20 G copper pipe and brass flair union with G.I. Fittings fitted on basin tray.
- c) Steam & water pipes are fitted 1 foot over basin tray, to avoid corrosion.

**viii. BUTTON AND BUTTON CLIP:**

- a) Good quality ceramic reeling buttons (100 Nos.) shall be supplied along with reeling machine. Brass or S.S button clip mounted on brass or SS L Clamp flexible in motion to avoid breakage of yarn due to interruptions by slugs in reeling

**ix. JETTEBOUTE ASSEMBLY:**

- a) 10 numbers of Jetteboutte shall be fitted in a panel made with 18-gauge stainless steel structure weighing minimum 1.9 kg and brass / Nylon bushes for holding the Jetteboutte axel tightened with 5 mm S.S. Screws and distance between Jetteboutte's center shall be 105mm .

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- b) Jetteboutte two wings type made of Nylon-6 material fitted with stainless steel axel of 8 mm bore – (7 – 8 mm diameter bore) with its bottom & top position, outer and inner end chamfered and polished.
- c) Jockey pulley – 32 mm 7 Nos., 50 mm – 1 No., fitted with brass bolt & nut and nylon or stainless steel flat.
- d) Driven by polyurethane 5 mm round belt.



e) Clutch type engage and disengage arrangement fitted in a C.I gear box, comprising, EN-8 axel, ball-bearings 2 numbers, EN-8 helical/bevel gears and 4" V pulleys made of Gun metal/Derlin / Norzile .

f) Jetteboutte revolution 700 to 800 RPM. Jetteboutte speed should be de-linked from the reel speed.

g) Jetteboutte mounted panel should not vibrate during reeling operation.

**x. REELS AND DRIVE MECHANISM:**

a) Reel made of Nylon 6 material shall be of 100 mm in breadth, 670 mm to 680 mm in circumference with 10 or 12 ribs weighing 500 – 600 grams. 10 reels on basin, 10 reels as spare, (20 reels for each basin).

b) Reel stand with 5/8" M.S. Rod fitted on MS base to keep 10 spare reels with spring and bottom portion machined.

c) Auto individual reel stop device model A/B made of Nylon-6 material to prevent breakage of silk yarn while reeling.

MODEL A: Automatic reel stop motion consists of Nylon 6 long arm with MS bracket and magnetic stop. The rubber bush at the back fitted for stopping the reel and easy reverse rotation of reels for knotting.

MODEL B: Automatic reel stop motion device consists of M S bracket powder coated with Nylon 6 / SS long arm and levers. The rubber bush at the back fitted for stopping the reel and easy reverse rotation of reels for knotting.

d) S.S. Reel shaft 32mm O.D. Hollow shaft or 25mm solid, 12 mm ~ 15 mm sealed ball bearings fitted on both ends with Nylon gears, locked with G.M. cone nut.

e) Driving device for reel bar, with clutch type engage and disengage movement fitted in a C.I. gear box comprising EN-8 axel ball bearings 2 Nos., M.S. sprocket gears CI / Nylon gears with Phosphorus bronze bush driven by chain.

f) For housing the reel bar, self-locking system shall be provided in the reel gear box.

g) Reel top, bottom and back covered by minimum 24 gauge M.S. sheet.

h) Nylon reel button, spring and the groove made on the reel shaft should be smooth and free from friction.

i) Two lines of steam pipe ERW (MS) 1 ¼ " diameter "C" class shall be provided throughout the length of the machine positioning below and above at back side of the small reels for drying the silk and for draining out the condensed water, ½" steam trap and ½"IBR wheel valve with M.S. fittings shall be provided for this steam pipe line at the end of the machine. All the steam line pipes and connected fittings should resist 35Kg/cm<sup>2</sup> (500lb/inch<sup>2</sup>) hydraulic test pressure.

**xi. VARIABLE SPEED MECHANISM:**

a) Step pulley mechanism to drive the reels at three different reeling speeds viz., 175 rpm, 200 rpm and 225 rpm shall be provided.

**xii. DISTRIBUTION MECHANISM:**

a) Mounting of silk on reels is 2 ½" wide in convex shapes. Speed ratio of reel is 1.5:1.

**xiii. TRAVERSE MECHANISM:**

- a) Planetary type gear system comprising C.I body EN-8 axel, ball bearings and EN- 8 helical gears, 2.5 modules hobbled of 14/15 or 18/19 teeth shall be provided.
- b) Self-aligning connecting bearing shall be fitted to the traverse.
- c) Channel shall be made of 24 G S.S sheet.
- d) Improved porcelain/ceramic thread guide with SS wire hook shall be fitted with screw fitting.
- e) Nylon rollers embedded with ball bearings, Nylon guides for each frame (on both sides), Connecting flat made of SS 10 gauge shall be provided for horizontal motion of the S.S traverse flat.

**xiv. THREAD GUIDE PULLEY (PLASTIC CROISSURE PULLEYS):**

- a) Plastic Croissure pulleys fitted on plated M.S. Metal strip with separate plastic covers on two sides shall be provided.
- b) 4 mm brass stud shall be fixed on both sides of bobbin.
- c) Bobbin and covers shall be made of polystyrene.
- d) Bobbin axel shall be made of silver steel (hardened) material.
- e) For each end, 4 numbers of plastic Croissure pulleys shall be provided.

**xv. ELECTRICAL CONTROL PANEL:**

- a) Suitable starter with relay system shall be provided for one HP motor.

**xvi. PAINT:**

- a) The entire machine shall be painted with primary paint. Then the machine shall be neatly spray painted by suitable enamel colors.
- b) Chromium plated and yellow basis GST material is used to avoid corrosion wherever necessary.
- c) All bolts, nuts and washers should be electro plated. The description stated above shall be incorporated on the said machine only. Civil works, steam pipes, water pipes and electrical connections from the main supply up to the machine are not included.

**2. SPECIFICATIONS FOR CSTRI CIRCULAR PRESSURISED COCOON COOKING MACHINE**

- i. Main cooking chamber shall be made of 2.5 mm thick stainless steel sheet of size 915 mm diameter and 480 mm height with a dome shaped stainless steel cover having depth of 100 mm. Stainless steel flange is provided for the bottom chamber and the top lid for perfect seating (Figures 1 and 2).
- ii. 3 mm thick stainless steel lid shall be provided with a hinge for easy opening and closing of a chamber (top lid) using dead weight and steel rope arrangement through pulley mounted on 1 ½" x 1 ½" x ¼" L angle assembled with top fixed flange of chamber and bottom chamber sheeting angle frame using ½" bolts with gusset. The pulley is made out of cast iron / MS of diameter 2"

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with suitable groove for wire rope and is mounted using ½" axle support to move freely. The opening of the lid should be Ltd. to 55 ~60° angle with reference to top flange of the cooking chamber and should be locked. The dead weight shall be about 25 Kgs and will be operated using wire ropes and clamps Or easy opening and closing of lid (top cover) can also be made using suitable dead weight fitted on two levers fixed to the top lid.

- iii. The entire chamber shall be mounted on a 50 mm X 6 mm M.S. angle circular frame supported on a ISMC 75 MS channel
- iv. Cooking chamber shall be fitted with steam and cold-water connections with inlets at two places. One water inlet at the bottom of chamber for filling the water and other at the topside of the chamber for prickling the water. One steam inlet at bottom of chamber for heating the water and other at top for steaming the cocoons.

- v. Perforated stainless steel of 13 mm dia, 18 gauge tubes for water supply and Stainless steel tubes of size 12 mm dia, 16 gauge for steam supply shall be provided inside the cooking chamber. The SS tube provided for steam supply at the bottom of cooking chamber shall have 2 spirals / square type for uniform steam supply and shall be of dismantling type for cleaning. Gunmetal gate valve and ball valves with stainless steel working parts fitted shall be of B.I.S. Standard for steam line connections and gate valves of ISI – make for 3water connections. All the steam lines and connected fittings shall be of MS to resist 35 Kg/ cm<sup>2</sup> (i.e. 500lb/inch<sup>2</sup> ) hydraulic test pressure.
- vi. The holes on the steam pipes shall be facing the body of the chamber so that the steam will not hit the cocoons directly, where as holes in the water pipe at the top shall be at an angle of 45O.
- vii. Cooking chamber shall be fitted (outside) with gauge glass for reading water level and one dial thermometer for measuring water temperature. The lid shall be fitted with one pressure gauge, which can read from 0 to 1 kg/ cm<sup>2</sup>, one dial thermometer and 1” steam outlet valve. Suitable safety valve of size 1/2” shall be provided at the top of the doom of the cooking machine.
- viii. 40 mm x 12 mm asbestos gasket or Silicon rubber of 12mm shall be fitted to the bottom chamber on the flange/in the groove in the flange( in the case of silicon rubber) i.e. between the chamber and lid. In the case of asbestos gasket, it shall be fitted on the flange with counter sunk brass or stainless steel screws of M 6 size. Care shall be taken to avoid leakage of steam.
- ix. Triangular perforated stainless steel cocoon cooking baskets shall be made out of 20-gauge stainless steel sheet in the triangular shape of size 265 mm X 145 mm with smooth finishing. Each basket should hold about 300 cocoons.
- x. 12 numbers of cooking baskets shall be mounted on a stainless steel circular cage fitted with a suitable lifting mechanism. Another set of 12 Nos. cocoon-holding baskets shall be provided along with the machine.
- xi. The central Stainless Steel pipe/shaft of 30 mm dia and (wall) thickness of 3mm (in the case of pipe) or stainless steel 25mm rod for lifting mechanism for circular cage shall be provided. The pipe/shaft is placed in center of two color bushes made to Figure 5 to 8 to avoid water leakage and to reduce friction between moving shaft. The leakage with the bottom color and the shaft will be avoided by providing rubber hot water resistant seals. The pipe/shaft is lifted up or lowered down with link mechanism and operating arm.
- xii. Cocoon baskets holding cage stand shall have 2 Nos. semicircular covers fitted with 2 Nos. 100 mm stainless steel hinges with perfect locking arrangement.
- xiii. The positioning of the gauge glass, water inlet, water out let, dial thermometer and lifting mechanism shall be provided at the front side of the cooking machine for easy operation.
- xiv. The bottom and top chamber flanges shall be made out of stainless steel flat of size 50 mm x 12 mm welded to the main cooking chambers and to the top dome (lid) with reinforcement at 6 places and surfaces machined.
- xv. The over flow of the water from the cooking vessel shall be properly adjusted so that when the cages are brought down, the cocoons shall be fully immersed in the water (i.e. water level above the cage shall be 40 mm), whereas, when the cocoon cages are lifted up above the water level, the gap between the water level and bottom surface of the cocoon cages shall be 50 mm above the water level.

### **3. SPECIFICATIONS FOR CSTR TWO PAN EQUIPMENT FOR BRUSHING**

- i. Brushing equipment stand:
  - a) M.S. 1 ½” x ¼” angle fabricated frame, measuring 32” length, 20” width and 30” height. Stainless steel 20 gauge tray fitted to the above stand.
- ii. Cooking vessels:
  - b) Two number stainless steel (outer) vessels 10” diameter x 10” depth shall be fitted to the S.S. tray. Each cooking vessel shall be provided with 9 1/2” diameter x 8” depth inner perforated vessel.
  - c) SS cooking ladle five nos and Cocoon pressing perforated plate/disc (as per the Figure 36) five nos shall be provided.
- iii. Steam and Water pipes:
  - a) Each cooking vessel shall be suitably connected with ½” “C” class ERW (MS) steam pipe with G.M. ball valves, all working parts shall be made of stainless steel. All steam pipe lines and connected fittings shall resist 35Kg/cm<sup>2</sup> (500 lb / inch<sup>2</sup>) hydraulic test pressure. Perforated ½ “, 20 gauge copper tube shall be provided for steam supply to the cooking vessel.
  - b) ½” steel tap fitted with 1” GI pipe shall be provided for supply of water to the cooking vessel.
  - c) Each cooking vessel shall be provided with 1. G.M. main cock to drain out water.
- iv. Paint:

- a) Enamel paint shall be neatly painted on primary paint.
- b) All bolts, nuts and washers shall be of MS galvanized / plated.

#### **4. SPECIFICATIONS FOR CSTRI VACUUM PERMEATION COCOON COOKING EQUIPMENT**

##### **i. VACUUM TANK:**

- a) The chamber shall be made of 2.5 mm thick stainless steel sheet.
- b) Flanges shall be made of 22 mm X 22 mm stainless steel flange. The bottom chamber flange shall have a groove of
- c) 10mm radius groove and inner diameter 450mm
- d) The top portion tank shall be of 500 mm height X 750mm diameter with a inner perforated S. S plate of 5.00 mm thickness and 750mm dia. with a sliding opening arrangement of 300mm dia and locking arrangement (as per the drawing position may be placed). This inner perforated S.S plate shall be fixed to vacuum tank very firmly using L clamps (fixed to tank) and screw nuts at 10 to 12 places .
- e) Permeation chamber bottom portion cone shall be made of 2.5mm stainless steel sheet along with stainless steel flanges with gasket and SS lid and locking arrangement.
- f) The tank shall be mounted on four legs made of SS sheet channel welded to the tank. The height of the leg shall be 1200 mm (as per the drawing).
- g) Vacuum Tank shall be fitted with gauge glass for reading water level and one dial thermometer (preferably 2"dia) of capacity 0°C to 100°C for measuring water temperature.

##### **ii. WATER:**

- a) Inlet collar for water inlet and 1" SS Ball valve for controlling the water flow shall be provided at the bottom cone portion of the tank.
- b) For water outlet another 1" SS ball valve for drain to be provided which is connected to inlet valve.

##### **iii. LID**

- a) The top lid shall be made of 10 mm thick stainless steel sheet having 500mm dia., and attached with hinges and inter connected with counter balancing dead weight. The rings scating shall be machined to avoid leakage.
- b) The opening of the lid shall be supported by 40mm X 40 mm angle.
- c) A rubber gasket shall be used with dimensions of 10 mm round rubber without any air leakage.
- d) The chamber shall be fitted with a vacuum gauge 75 mm diameter, 0 ~ 700 mm Hg and a brass / Stainless steel air inlet 1"ball valve shall be provided on the side top of the chamber.

##### **iv. VACUUM PUMP:**

- a) Direct drive rotary water ring vacuum pump / Oil vacuum pump with ½ HP, 3- phase motor having air displacing capacity 200 liters per minute and negative pressure of 600 mm Hg shall be provided.
- b) Permeation chamber and vacuum pump shall be inter connected by 25mm (1") Nylon braided hose pipe with air expansion chamber of size 200 mm diameter and 458mm height with inlet collar and outlet brass wheel valve or 13mm stainless steel ball valve. A non return valve has to be fitted in between chamber and vacuum pump.

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- c) All the inlet and outlet pipefittings shall have inside perforated mesh fittings to avoid cocoon entering to the pipes.
- d) All the nuts and bolts shall be made of SS material for the permeation chamber.

##### **v. COCOON COLLECTION TANK:**

- a) Water permeated cocoons collection tank shall be of SS material of 18 gauge having dimensions of 450 mm Width X 600 mm Length X 450 mm Height having 4 wheels trolley type. Two number of cocoon collection tanks shall be provided.

##### **vi. WATER CIRCULATION TANK:**

- a) The water circulation tank shall be of stainless steel material of 18 gauge having dimension of 650 mm x 650 mm x 650 mm with SS cover to close the tank. The tank shall have dial thermometer to indicate the water temperature and steam connection with ½" ball value to heat the water with suitable S.S. perforated pipe fittings at the bottom of the tank. The tank shall also have drain out arrangement with 1" ball value. Vacuum Tank shall be connected with the water circulation tank with the help of suitable quality pipe.

#### **5. SPECIFICATIONS OF CSTRI SILK RE-REELING MACHINE**

The main specifications of the silk re-reeling machine should be as follows:

##### **i. FRAME:**

- a) The bottom frame of the re-reeling machine shall be made from 16-gauge 40 mm square M.S. Tubes, Flats etc.
- b) The top frame shall be fabricated by 16 gauge 25 mm square M.S. Tubes, Flats etc.,

- c) Height of reel axel from the floor shall be 980 mm.
- ii. BODY STRUCTURE:
- a) The reel shall be covered with 20 gauge M.S sheet covering all sides, top and bottom. Inside of the re-reeling machine to be insulated with 1 mm CAF Gasket sheet for insulation (sides and bottom). At the bottom of the frame 24 gauge stainless steel sheet (strengthened with M.S Flat strips on the inside) shall be used to cover the legs of the re-reeling machine completely.
- b) Tilting spherical transparent windows shall be made of 2.5 mm acrylic sheet cover, fabricated on M.S. or FRP molded flat structure, fitted above each reel with rubber bush stoppers at rear end to avoid loss of temperature.
- c) 40mm x 14 G M.S. Sq. pipe guard shall be provided at the end of the machine for safety purpose.
- iii. HUMIDITY EXHAUSTERS:
- a) The humidity vent shall be provided to each window of re-reeling machine.
- iv. MOUNTING OF THE MACHINES:
- a) The entire silk re-reeling machine shall be mounted on 75mm X 40mm X 6mm, M.S. Channels.
- b) Base for small reels keeping shall be made with cement platform in such a way that small reels can be placed at an inclination to the central axis of balloon control rings so that silk can be unwound smoothly.
- v. MOTOR AND DRIVE ARRANGEMENT:
- a) The Drive arrangement structure shall be fabricated by 50 X 50, 6mm M.S. Angle and suitably covered by 20 gauge M.S. Sheet.
- b) 1 H.P 960 RPM, 380 / 440 volts, 3 phase, 50 cycles induction Motor preferably from ISO 9000 certified companies shall be provided with the machine.
- c) The motor shall be provided with DOL (Direct on line) starter.
- vi. TRANSMISSION:
- a) Fitted with V belt, 5/8" pitch chain, M.S. Sprocket, with 3 module 50 Teeth (156 mm diameter) M.S. Gears, EN-8 Metal shaft fitted with 25 mm pillow block bearing.
- b) All moving parts in the machine such as gears, 'V' pulleys are tightened by high tensile fasteners.
- vii. MAIN SHAFT:
- a) The main shaft shall be of 25 mm diameter M.S. bright rod with self aligned pillow block bearings. The drive is transferred through 480mm diameter, 25 mm width, and cast iron drum wheel.

- viii. REELS:
- a) The reels shall be of 1.5 meter in circumference, which shall be fixed on 6 way LM6 Aluminium material hubs having 12mm 4 fixed spokes and 2 collapsible spokes with brass wing nuts. The reeling aluminium hubs shall be fixed on central shaft groove using bolt arrangement. The collapsible spokes shall be 12 mm diameter. The brass wing nut shall have 25 mm thread length. The reel shall weigh a minimum 11 Kg.
- b) The wooden battens shall be made of good quality seasoned teak wood smoothly polished of size 50 X 25 X 600 mm with single groove in the middle of the batten of size 4 mm square. c) The reel shaft shall be made of M.S. 20 mm diameter fitted with both sides sealed ball bearings of 15 mm inner diameter on both sides of the shaft. The bearings shall be fitted on open type cast iron housings on left side and self aligned U block on the right side.
- d) Friction wheel shall be of 150 mm dia and 25 mm width made of compressed hard wood/Nylon / rubber band with C.I. Flange with hub fastened with M6 bolts and nuts.
- ix. TRAVERSE:
- a) The Traverse bevel gear shall be made of nylon – 6 materials having 16 T X 25 T of 3 modules.
- b) The thread distribution shall be connected with 100 mm disk to achieve eccentric drive and provided with curved shape traverse connecting rod using 6mm M.S. round/flat rod at edges bushed. The traverse pipe shall be welded and drives to avoid wobbling. The traverse pipe shall be of size 12/20 mm 24 gauge square stainless steel tube mounted on 2 sets of nylon square bushes /nylon rollers and having 5 ends / window. The distance between guide to guide is 115 ±2 mm. The weight of the distribution pipe with thread guides shall be 400 gms.
- c) Pigtail type thread guides of enamel coated - single spiral having smooth finish shall be fixed in the vertical position and the thread shall pass on stainless steel tension tube of 24-gauge 15 mm diameter. Use of 3 mm diameter stainless steel wire for double spiral thread guide is preferred.
- d) Balloon control rings shall be fixed on flat frame or side sheet and shall be made from 5 mm thickness stainless steel wire having 35 mm inner diameter and length of 5.25" (3 numbers) & 4.25" (2 numbers). 16 mm X 24 G, stainless steel pipe used for yarn path.

x. REEL SPEED VARYING DEVICE:

a) The machine shall be provided with step pulley arrangement to enable to run the machine at three different speeds viz., 150 rpm, 180 rpm and 210 rpm.

xi. REEL BRAKE:

a) The brake wheel shall be fixed on reel shaft. The U shape brake shoe fitted on long lever and loaded with effective springs at the rear end to achieve the following objectives of 1. The reel shall come to a halt with minimum rotations and should not rotate backwards and 2. The engaging and disengaging drive shall be very effective.

xii. STEAM PIPES FOR CIRCULATION OF HOT AIR:

a) 5 rows of steam pipe lines to be drawn shall be of 40 mm dia 'B' class MS pipe, one between the 2 reels, one each at the top & bottom and each side of the reels. Out of the five rows, two rows of the steam pipes shall be of fin tube type of 20mm dia B Class, which will be placed at the bottom of the reels.

b) The main steam header pipe shall be of 90mm dia and the condensed water drain of 50 mm dia with float type steam trap shall be provided for smooth and equal distribution of steam in all five steam pipes. 50 mm MS flange shall be provided for maintaining steam trap along with blow off cock. c) Steam pressure gauge of 4 inches diameter, capacity 0 ~ 7 kg per cm<sup>2</sup> with siphon pipe shall be fitted on the steam header. d) All the steam pipes and connected fittings shall be of MS to resist 35 kg/cm<sup>2</sup> (500 lb/inch<sup>2</sup>) hydraulic test pressure.

xiii. ELECTRICAL CONTROL:

a) Suitable starter with relay system for one HP motor shall be provided.

xiv. PAINT:

1. The entire machine shall be painted with primary paint. Then the machine shall be neatly spray painted by suitable enamel paint.

2. Primary black dull paint shall be neatly sprayed inside the re-reeling machine.

3. Yellow passivity material is used to avoid corrosion.

4. All bolts, nuts and washers are electro plated.

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5. Steam pipes shall be painted with heat resistant aluminium paints. The description stated above should be incorporated on the said machine only. Civil works, steam pipes, water pipes and electrical connections from the main supply up to the machine are not included. Spares for 6 window and 10 window silk re-reeling machine

# Items Qty in Nos.

1 5mm Ring Hooks 6

2. Traverse distributor Nylon square bush /Nylon roller 4

3. Thread guide hooks 100

4. Traverse connecting set 2

5. Nylon Traverse Bevel gear set 4

6. Teak wood Battens 10

7 Friction wheel 4

8 Brake, Nylon Disc 2

9 Skeining equipment with SS pipe 1

Note: Specifications / hydraulic test pressure of all the steam pipes and connected fittings provided in the Two pan unit for cooking /brushing, Pressurized cooking machine, Reeling machine and Re- reeling machine etc. and in the unit has been given assuming that unit is of 6-basin (60 ends) capacity.

**5. SPECIFICATIONS OF CSTR ELECTRICAL HOT AIR DRIER – Specifications may increase or decrease at the time of procurement and according cost may also increase or decrease**

**The quantity of Hot Air Drier will be as follows:**

**Capacity 100 Kgs – 2 Hot Air Driers**

**Capacity 50 Kgs – 18 Hot Air Driers**

i. Capacity:

a) Capacity of the drier shall be 50 Kg.

ii. Drying chamber:

a) Size of the chamber shall be of 4.5' height, 6' breadth and 3.5' length. The Chamber shall consist of sheathed air heaters of capacity of 9KW, suitably wired for three phase 440 volts distributed in two sides i.e. left and right sides of the chamber with uniform distribution of coils to provide uniform heating of the chamber. The Temperature uniformity shall  $\pm 2^{\circ}\text{C}$ . The chamber shall be provided with two doors with effective locking system at two places – top and bottom. The door of the chamber shall be airtight by using heat resistant silicon rubber beadings to withstand the temperature up to  $200^{\circ}\text{C}$ . b) The outer and inside wall of the chamber and doors shall be made of M.S sheet of 18 SWG and in between with glass wool insulation of 75 mm thickness to avoid heat losses. The outside wall of the drier shall be painted with enamel paint and inside walls with heat resistant aluminum paint.

iii. Cocoon holding trays and trolley:

a) Cocoon holding tray shall be of 3' length x 2' width x 2" height. All the four sides of cocoon tray shall be made out of Aluminum sheet of 1.2 mm thickness folded neatly and bottom of the tray shall be of  $1/2'' \times 1/2''$  -14 SWG galvanized Iron (GI) wire mesh. All the side riveted with smooth surface and do not have sharp edges. 20 trays shall be housed inside the drying chamber with two trolleys (10 trays in each row). Each trolley dimension shall be of 24.5" breadth x 42" height x 36" length (as shown in the drawing). For easy loading of cocoon trolley, ramp system shall be provided to the drying chamber .

iv. Air circulation:

a) Two outlets at the top of the chamber (circular in shape) having 10cm diameter and two outlets at the back side of the top of the chamber (Rectangular in shape) having dimension of 7.6cm x 15cm. All the outlets should be provided with SS mesh and baffle plates (spring loaded) for exhaust control. Two air inlets at the bottom of the chamber having dimension of 15cm x 7.6cm (covered with SS mesh and baffle plate arrangement) on either side of the drier are to be provided.

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b) For effective air circulation, fans of capacity of 0.5 HP 3 phase with the speed of 1440 rpm shall be provided at both side (inside) of the chamber just above the heating coils. Size of the six blades fitted to each fan shall be of 16 "length and 2.5" width.

v. Control box:

a) A separate control panel board is to be provided outside the chamber. Electronic digital temperature indicator and controller shall be provided to indicate and control temperature of the oven. Panel board should have one main switch, 1 MCB, 1 cut off relay, 1 digital temperature controller (thermostat). The temperature range will be  $0^{\circ}\text{C} \sim 150^{\circ}\text{C}$ . The control accuracy shall be  $\pm 1^{\circ}\text{C}$ . The provision should be made for easy replacement of the damaged heating coils. Thermal over load (relay) protection for fan motors and MCB for individual heaters apart from main control MCB shall be provided. Safety measures should be provided to avoid electrical shocks or accidents during the operation.

vi. Power supply:

a) The oven shall be suitable for use on 440 volts, 50 Hz and Three Phase AC supply with an electrical load of 9 KW for heaters and 0.75 KW for motors.

## 7. SPECIFICATIONS FOR CSTRI COCOON SORTING TABLE

i. TABLE

a) Made of 1" x 1" square pipe 16 gauge having height of 780 mm from floor level, width 600 mm and length 1400mm.

b) The legs of the table shall be welded by another square tube of the same cross section at the height of 320 mm from floor level. The square tube shall be extended to the front side by 500 mm for positioning the cocoon tray.

c) Rubber bushes of 1" size shall be provided to all the legs.

d) On the top of the table over the square tube to hold glass a rubber/wooden beading has to be provided as shown in figure. 25 mm height ridge with smooth finish shall be provided to avoid the cocoon falling from the sides of the table from 1mm CR sheet / wood.

e) Two sides (length wise) of the table and backside shall be covered by a M.S 20 gauge sheet. Inner side of the sheet shall be painted with white colour and outside by an enamel paint preferably opulin green / smoke gray. 15 Nos. of holes each of  $1/4''$  shall be made both in the bottom sheet and on any one side sheet of the sorting table and these holes shall be spread in equal distance on complete surface of these sheets for better air circulation and preventing sorting table getting heated.

f) The fluorescent lamp holding plate (ply wood of 12 mm thickness painted white) to hold 4 fluorescent tubes of 40 watts with complete set of standard make (Mysore lamps, GEC, Philips, Crompton greaves) at equal pitch shall be placed at a distance of 210 mm from the top of the table. The entire tubes holding plank shall be of sliding type for easy maintenance.

g) The sliding ply wood should be placed on a 25 mm M.S. angle welded to the inner side legs of the table (length wise) at a distance of 222 mm from the top of the table.

- h) Internal electrical wiring without affecting the sliding of the fluorescent lamps shall be provided with on/off switch. A flat type DP switch 30 A shall be provided facing outside for on / off with 5 meters of 3 core wire. Also a 15 A multi socket shall be provided with 15 A top at inner side of the table. For safety purpose ELCB 230 Volts, 16 Amps two pole shall be provided to the main circuit of sorting table.
- i) Safety measures should be provided, wherever necessary to avoid electrical shocks or accidents during the operation.
- ii. GLASS:
- a) Milky glass having a dimension of 555mm width x 1355mm length x 6mm thickness shall be provided. The glass shall be placed on a rubber beading fixed on the ridge / wooden frame.
- iii. COCOON HOPPER:
- a) Cocoon hopper having dimensions of 600mm length x 600 mm width x 200 mm height made of 18 gauge M.S. sheet shall be mounted on the main frame of the table by using suitable brackets. The hopper shall have a gradient of 100 mm. The hopper shall be powder coated to have smooth surface
- iv. SORTED COCOON COLLECTOR:
- a) The guide for the sorted cocoon collector shall be made of 18 G M.S. sheet powder coated as per the figure with 60 mm slanting.

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- b) Two numbers of cocoon collection crates made of plastic weighing minimum 3 Kgs having size of 400 mm width X 600 mm length X 420 mm height.

## 8. SPECIFICATIONS FOR POWER GENERATOR

- i. 5 KVA capacity generator having ISI-mark and manufactured by reputed manufacturer should be supplied for 10 End basin capacity Multi-end reeling machinery package.

## 9. SPECIFICATIONS FOR TESTING APPLIANCES

- i. Epprouvette:
- a) Hand operated - Metallic Epprouvette with Analogue / Digital revolution counter to measure up to accuracy of 1 meter. Circumference of reel is 1.125 meters. Fitted over metal/wooden base.
- ii. Electronic Balance:
- a) Electronic balance shall be of 500gms / 600 gms capacity with 0.01 gms sensitivity.

The list of the spare parts for 10 End basin Multiend Reeling Machine to be supplied

- | Sl no. | Items                                       | Numbers |
|--------|---|---------|
| 1      | Nylon Button clip set                       | 30 Pcs  |
| 2      | Ceramic / Porcelain Buttons                 | 100 Pcs |
| 3      | Plastic Croissure pulley                    | 200 Pcs |
| 4      | Jetteboutte set with axel                   | 10 Pcs  |
| 5      | 1 3/8" jockey pulley set                    | 10 Pcs  |
| 6      | 2 3/4" jockey pulley set                    | 6 Pcs   |
| 7      | 5mm diameter P.U Jetteboutte Belts (meters) | 9 Pcs   |
| 8      | Reel Bar Nylon Gear                         | 5 Pcs   |
| 9      | Nylon Reels                                 | 10 Pcs  |
| 10     | Porcelain Thread Guide set                  | 20 Sets |
| 11     | Reel Break Nylon arm                        | 6Pcs    |
| 12     | 1" Rubber for Brake                         | 20 Pcs  |
| 13     | Plastic Drain cock                          | 4 Pcs   |
| 14     | Individual reel stop motion springs         | 10 Pcs  |

The list of the spare parts for 6 Window Re-Reeling Machine to be supplied

- | Sl. no. | Items   | Numbers |
|---------|---|---------|
| 1       | 5mm Ring Hooks                                      | 6       |
| 2       | Traveler Distributor Nylon square bush/ Nylon ruler | 4       |
| 3       | Ceramic thread guide hooks                          | 100     |
| 4       | Traverse connecting set                             | 2       |
| 5       | Nylon Traverse Bevel gear set                       | 4       |
| 6       | Teak wood Battens                                   | 10      |
| 7       | Friction wheel                                      | 4       |
| 8       | Brake, Nylon Disc                                   | 2       |
| 9       | Skeining equipment with SS Pipe                     | 1       |



The list of the tool kit to be supplied along with packages is given

Sl. no. Items Name -Numbers

- 1 One set of set spanner -14
- 2 12" Screw spanner -1
- 3 Allen key set (spanner) -1 set
- 4 18" Pipe wrench -1
- 5 8" Cutting pliers -1
- 6 6" Nose Pliers -1
- 7 Screw Driver one set of 10"-8"-6" -3
- 8 Hammer 0.5 kg -1
- 9 Oil can 250ml size -1
- 10 Grease Gun 1/2kg -1
- 11 Croissure Pulley Cleaning Knife -1
- 12 Jetteboutte Pulley Cleaning Knife -1