

# **THE TRICHUR CO - OPERATIVE SPINNING MILLS LTD**

**Vahani.P.O, Wadakkanchery, Thrisuure Dt., Kerala St. Pin:-680589**

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**Tender Notice No. TCSM/ELECTRIFICATION WORK/2019-20/01, dtd 01 Mar 2019**

## **e. Tender for Electrification Work**

### **NOTICE INVITING TENDER**

**Sub :- E-Tender for the ELECTRIFICATION WORK at the mills for NCDC Assisted Modernization project as detailed below:-**

Tenders are invited from Experienced Competent and licensed 'A' grade electrical contractors by e-tender mode floated in <http://etenders.kerala.gov.in> our e portal for undertaking the Electrification work for the new machineries at the Mill including limited supply of all required materials as per the following scope of work and specifications. The attached specifications are guide line for the E- Tender. The awarded Contractor has to carry out the work as per the approved Schematic diagrams of Kerala Government Electrical Inspectorate and their Specifications as well as Indian Standards.

A set of conceptual drawings related to the work is available at the Mill office for reference and for an overall idea about the work. New HT CT/PT units and TOD meter with Kiosk, 12KV 800A HTVCB Panels, 1600kVA OLTC Transformers 2500A bus ducts, 400kVAR APFC Panels MSB SMSBs, SSB's LDB's and LED tube lights shall be supplied by the Mill directly.

### **TITLE OF THE PROJECT:**

Upgradation of the Spinning Mill from existing capacity of 13,104 spindles to 22320 spindles The ultimate capacity with future expansion of 3456 spindles will be 25776 spindles.

### **SCOPE OF THE CONTRACT WORK**

#### **General:-**

Except the list of equipment's supplied by the Mill, all other materials are to be purchased by the Contractor for the completion of the Project.

**1 EARTHING:-**

- 1.1 Conduct the present soil resistivity test at various locations in the mill and power room Area and plot resistivity graph and take the correct resistivity value for the calculation of earthing electrodes required.
- 1.2 Sort out the existing earthing electrodes locations and test their condition. condition Enhance and add new earthing system as per the earthing calculations and subsequent earthing lay out prepared by the contractor for the approval of the Electrical Inspectorate. (Refer latest version of IS-3043 and Electrical Inspectorate Technical Diary 2019 for the earthing methods and earth values and calculation of no. of electrodes etc.)

**2. PREPARATION OF DRAWINGS AN GETTING IT APPROVED BY THE ELECTRICAL INSPECTORATE.**

- 2.1 As a first step, prepare Electrical drawings of the Mill based on the conceptual drawings available on request from the MD, Trichur Coperative Spinning Mill, Vazhani P.O, Vadakkancherry, Thrissur and get them approved. The Contractor has to work only on the basis of approved drawings of Electrical Inspectorate. The conceptual Drawings are only guideline. He has to coordinate with our Electrical Consultant through out the work when awarded.
1. Verify the electrical and mechanical strength of all components of the 4 Pole structure including fencing and earthing system and update as per standards, spec of electrical Inspectorate and KSEB(L). If replacement of the hard ware members, their fittings and painting of the structures etc are required, it should also be done .
  2. Verify physically and electrically the condition of the existing 1x3c 185mm square 11KV XLPE cable from the 11KV consumer side AB switch of the 4 Pole Structure connected to the existing VCB Incomer. Necessary insulation test should be done and ascertain its electrical strength. If the insulation value

is low, replace with new 11/11KV cable. A copy of the test report shall be submitted to the Electrical Consultant/management of the Mill.

3. Replace the existing partially faulty VCB Panel with new 12KV, 800A (1+3) VCB Panel supplied by the Mill (vide item 1.2 above). Connect the incomer CB of the VCB to the 11KV consumer side AB switch either through the existing cable if found to be healthy (vide item-3) or through newly laid 11/11KV XLPE cable (A2XFY). 11/11KV cable is recommended as it is connected to delta connected primary side of transformer.
4. Install, test and commission of 2 nos 1600kVA oil filled 11KV/ 433V copper wound Transformer with OLTC supplied by the Mill as per the Spec contained in Annexure-C attached.

Note: - If the existing 800kVA transformers can take 80% load duly certified by KEL, only 1No. 1600kVA transformer may found to be installed near the existing transformers. At that time, the online diagram has to be modified to distribute the loads in consultation with the Electrical consultant.

5. The existing 3x185mm square PILCDSTA cable between the existing VCB outgoing CBs and each existing 800kVA transformer are to be tested for their electrical and mechanical strength and if found healthy, use them, provided the existing transformers are capable of taking the load (See Item1.3 under main title I). If the transformers can't take load, lay new 1x3C 185 mm square 11/11KV XLPE(A2XFY) cables between new VCB panel O/G CB's to the delta connected primary terminals of new 1600 kVA transformers as per approved Diagram. See Annexure -F for the spec of HT cable.

Note: Due to the delay in getting the test report on the existing 800kVA transformers, the whole design is done with new transformers and estimate is prepared accordingly to avoid delay in the E-tender further.

6. Install new MSB and circuit breakers as per the approved single line diagram by replacing the existing MSB of English Electric company. Testing and

commissioning of MSB shall be as per the Spec of MV Panel contained in the Annexure .G

Note:- The EE company is no longer existing . Hence, replacement of faulty switch assembly and regular maintenance of EE Panel board will be difficult and hence replace completely the existing EE MSB with new MSB.

9. Install new APFC panels 4x400kVAr as per the directions of the supplier of APFC Panel and connect them to the respective circuit of MSB as shown in the one-line diagram TCSM-1L 003/20. Test and commission in the presence of the commission Engineer of APFC Panel Supplier. See spec of APFC Panel as in the Annexure-E.
10. Install new SMSB's and SSB,s as per the approved Electrical Drawings at various locations in the Mill area shown in the drawing No. TCSM- Pnl. Loc. 001.
11. Lay new cables between new MSB and corresponding sub switch Boards(SSB's) and between SMSBs and corresponding SSBs. Transfer the electrical connections of the existing equipment stage by stage to the newly installed switchboards as per the approved electrical drawings. Connect new equipments to their respective switchboards as shown in the approved drawings.

Note :-

1. Fabrication, Testing and commissioning of all switch boards shall be done as per the SPEC of MV switch Boards attached in annexure-F.
2. While transferring the electrical connection from the old switch boards to new switch boards, there may encounter supply interruption. Therefore, during this transfer process it is better to shut down the Mill for a week.

## **12. CABLE TRENCHES & MAN HOLES**

12.1 New cable trenches are to be excavated as shown in the Equipment and Switch Boards lay out and provide new and existing trenches with manholes at every 6m route length as required and cables are laid as per the relevant

and respective drawings. All cables are to be laid over GI cable runways fixed in the trench walls as per the relevant drawings and Spec.

- 12.2 Each manhole of all the existing and new trenches, those in front and rear sides of each switch Board are to be covered with either cast iron or MS checkered plates as per the Electrical Inspectorate Norms and relevant IS. These checkered plates shall flush with the finished floor level and be provided with recessed hooks to open and shut as and when required. The checkered plates shall be covered with Electrically graded Rubber mats especially on either side of the Panelboards/switch Boards. The manholes are to be marked in order to identify and locate their positions on the floor.

### **13. CONSTRUCTION OF TRANSFORMER- OIL SOAK PIT**

Construct an oil soak pit having sufficient capacity to take care of the oil capacity of 2 no's 1600 kVA transformers outside the Electrical Room at convenient location as per relevant standard, which may be included under the scope of work of civil contractor. The Oil capacity shall be obtained from the Transformer manufacturer.

### **14. LIGHTING OF THE PLANT AREA WITH SPECIFIC EMPHASIS ON GENERAL LIGHTING, EMERGENCY LIGHTING PORTABLE UNITS AND EXIT LIGHTING MODULE REQUIRED AT VARIOUS WORKING POSITIONS FROM BLOW ROOM TO POST SPINNING AREA & POWER ROOM.**

The contractor shall supply all the wiring materials as per IS except Lighting Fixture which shall be supplied by the Mill and do the wiring as per the designed drawing vide DWG, No. TCSM- LL-001, TCSM- LL-002 & as per relevant IS and norms of Electrical Inspectorate and KSEB (L). After wiring is finished, necessary insulation and earth test shall be conducted in the presence of the electrical consultant and all the test report shall be prepared and submitted to the Mill.

The minimum size of light circuit is 1.5mm<sup>2</sup> for Phase Neutral and Earth, power circuits 4mm<sup>2</sup> phase and neutral and 2.5mm<sup>2</sup> for earth. Based on the allowable voltage drop, the minimum size of the light circuit may be changed to 2.5mm<sup>2</sup> for phase and neutral. The cables for all the light and power circuit shall be

1.1KV grade fire retardant and smoke less electrolytic quality copper conductors as per 3961 (Part-V)-1968 & IS 694-90. The preferred wiring conductor shall be original Finolex. The conduits shall be medium size ISI marked product like Balco, Konseal, Supreme etc. All the conduit fittings shall invariably be of the same product as of the conduit. The switches, Power sockets, shall be ISI marked heavy duty type. All the switch boards of the lights and power circuits shall be recessed in the wall and the enclosures shall be IP 54.

For any sort of specific power socket if required by the mill, it shall be provided with industrial type self-protected sockets of 20A/32A & shall be wired with fire retardant and smoke less 4mm<sup>2</sup> size phase and neutral copper conductor and 2,5mm<sup>2</sup> earth conductor. The colour code RYB for phases, Black for neutral and green for earth conductor shall be strictly followed during the wiring. All the circuits from their respected DB`s shall be properly identified and marked with plastic ferrules on both ends of each circuit. No looping of neutral is ever permitted. In case any jointing of the wires becomes inevitable, they shall be made at the junction boxes through connectors or with in the respective switch boards. Never bring more than 1 phase conductor in any of the switch boards.

A far as possible the lighting and power loads shall be distributed equally. After the wiring is completed the wiring system shall be tested for continuity, insulation and earth value as per relevant standard and as per norms and regulation of electrical Inspectorate as well as KSEB(L). For supply to industrial sockets and other power circuits shall be provided through independent RCBO apart from Main RCBO in the relevant DB. All the connections from 2.5mm<sup>2</sup> onwards shall be made through crimping type copper lugs of suitable configuration.

In case any conduit is to be laid through concrete, these conduits and fittings shall be heavy duty type and ensure that the conduit layout is water tight/proof. All the wiring shall be made as per relevant IS 732-89, 6665-72, IS 3043-87 & IS 8061-76.

Note : The positions of the power outlet points including industrial sockets

shall be intimated to the pre bid qualified contractor later.

## **15. HUMIDIFICATION PLANT**

Existing Humidification plant shall be renovated/ modified by the Vendor to suit for the newly installed units at Blow room, Preparatory, Spinning stages 1,2,3 and Post Spinning location as per schematic diagram and equipment layout. Install necessary cables from SMSB-7 to various Plants as per the spec of the Vendor/ supplier and assist in the testing and commissioning of various plants fed from SMSB-7.

## **16. COMPRESSORS AND AIR CIRCULATIONS SYSTEMS**

16.1 The electric supply for the existing 2x50HP 100% oil- free compressors and one no. new 60 HP, screw type compressor shall be provided from a common Compressor Panel CCP installed near the MSB Electrical Room. The common supply to this CCP shall be taken from the SMSB-8 installed near the MSB at Power room. The contractor has to install CCP, lay cable from SMSB-8 to CCP, lay cables from CCP outgoing to respective compressors as specified by the manufacturer of each compressor. Testing and commissioning all come under the scope of the Contractor.(Refer TCSM 1L-011/20)

## **17. AUTOMATIC WASTE EVACUATION SYSTEM**

The supply for this system shall be given from SSB 1.2 as shown in the schematic diagram and equipment layout.(Refer TCSM /1L-013/20)

## **18. MEDIUM VOLTAGE POWER CABLES**

Preferred Manufacturer: Finolex, Poly Cab, V-Guard , Havels

All the distribution cables from MSB as well as from the respective SSB's shall be 1.1KV rated Armored XLPE cables. Cables up to 25 square mm shall be of copper and above that of Aluminum Conductors. The sizing of the cable shall be based on the current carrying capacity, voltage drop limit, short circuit withstand, temperature rating, method of laying etc The cable sizing calculations should be submitted along with documents/drawings by the contractor and got them approved by the TCSM Consultant.

## **19. CONTROL CABLES:**

Parallel to Power cables control cables of various controls at each stage of the Spinning system shall also be laid as per standard and requirement. They shall be made available for the respective connections at each equipment/ device by the Installation Engineers/Technicians of various equipment of the spinning system Suppliers..

## **20. FIRE FIGHTING SYSTEMS:**

As per Fire Department Norms, an effective and standard fire fighting system for the whole Plant area shall be got designed and provided.

## **21. Emergency lighting System**

At present, portable type LED tube emergency units of plug-in type is provided. In case more lighting through redundant source of supply is required, the mill shall provide emergency distribution board & wiring system as an additional scope of work including the supply and installation of suitable DG set or Inverter system.

**Note :-.** The bidded contractor shall submit all the technical brochures of Electrical materials such as HT, LT cables ,switches, wires, conduits-their accessories including test certificates, shop drawings if any. All materials shall be ISI marked and get them approved by the Electrical Consultant of TCSM. For the conduit wiring, medium size conduit should be used. All the conduit fittings should also be of approved quality having the same thickness and quality of conduits. No recycled Plastic material shall be used.

If necessary the probable agencies are expected to visit the Project site before submitting the offers. Suggestions on site conditions may be discussed with the Managing Director-Shri. P.S.Sreekumar (9847764630)/ Mill Manager Mr. Ashraf P Khader (Phone: 9207580586).There will be a pre bid meeting at the Mill on 18 Mar 2019 11.00 a.m to clear any doubts on the scope of work and specifications etc.

The Bidders are to upload the tenders adhering to the technical experience of similar work in reputed spinning mills or any other industry and the companies

registration certificate copy, and other necessary supporting documents as required in the format attached in the Annexure I of Technical Bid to scrutiny their pre qualification and entering in the finance bid BOQ the lowest cost of work including materials involved in the work as contained in the scope of work as well as in the BOQ and labour charges for the entire work including all taxes and levies except GST which has to be entered separately in the BOQ for the material and labour to be submitted on or before 28 March 2019 ,11.00 Hours.

Technical Bid will be opened on 01 Apr 2019, 14.00 Hours, Date of Financial Bid opening will be finalized in the Technical bid opening. Bidders/ their authorized representatives including technical persons are required to attend the tender opening meeting at Mill's registered office at Viruppaakka, Vazhani.P.O, Wadakkanchery, Thrissure Dt, Kerala St-680589 or any other places intimated on the specified date and time. The committee will scrutiny the eligibility as per the requirement in the Technical bid. Only those successfully passed in the technical bid alone will be considered for opening their finance bid .Price negotiation, if required, will be held only after the opening of financial bid, with the Lowest Quoted Bidders.

To participate in e-tender, the suppliers are to make Earnest Money Deposit (EMD) [Refundable] and tender form cost (non-refundable) as a single transaction as follows:

TOTAL ESTIMATED COST OF THE WORK : Rs 62,95,300.00

EMD INR 63,000.00 (Sixty Three Thousand only)

Tender Fee INR 14,900.00 (Fourteen Thousand Nine Hundred Only)  
(including 12% GST)

Total :- INR . 77,900.00 ( Seventy Seven Thousand Nine Hundred Only)

### **RULES FOR REMITTING EMD & TENDER FEE**

Payment towards EMD and tender fee should be deposited online as single transaction using the payment gateway of State Bank of India (SBI). Bidders have the freedom to use either online payment through SBI's Internet Banking or make payment through the bank of their choice through NEFT Platform facilitated by SBI.

The amount of EMD of all unsuccessful bidders shall be refunded automatically to the Bidder's account by SBI. Instructions on NEFT payment are available at the end of this document for bidder easy reference.

NOTE: Bidders who are making payment of EMD and tender fee through any bank other than State Bank of India should ensure that the payment through NEFT has been made at least 48 hours (two working days) before the closing of bid, in order to ensure receipt of the amount in the account of Sate Bank of India before closing bid.

Non-receipt of EMD and tender fee in the account of State Bank of India before closing of bid will result in automatic rejection of bid by the system itself, for non-remittance of EMD and tender fee.

The prospective bidders (vendors / suppliers) may contact Mr. Dinu.S.S, Finance Manager, The Trichur Co-Operative Spinning Mills Ltd. (Phone: 7902489539.) during office hours at least 3 days prior to the date of tender closing for any assistance in submitting the tender. The bidder should have valid encryption (Digital Signature Certificate – DSC) for participating in the e-tender.

**Terms and Conditions are as follows:**

1. Bidders are to quote only for all the items mentioned in the Notice Inviting Tender (NIT).
2. The Bidders are expected to prepare a schedule of work and execute it as per the direction of Mill's Electrical consultant/mill managements.
3. Bidders are to upload their quote for tenders invited in Two Bid tendering mode. The bidders shall upload their (i) Technical Bid (Pre-qualification) and (ii) Financial bid through the e-tendering system only.

**Hard copies of Bid documents or any other mode shall not be accepted.**

4. The Bidders are requested to adhere strictly to the following step:  
Technical bids are required to be uploaded before uploading the financial bid and not vice-versa.

5. In the event, if the quotes found to be submitted through any other mode, their offers will be disqualified.
6. If desired, the bidder may take print out of acknowledgement of the bids submitted immediately after their submission.
7. Award of contract will be issued on line to the successful Lowest quoted bidder after the approval of the Director Board of the Mill. Detailed work order will be issued subsequently.
8. An agreement between the Mills and awarded Contractor in Rs 200/- stamped paper has to be executed within 10(TEN) days of the receipt of the work order.
9. The work should be started within 10 days of agreement executed.
10. The Trichur Co-Operative Spinning Mills (TCSM) will make payments only as per the payment conditions given in the NIT.
11. If the Contractor fails to start/execute the work within the specified time or fails to complete the work within the specified time, the TCSM will have the right to execute the work through other means and to recover from the initially awarded contractor the corresponding expenses, losses, damage etc caused to the mills.
12. All suits of other legal proceedings in respect of any matters arising out of this contract shall be instituted only in appropriate court having territorial Jurisdiction over Thrissur only, in which the district the Mill is situated.
13. The tender shall remain valid for a period of 180 days from the date of submission of e tender.

### **INSTRUCTIONS TO BIDDERS**

1. The bidder should have carried out HT electrification projects of minimum 3 Nos within a period of 5 years prior to the date of submission of tender of value each minimum Rs 50 lakhs preferably in any reputed spinning mills.(Proof of work order/agreement copy and completion certificate from

the firm referring the work order with date to be uploaded in pdf format along with the Technical bid.)

2. Proof of the bidder company registration documents (in.pdf format) are to be uploaded along with Technical bid for qualification.
3. The bidder should possess the latest valid Solvency Certificate from a nationalized /scheduled bank for an amount not less than Rs.2.0 Crores(Proof to be uploaded)
4. The bidder should have a valid 'A' grade Electrical Contractor's license with industrial experienced Electrical Engineers, to execute All HT works issued by Kerala State Electricity Licensing Board authorizing the bidder to carry out all the works included in the tender.(copy of License and contractors book should be uploaded)
5. Quotes should be only in Indian National Rupees (INR)
6. Evaluation of qualification will be strictly based on the details scanned and uploaded. Copies of testimonials and other documentary evidence must be uploaded (in.pdf format) wherever applicable along with the Technical bid for evaluation and confirmation of qualifying requirements. Bids of those bidders who in the opinion of The Trichur Co-Operative Spinning Mills Ltd do not satisfy the above requirements will not be considered.
7. The Trichur Co-operative Spinning Mills Ltd shall have no responsibility for any technical issue/ delays from the bidders end for non-receipt of tenders uploaded.
8. After awarding the tenders, the information relating to the award of contract shall be uploaded in the NIC portal for public information (website : <https://etenders.kerala.gov.in>)
9. Tender not properly filled, uploaded with incorrect calculations and generally not complied with the conditions, are likely to be rejected automatically.

10. The Bidders price must be firm throughout the period of the contract and there shall be no upward revision of the rates quoted by the bidder for any reason whatsoever.
11. Rate quoted should be inclusive of GST and ESI, PF, income tax and any other applicable deductions will be deducted as per rules . GST should be separately indicated in the BOQ.
12. No accommodation and boarding will be provided to the employees of Contractor his officers.
13. Electricity required if available will be provided by the mills through a sub meter only.The electrical consumption will be charged at Rs 5/unit and by providing separate energy meter.
14. The bidder shall carefully and thoroughly study the tender documents, before uploading their respective bids. It will be deemed that the bidder has thoroughly studied and obtained all clarification and all relevant details regarding prices and provisions necessary for successfully carrying out the work as per the tender documents. No claim/ objections will be entertained at a later date on account of lack of clarity/ misrepresentation of any data.
15. “Specification” shall mean all technical specification of the product/item/equipment /work.
16. The Trichur Co-Operative Spinning Mills Ltd does not bind itself to accept the lowest tender if they do not agree with targeted completion period and the terms and conditions of payment .
17. The Trichur Co-Operative Spinning Mills reserves to itself the authority to reject any or all tenders received by not assigning the reasons thereof.
18. The EMD of the unsuccessful bidders will be returned by the bank, after complying all tender formalities.
19. The tender shall remain valid for acceptance for a period of 180 days from the date of submission of e-tenders.

20. The contractor shall not be entitled to any compensation for any loss suffered by him on account of delays by the contractor on his part, whatever the cause for such delays may be.
21. Contractor shall provide competent supervisors to monitor the project work and ensure that the work is completed within the stipulated period of time.
22. All skilled and unskilled person deputed for the work should be covered for ESI , PF,minimum wages act etc and required proof to be provided on time. In the absence of proof ,deductions will be made as per rules
23. Income tax will be deducted as per rules.

**A. TECHNICAL BID**

This part shall contain the following which are to be uploaded (in.pdf format) as technical bid to qualify for financial bid:

- i) All pages of NIT should be signed and sealed by the authorized signatory and to be uploaded as a token of acceptance of all terms and conditions( in .pdf format)
- ii) Copy of registration certificate of the company/firm to be uploaded. Should have registered under GST.(Copy to be uploaded in .pdf format)
- iii) The bidder should have carried out HT electrification projects of minimum 3 Nos within a period of 5 years prior to the date of submission of tender of value each minimum Rs 50 lakhs. HT works in any reputed spinning mill will be an added advantage.(Proof of work order/agreement copy and completion certificate from the firm referring the work order with date and value to be uploaded in pdf format along with the Technical bid in .pdf format.)
- iv) The bidder should possess the latest valid Solvency Certificate from a nationalized /scheduled bank for an amount not less than Rs.2 Crores (Proof to be uploaded in .pdf format)
- v) The bidder should have a valid 'A' grade Electrical Contractor's license, to execute all HT works issued by Kerala State Electricity Licensing

Board authorizing the bidder to carry out all the works included in the tender (copy to be uploaded in .pdf format)

- vi) All details as required in annexure I to be filled and uploaded.

### **B. FINANCIAL BID**

This part shall contain only “Summary of Bidders Price”, which is uploaded in BOQ (In excel format). Any condition by the Bidder given in this part shall not be considered, and shall render the tender liable for rejection.

1. Tenders not properly filled, with incorrect calculations or generally not complying with the conditions are likely to be rejected. The bidder should quote item wise rates.
2. The rate thus quoted will be deemed to include the cost of all fuel, power, transportation, all leads and lifts, taxes, duties, levies, royalties all over heads, contingencies, profits, etc. and the quoted price is all inclusive except GST(GST should be shown separately)
3. If the tender is made by an individual it shall be signed with his full name and his complete address. If it is made by partnership firm it shall be signed with seal by the authorised partner which should be supported by the other members of the partnership firm. A certified copy of the ‘Registered Partnership Deed’ shall also be uploaded along with the tender.

### **TARGET TIME PERIOD FOR COMPLETION OF WORK**

| No | Particulars   | Time of completion                        |
|----|---|---|
|    | <b><u>(MINIMUM QUANTUM OF WORK TO BE COMPLETED)</u></b> |   |
| 1  | 33.33% of the work                                      | Within 1 month from the date of starting  |
| 2  | 66.66% of the work                                      | Within 2 Months from the date of starting |
| 3  | 100% of the work  | Within 3 months from the date of starting |

### **PAYMENT CONDITIONS**

No advance will be paid to the successful Contractor and Bill should be raised at the end of each month after achieving the above targets. After scrutiny and

passed, the bill amount upto 75% will be paid, balance will be paid only after completion of the entire work retaining the 10% as retention towards performance guarantee for a period of 1 year plus 3 months from the date of completion of work. EMD will be returned on starting the work. The security deposit bank guarantee will be returned on satisfactory completion of work. Actual area/quantum of work will be calculated for raising the bill. ESI, PF and cess if any and income tax will be deducted on the labour charges as per rules. Basic amount and GST should be separately indicated in the bills. All the deposits of E.M.D., SECURITY DEPOSIT and RETENTION MONEY will not bear any interest whatsoever.

# THE TRICHUR CO - OPERATIVE SPINNING MILLS LTD

Vahani.P.O, Wadakkanchery, Thrisuure Dt., Kerala St. Pin:-680589

Web:- [www.tcsmltd.co.in](http://www.tcsmltd.co.in), email:- [mdtcsmltd@gmail.com](mailto:mdtcsmltd@gmail.com), [tcsmltd@yahoo.com](mailto:tcsmltd@yahoo.com)

## ANNEXURE I

### TECHNICAL CAPABILITY AND EXPEIENCE OF THE CONTRACTOR

| No | Particulars  | Remarks |
|----|--|---------|
| 1  | Name and postal address of the contractor company  |         |
|    | Constitution of the Bidder company - Specify whether Proprietorship, Partnership or Company. (Copy of partnership deed to be uploaded) |         |
| 2  | Details of the registration certificate of the firm (copy of the above certificate to be uploaded)                                     |         |
| 3  | Name of the authorized persons with details of Mobile No, Tel. No, email ID, Fax No, ADHAR No.   |         |
|    | Type of Contractor – 'A' GRADE details ( Proof should be uploaded)   |         |
| 4  | Name of the bankers  |         |
| 5  | No. of graduate/Post graduate Engineers working with the firm  |         |
| 6  | No. of Diploma Engineers working with the firm   |         |
| 7  | Total No. of Employees working in the firm including skilled and Non-skilled workers(Attach the resume and                             |         |

|    |  |  |
|----|--|--|
|    | certificates of all of them duly certified by the contractor in case of non-skilled workers and by gazetted officer in case of skilled workers and engineers)  |  |
| 8  | No. of branch office within the State  |  |
| 10 | Previous experience of similar work at any spinning mill within 5 years of completed and ongoing work of value not less than Rs 50 lakhs (Upload Work order/ agreement copy and Completion certificate from the company)   |  |
| 11 | Previous experience in similar electrical contract work in any 3 major organization/industry of value not less than 50 lakhs within last 5 years (work order/agreement copy , completion certificate indicating the value of contract(Upload Work order/ agreement copy and Completion certificate from the company) |  |
| 12 | Turnover of the Firm for the last 3 years (Minimum required Rs 200 Lakhs-proof to be uploaded)   |  |
| 13 | Audited balance sheet copy of the firm for the last 3 years  |  |
| 14 | Name of two customers preferably in Kerala and their address and phone no. to whom similar work was executed in the past and whose reference may be  |  |

|   |  |
|---|--|
| made by The Trichur Co-Operative Spinning Mills Ltd regarding the bidders' Technical competence and promptness in executing the works |  |
|---|--|

Date:-

Dated Signature of the Contractor

Place:-

Company's Authorized person with seal

**INSTRUCTION TO BIDDERS – IMPORTANT POINTS WHILE MAKING  
ON LINE PAYMENT FOR E-TENDERS**

Bidders, while participating in online tenders published in Government of Kerala's e-Procurement website ([www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in)), should ensure the following:

- i. Single transaction for remitting Tender document fee and EMD: Bidder should ensure that tender document fees and EMD are remitted as one single transaction and not separate. Separate or split remittance for tender document fee and EMD shall be treated as invalid transactions.
- ii. Account number as per Remittance Form only: Bidder should ensure that account no. entered during NEFT remittance at any bank counter or during adding beneficiary account in Internet banking site is the same as it appears in the remittance form generated for that particular bid by the e-Procurement system. Bidder should ensure that tender document fees and EMD are remitted only to the account number given in the Remittance form provided by e-Procurement system for that particular tender.

Bidder should ensure the correctness of details inputted while remittance through NEFT. Please also ensure that your banker inputs the Account Number (which is case sensitive) as displayed or appears in the Remittance form.

Bidder should not truncate or add any other detail to the above account

number. No additional information like bidder name, company name, etc. should be entered in the account no. column along with account no. for NEFT remittance.

- iii. Only NEFT remittance allowed: RTGS payments, Account to Account transfers or Cash payments are not allowed and are invalid mode of payments. Hence, the remittance form provided by e-Procurement system is to be used only for NEFT payment.
- iv. UTR number: Bidders should ensure that the remittance confirmation (UTR number) received after NEFT transfer should be updated as it is, without any truncation or addition, in the e-Procurement system for tracking the payment.
- v. One Remittance form per bidder and per bid: The remittance form provided by e-Procurement system shall be valid for that particular bidder and bid and should not be re-used for any other tender or bid or by any other bidder.

The bid should be submitted online at website <http://etenders.kerala.gov.in> in the relevant covers only, by the due date and time, as specified in the “Critical Dates” view of the “Work Item details” of the tender. Late / delayed tenders submitted online after the due date and time, for whatsoever reasons will not be considered. The Server Date & Time as appearing on the website. <http://etenders.kerala.gov.in> shall only be considered for the critical date and time of tenders. Offers sent through post, telegram, fax, telex, e-mail, courier will not be considered.

- 1) Partially completed / incomplete bids shall not be considered.
- 2) All communication regarding the tender including queries if any and submission of offers shall be done online within the e-Procurement system at website <http://etenders.kerala.gov.in>
- 3) Bidders shall be required to arrange all resources, including Digital Signature Certificates and Internet Connections at their own cost, for participating in online tenders at <http://etenders.kerala.gov.in>

**TWO COVER SYSTEM.**

Bidders are required to submit offer in two covers, namely “Fee/Pre Qualification/Technical/” & “Financial”.

**COVER I (“Fee/Pre Qualification/Technical/”).**

Bidders are requested to upload the scanned copies of all the documents as mentioned in the tender “Documents to be attached”.

**COVER II (PRICE BID).**

Bidders are requested to quote rates in the Finance cover (BOQ) only. Please do not quote/mention rates anywhere else in the tender other than BOQ.

Please note that queries related to enquiry specifications, terms & conditions etc. should be submitted online only by logging in at <http://etenders.kerala.gov.in> before the clarification end date/time specified in the “Critical Dates” view of the “Work Item details”.

Tender opening will be done online at the time and dates specified in the tender “Critical Dates” view of the “Work Item details”.

The bidders are requested to go through the instruction to the bidders in the website <http://etenders.kerala.gov.in> The bidders who submit their bids for this tender after digitally signing using their Digital Signature Certificate (DSC), accept that they have clearly understood and agreed the terms and conditions in the website including the terms and conditions of this tender.

The bids will not be considered for further processing if bidder fails to comply the above points and EMD will be reversed to the account from which it was received.

**(Signed)**

**Managing Director**

**The Trichur Co-Operative Spinning Mills**

**ANNEXURE-G**  
**TECHNICAL SPECIFICATIONS FOR 11 KV ALUMINIUM**  
**XLPE ARMoured UG CABLE**  
**SINGLE CORE 185 MM<sup>2</sup> DRY CURE TYPE**

**1. SCOPE:-**

This specification covers requirement of 11kV cross-linked polyethylene (XLPE) insulated and PVC sheathed armoured aluminum cable. 11kV grade cross-linked polyethylene insulated UG Cable shall be with stranded aluminium conductor. The Cable is to be manufactured in continuous catenary process at controlled elevated temperature and pressure in inert atmosphere with use of suitable materials. The offered cable shall be complying with REC Specifications / Guidelines suitable for 11kV un earthed (UE) delta system and manufactured through dry cure technology. The manufacturing process shall ensure that the insulation shall be free of voids. Short circuit rating for the combination of armour and screen may be 7kA for 1 second.

The cables shall be designed to withstand the thermo mechanical forces and electrical stresses during normal operation and transient conditions to ensure an adequate return path for the flow of fault current and also to provide suitable mechanical protection. The XLPE Cable in this specification does not have any metal sheath and the short circuit rating of the cable will depend on the conductivity and continuity of the strands of the armour wires which shall be ensured by guarding against corrosion. The materials used for sheaths shall be resistant to oils, acids and alkalies. The sheaths shall be

protected against white ants, vermin and termites etc by suitable, reliable and durable measures. The Cables shall be designed to have a minimum useful life span of forty years.

## **2. SYSTEM DETAILS:-**

Nominal system voltage (rms V) - 11kV

phase to phase Highest system voltage

(rms) Vm - 12 kV

Number of phases - 3

Frequency - 50 Hz

Variation in frequency -  $\pm 3\%$

Type of Earthing – Solidly

earth.

## **3. SERVICE CONDITIONS: -**

Equipment to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions.

- a) Maximum ambient temperature (deg C): 50
- b) Maximum temperature in shade (deg C): 40
- c) Minimum temperature in air (deg C) in shade: 17
- d) Relative Humidity (%): 10 to 100
- e) Maximum annual Rainfall (mm): As per published Meteorological/ Climatological data
- f) Maximum Wind Velocity in Thrissur area (m/s): 40
- g) Maximum altitude above mean sea level (Meters): 1000
- h) Isoceraunic level (days/year): 60
- i) Maximum soil temperature at cable depth 0C: 30
- j) Maximum soil thermal resistivity 0C cm/watt: 150

## **4. LOCATION: -**

4.1. The Cables may be laid buried directly in ground at a depth of 90cm-100cm in average and terminate for outdoor connection to a power transformer or for indoor connection to metal enclosed Switchgear panels.

4.2 The Cables may also be laid within covered cable trenches, in cable racks or open air ladder trays etc. for certain portions of lengths.

## **5. APPLICABLE STANDARDS: -**

Unless otherwise specified elsewhere in this specification, the ratings as well as construction, performance and testing of the HT XLPE power cables shall conform to the latest revisions including amendments available at the time of placement of order of all the relevant standards as listed, but not limited to the following. If there is any deviation or conflict or ambiguity between the requirements specified in the standards and in this specification, the better one will prevail.

- a. IS: 7098 (Part II) - Cross linked polyethylene insulation for cables.
- b. IS: 8130 - Conductor for insulated electrical cables and flexible cords.
- c. IS: 10810 (series) - Methods of tests for cables.
- d. IS: 10418 - Drums for electric cables.
- e. IS: 3975 - Specification for mild steel wires, Formed Wires and tapes for armouring of cables.
- f. IS: 5831 - Specification for PVC insulation sheath for electric cables.
- g. IS: 10462 - Fictitious calculation method for determining of dimensions of protective coverings

of cables, Part-I: elastomeric and thermoplastic insulated cables.

**h. IEC:60986 - Short-circuit temperature limits of electric cables**

Any technical feature, not specifically mentioned here, but is necessary, for the good performance of the product, shall be incorporated in the design.

**6. SPECIFICATION FOR CROSS LINKED POLYETHYLENE INSULATED PVC SHEATHED CABLES: -**

**6.1. Rated Voltage and Temperature: -**

The rated voltage of the cables shall be 11kV and the maximum voltage shall be

12kV. Maximum continuous operating temperature (combination of ambient temperature and temperature rise due to load) shall be 90°C under normal operation and 250°C under short circuit conditions.

**6.2. Type of Cables:-**

The type of cables covered in this specification shall be single core armoured screened with improved fire performance category C2.

**6.3. Continuous Current and Short Circuit Rating: -**

The indicative values of the continuous current carrying capacities for cable laying conditions shall be mandatorily stated by the bidder in the GTP attached with this specification along with the Short Circuit Rating as follows:-

| Duration of Short Circuit in sec | Area of Al. Conductor | Short circuit current in kA        |
|----------------------------------|-----------------------|------------------------------------|
| t                                | A                     | $I=0.094 \times A/\text{sq.rt}(t)$ |
| 1                                | 185 sq.mm.            | 17.39                              |

#### 6.4. Design of Cable:-

6.4.1. Conductor: - The cable conductors shall be of round, stranded and compact aluminum of nominal size as stipulated in Table under clause, standard size of cables, corresponding wire diameter and number of wires in the conductor as given in IS.8130. The conductor shall be clean, uniform in size and shape smooth and free from harmful defects. Not more than two joints shall be allowed in anyone of the single wire forming every complete length of conductor and no joint shall be within 300 mm of any other joint in the same layer. The joint shall be made by brazing, silver soldering or electric or gas welding. No joints shall be made in the conductor after it has been stranded.

6.4.2. Conductor Screen: -The conductor screening shall consist of an extruded layer of semi conducting XLPE compound.

6.4.3. Insulation: - The insulation shall be of extruded cross-linked polyethylene (XLPE) of nominal insulation thickness of 3.6mm and its properties shall conform to IS:7098 (Part-II).

The insulation shall be so applied that it fits closely on the conductor (or conductor screening or barrier if any)

and it shall be possible to remove it without damaging the conductor.

6.4.4. Insulation Screen: - The insulation screen shall consist of two parts, namely metallic and non-metallic. The non-metallic part shall be applied directly over the insulation of core and shall consist of a layer of extruded semi conducting XLPE compound. The metallic part shall be a layer of copper tape over the core.

6.4.5. Core-identification & Laying up of Cores: - The laying up of core shall be as per IS.7098 (Part II).

6.4.6. Inner Sheath: -The cable should have inner sheath of extruded PVC (type ST2) between the metallic screening and armouring.

6.4.7. Armouring:- The armouring shall be of strip armoured non-magnetic material of hard drawn aluminium applied in line with the specifications laid out in IS:7098 Part II (latest including amendments) and IS:5831 (latest including amendments).

6.4.8. Outer Sheath: - The outer sheath shall be applied over the armouring. The minimum thickness and properties of outer sheath shall conform to the requirements of IS: 7098 (Part II). The overall outer sheath covering shall ensure for service reliability against moisture intrusion and conforming to IS: 7098 Part II/ (latest including amendments) and shall be of extruded PVC conforming to the requirements of Type ST 2 of IS 5831 (latest including amendments) or

Table 3 of IS: 7098 Part II/ (latest including amendments) respectively.

## **6.5. Tests**

Following tests shall be carried out on the cables as per IS: 7098 (Part-II).

### **6.5.1. Type Tests**

The following shall constitute type tests:

#### **6.5.1.1. Tests on conductor**

- a) Tensile tests (for aluminium)
- b) Wrapping tests (for aluminium)
- c) Resistance test

#### **6.5.1.2. Tests for armouring strips**

- a) Dimensions.
- b) Physical test on formed wire.
  - i. Tensile strength.
  - ii. Elongation at break.
  - iii. Wrapping Test
  - iv. Winding test for formed wires.

#### **6.5.1.3. Resistivity**

#### **6.5.1.4. Physical tests for insulation**

- a. Tensile strength and elongation at break
- b. Ageing in air oven
- c. Degree of cross linking
- d. Hot set test
- e. Shrinkage test
- f. Water absorption (gravimetric)

#### **6.5.1.5. Test for thickness of insulation (eccentricity) and sheath**

#### **6.5.1.6. Test on extruded semi conducting screens**

- a) Test for strippability of semi conducting strippable

insulation screen

b) Volume resistivity

6.5.1.7. Physical tests for outer sheath

a) Tensile strength and elongation at break

b) Ageing in air oven

c) Shrinkage test

d) Hot deformation

e) Loss mass in air oven f) Heat shock

g) Thermal stability

h) Carbon black content of polythene sheath

6.5.1.8. Thermal ageing test for complete cable

6.5.1.9. Partial discharge test

6.5.1.10. Bending test

6.5.1.11. Dielectric power factor test

a) As a function of voltage

b) As a function of temperature

6.5.1.12. Insulation resistance (Volume resistivity) tests

6.5.1.13. Heat cycle test

6.5.1.14. Impulse withstand test

6.5.1.15. High voltage test

6.5.1.16. Flammability test for PVC sheathed cables

6.5.1.17. The following shall constitute additional type test for the cables with improved fire performance as per the Category C2

- a) Oxygen index
- b) Flame retardance test on single cables.
- c) Flame retardance test on bunched cables
- d) Smoke density test (on sheathing material)
- e) Test for halogen acid gas evolution
- f) Temperature index

**6.5.2. Acceptance tests: -**

6.5.2.1. Tensile test

6.5.2.2. Wrapping test

6.5.2.3. Conductor resistance test

6.5.2.4. Test for thickness of insulation (eccentricity) and sheath

6.5.2.5. Hot set test for insulation

6.5.2.6. Tensile strength and elongation at break test for insulation and outer sheath

6.5.2.7. Partial discharge test (to carried out on full drum length)

6.5.2.8. High voltage test

6.5.2.9. Insulation resistance (volume resistively test)

6.5.2.10. Test for cross linking for extruded semiconducting screen

6.5.2.11. The following shall constitute additional Acceptance test for the cables with improved fire performance as per the Category C2

- a) Oxygen index

- b) Flame retardance test on single cables.
- c) Flame retardance test on bunched cables
- d) Test for halogen acid gas evolution
- e) Temperature index

6.5.3. Routine tests: -

6.5.3.1. Conductor resistance test

6.5.3.2. Partial discharge test on full drum length

6.5.3.3. High Voltage test

6.6. Packing & Marking: -

**6.6.1. Packing: -**

The cables shall be supplied in well-seasoned sturdy wooden drums (conforming to the latest edition of IS 10418) suitable for vertical / horizontal transport, as the case may be and shall be suitable to withstand rough handling during transport and outer storage. Similarly, the inside surface of drum shall have the protective layer of varnish / paint to protect it from white ants. There shall be no gaps in the wooden lagging around the drum. The wooden drums shall be reinforced with steel bends and strips for better protection reinforcements so as to withstand rough handling during transport by Rail, Road etc. The firm shall be responsible for any damage to the cables during transit due to improper and inadequate packing. Wherever necessary, proper arrangement for lifting, such as lifting hooks, shall be provided. The packing should withstand extended storage conditions in open yards.

**6.6.2. Manufacturer's Identification in the Cable: -**

The manufacturers name, trade mark, voltage grade, year of manufacture etc. shall be embossed on the cable as stipulated in IS 7098 (Part II). The embossing shall be done only on the outer sheath. Further, improved fireperformance for Category C2 shall be identified by indenting, embossing the appropriate legend on the outer sheath throughout the cable length in addition to the existing marking requirements.

**6.6.3. Sealing of cable ends:-**

The cable ends shall be sealed properly so that ingress of moisture is completely prevented. The core ending shall be sealed effectively with water resistant compound applied over the core and provided with a heat shrinkable or push-on or Tapex or cold shrinkable type cap of sufficient length, with adequate cushion space so that the conductor does not puncture the cap in case of movement of the core during unwinding or laying. The sealing cap shall have sufficient mechanical strength and shall prevent ingress of moisture into the cable at any point of time.

**GUARANTEED TECHNICAL PARTICULARS TO BE FURNISHED BY THE BIDDERS**

| <b>Sl. No</b> | <b>Particulars</b>   | <b>Values</b> |
|---------------|--|---------------|
| 1)            | <b>CABLE PARAMETERS</b>                                    |               |
|               | Manufacturer's Name, Address & Country                     |               |
| b)            | Cable Designation  |               |
| c)            | Conductors Nominal Cross Sectional Area (mm <sup>2</sup> ) |               |
| d)            | Number of Strands per Core (Min)                           |               |
| e)            | Actual aluminium area (mm <sup>2</sup> )                   |               |
| f)            | Tensile Strength of Aluminium (N/mm <sup>2</sup> )         |               |
| g)            | Conductor Resistance ohm/Km at 200C                        |               |
|               | Cable Parameters to be provided by Bidder                  |               |
| h)            | Approximate AC resistance @ ohm/km at 900C                 |               |
| i)            | Capacitance in $\mu$ F/Km                                  |               |
| j)            | Impedance in ohm/Km  |               |
| k)            | Surge Impedance in ohm/Km                                  |               |
| l)            | Volume resistivity ohm mm <sup>2</sup> /m @ 200 C          |               |
| m)            | Purity of Aluminium used (%)                               |               |
| n)            | Voltage Grade  |               |
| 2)            | <b>INSULATION</b>  |               |
| a)            | Material   |               |
| b)            | Thickness (Nom)mm  |               |

|    |  |  |
|----|--|--|
| c) | Tensile Strength(Min)N/sq.mm   |  |
| d) | Elongation at Break (Min) %  |  |
| e) | Volume Resistivity ( $\Omega$ -cm)   |  |
| 3) | ARMOUR   |  |
| a) | Material   |  |
| b) | Size of Armour mm  |  |
| c) | Elongation at break N/mm <sup>2</sup>  |  |
| d) | Tensile Strength N/mm <sup>2</sup> (min)   |  |
| e) | Weight of Zinc Coating   |  |
| f) | Resistivity Ohm-M  |  |
| 4) | OUTER SHEATH   |  |
| a) | Material   |  |
| b) | Thickness (Min) mm   |  |
| c) | Tensile Strength N/mm <sup>2</sup> (min)   |  |
| d) | Elongation at Break%(min)  |  |
| e) | Volume resistivity   |  |
| 5) | Continuous Current Rating of Cable –In Ground(at 30 <sup>0</sup> C), in Air (at 40 <sup>0</sup> C), in Duct (at 40 <sup>0</sup> C) (A) |  |
| 6) | SHORT CIRCUIT CURRENT RATING   |  |
| a) | Short Circuit Current Rating for 1 second or Conductor (kA)  |  |
| b) | Short Circuit Current Rating for 1 second for armour and Screen combined (kA)  |  |
| 7) | DIMENSIONS OF THE CABLE  |  |
| a) | Overall Dimension of Cable (Approx)  |  |
| b) | Standard Length of each Piece (m)  |  |
| c) | Tolerance if any on standard length  |  |
| d) | Standard according to which the cable will be manufactured and tested  |  |