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ODISHA POWER TRANSMISSION CORPORATION LIMITED

(A Govt. of Odisha undertaking)

CIN – U40102OR2004SGC007553

REGD. OFFICE: JANPATH, BHUBANESWAR-751022,

OFFICE OF THE DEPUTY GENERAL MANAGER (Elect)

EHT (O&M) DIVISION, MERAMUNDALI

At- Kantabania, PO- Kusupanga, Dist- Dhenkanal

E-mail-ehm.div.mrm@optcl.co.in

TENDER SPECIFICATION FOR TENDER CALL NOTICE NO. 01 /2019-20

**SUPPLY OF 4C X 300 SQMM 1.1 KV ARMOURED ALUMINIUM POWER CABLE FOR
400/220/132KV GRID S/S MERAMUNDALI UNDER EHT (O&M) DIVISION,
MERAMUNDALI.**

COST OF TENDER PAPER

Rs. 2,000/- + 12% GST=Rs.2, 240 /-

(Rupees Two Thousand Two Hundred Forty only)

ISSUED TO

M/S

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ODISHA POWER TRANSMISSION CORPORATION LTD
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OFFICE OF THE DEPUTY GENERAL MANAGER (Elect)
EHT (O&M) DIVISION, MERAMUNDALI,
At- Kantabania, PO- Kusupanga, Dist- Dhenkanal, PIN- 759121.
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**FOR SUPPLY OF 4C X 300 SQMM 1.1 KV ARMOURED ALUMINIUM POWER CABLE
FOR 400/220/132KV GRID S/S MERAMUNDALI UNDER EHT (O&M) DIVISION,
MERAMUNDALI.**

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|-----|--|--|
| 1. | SECTION-I | Instruction to bidders. |
| 2. | SECTION-II | General Condition of contract. |
| 3. | SECTION-III | Technical Specification |
| (a) | Annexure-I | (Scope of Supply) |
| (b) | Annexure-II | (Price schedule) |
| 4. | SECTION- IV | Declaration Form |
| 5. | Price of tender document | Rs. 2000/-+12 % GST =Rs 2,240/-
(Rupees two thousand two hundred forty) only. |
| 6. | COMMENCEMENT OF SALE OF TENDER PAPER. | 01.11.2019 (11.00 AM to 5.00 P.M.) |
| 7. | LAST DATE OF SALE OF TENDER PAPER. | 22.11.2019 (11.00 AM to 5.00 P.M.) |
| 8. | LAST DATE & TIME OF RECEIPT OF TENDER PAPER. | 22.11.2019 (Up to 1.00 P.M.) |
| 9. | DATE & TIME OF OPENING OF TENDER. | 22.11.2019 (At 3.30 P.M.) |

TENDER CALL NOTICE NO. 01/ 2019-20

The Dy. General Manager (Elect.), E.H.T. (O&M) Division, Meramundali invites sealed Tenders from intending Manufacturers/Authorized Dealers/Reputed Supplier for Supply of 4C x 300 Sqmm 1.1 kV armored aluminium power cable for 400/220/132kV grid S/S, Meramundali under EHT (O&M) Division, Meramundali as follows.

Sl. no.	Description	Place of Delivery	Cost of Tender Paper
1	Supply of 4C x 300 Sqmm 1.1 kV armored aluminium power cable for 400/220/132kV grid S/S, Meramundali.	400/220/132 KV Grid S/S, Meramundali	Rs.2000/- + GST 12%

The tender specification can be obtained from the office of The DGM EHT (O&M) Division, MERAMUNDALI on payment of Rs. **2000/- (Two Thousand only) +GST @ 12%** (Non Refundable) in shape of Cash/ Bank Draft in favor of DGM, EHT (O&M) Division, MERAMUNDALI payable at "STATE BANK OF INDIA", Bhushan Steel Plant, Narendrapur Branch on any working day from **Dt. 01.11.2019 to Dt. 22.11.2019**. In case the D.D made at any other nationalized bank payable at any clearing branch at Talcher/Angul will be allowed, but the bidders have to deposit the collection fee (Bank transaction fee) along with the paper cost. The collection fee & Paper cost is Non-refundable. Additional amount of Rs.100/- (One Hundred only) may be paid extra for postal delivery of the tender specification. The undersigned shall not be held responsible for any postal delay.

The Tender shall be received by **01.00 PM** on dated **22.11.2019** & will be opened at **03.30 PM** on same day in the Office of the undersigned in the presence of the Bidders (or) their Authorized Representatives present if any. If any of the above date happens to be a holiday, the next working day will be the corresponding effective date. One Tender paper shall be issued to each Bidder. E.M.D of Rs. 5000.00 (Rupees Five Thousand only) should be deposited in shape of Cash /Demand Draft in favour of **E.H.T. (O&M) Division, Meramundali & payable at "STATE BANK OF INDIA", Bhushan Steel Plant, Narendrapur Branch.**

The Bidder should super scribe only the "Tender Call Notice No. & Date of Opening of the tender on the body of the Sealed Envelope". Bidder should not write their name or any other information on the body of the sealed envelope. Superscribing any other information on the body of the envelope, Conditional tender, Incomplete tender, Telegraphic / Fax / E-mail (etc.) Tenders & Tenders not accompanied with requisite amount of E.M.D. will be rejected. The authority reserves all rights to reject any, all or part of the Tender, alter/modify the requirement/ delete any part of the tender without assigning any reason thereof. **N.B:- Tender Paper must be purchased from this office only. No other mode like downloaded paper from website will be accepted.**

Dy. General Manager
EHT (O&M) Division, Meramundali

SECTION-I
INSTRUCTION TO BIDDERS

1. Sealed Tenders from intending Manufacturers/Authorized Dealers/Reputed Supplier with valid PAN and GST registration for Supply of 4C x 300 Sqmm 1.1 kV armored aluminium power cable for 400/220/132kV grid S/S, Meramundali under EHT (O&M) Division, Meramundali.

2. **SCOPE OF SUPPLY:** The Scope of Supply is enclosed in Annexure-I of Section-III.

3. **SUBMISSION & OPENING OF TENDER:-**

The bidder has to submit all the documents as mentioned in Clause No.08 (A) of SECTION-I. Also the documents must be valid on the date of opening of tender and should be submitted along with tenders, failing which the tender will be rejected. The bidder or their authorized representatives should produce the original documents mentioned in Clause No.08 (A) of SECTION-I for verification at the time of opening of the tender. Those who fail to produce the same and found not to be valid on the date of opening of tender not matching with the Xerox copy submitted by the bidder; their tenders will be out rightly rejected. In case if only one bidder participates in the tender process or nature of urgency of work (decided by this office), then undersigned may consider the case (*but not mandatory) & he will be given a chance to produce original documents in this office within one week from the date of opening of the tender.

4. **RIGHT & AUTHORITY FOR REJECTION:** - Tenders received after due date and time will be summarily rejected. The Dy.General Manager (Electrical), E.H.T. (O&M) Division, Meramundali reserves the right to reject any or all of the tenders without assigning any reason thereof.

5. **VALIDITY OF OFFER:** - The offer should be firm and valid for a period of at least 180 days from the date of opening of tenders, or else the tender will be out rightly rejected.

6. **EARNEST MONEY DEPOSIT:** - The tender should be accompanied with **Rs. 5000.00 (Rupees Five Thousand only)** towards Earnest Money Deposit (EMD) either in shape of Cash/ Bank Draft in favour of EHT (O&M) DIVISION, MERAMUNDALI payable at "STATE BANK OF INDIA", Bhushan Steel Plant, Narendrapur Branch otherwise tender will be out rightly rejected. In case the D.D made on any other nationalized bank payable at any clearing branch at Talcher/Angul will be allowed, but the bidders have to deposit the collection fee (Bank transaction fee) along with the EMD. The collection fee is Non-refundable & it can't be taken into account of EMD deposit. The EMD of the unsuccessful Bidders will be returned after finalization of tender. The EMD of the successful Bidders will be returned only after satisfactory execution of order. In case successful Bidder fails to execute the order satisfying all terms & conditions & scope of work within stipulated date mentioned in the date of order, the Earnest Money Deposit will be forfeited. No interest will be paid on the EMD.

7. **SECURITY DEPOSIT:** - The Tenderers whose offer qualifies for acceptance will be awarded the contract and the contractor shall have to deposit security amount equal to 10% (ten percent) of contract value in shape of Bank Draft drawn in favour of *paying officer* of OPTCL. The Security deposit shall be released after one year of the verification of materials subject to fulfillment of the guarantee stated under clause – 11 of Section-III on receipt of application for this purpose. No interest shall be paid to the supplier towards the security deposit so deposited by the supplier. The security deposit shall be deposited with the *paying officer of OPTCL Prior to execution of the contract*. In case of non-deposit of Security Amount, then same will be deducted from the final bill.

8. (A) **DOCUMENTS:-**

- i) Valid GST Registration Certificate
- ii) Valid PAN/ TIN.
- iii) Manufacturer's Certificate// Authorized Dealership Certificate

- (B) i) Past Experience of Supply to any PSUs/OPTCL
ii) Performance Certificate

9. CORRECTIONS, OVER-WRITINGS AND ILLEGIBILITY: Tender with over writing, erased, illegible rates or rates not shown in figures and words in English will be liable for rejection. In case of discrepancy between words and figures noted against each item of the tender and between unit rates and total amount, the decision of the Competent Authority accepting the tender will be final and binding on the bidders. Total of item and grand total of whole tender must be clearly written.

Correction in the tender, if un-avoidable, should be made by re-writing with dated initial of the bidder after scoring out wrong entries, clerical and arithmetical mistakes may result in the rejection of the tender.

10. The bidder shall sign on all pages of the tender document as a token of acceptance of all terms and conditions thereof and submit his quotations therein.

11. The bidder shall quote the rates in the Price Bid of the tender documents. The rates quoted should be including of all taxes and duties but exclusive of GST.

12. Request from the bidder in respect of additions, alterations, modifications, corrections of either terms or conditions or rates after opening of the tender will not be considered.

13. All correspondence relating to the tender shall be made with Dy.General Manager (El.), E.H.T. (O&M) Division, OPTCL, Meramundali.

14. ADDITION OR DELETION OF SCOPE: - The Purchaser may alter the quantities at the time of placing orders. Initially the purchaser may place orders for lesser quantity with full freedom to place extension orders for further quantity under similar terms and conditions of the original orders. Orders may also be split among more than one tenderer for any particular item, if considered necessary in the interest of the Purchaser to get the goods/equipment earlier.

15. ARBITRATION: - In the event of any dispute arising out his contract. The same shall be referred for arbitration to the Director (HRD) OPTCL, Bhubaneswar or any arbitrator appointed by the Chairman- Cum- Managing Director, OPTCL after due notice of claim and such appointment and the award of the arbitrator shall be final and binding arbitration and conciliation Act. 1996 shall apply. The venue of arbitration will be Bhubaneswar.

SECTION-II
GENERAL TERMS & CONDITIONS

1. PRICE: -

(a) The price quoted should be firm, F.O.R. destination inclusive of freight, Insurance, Packing, Forwarding charges inclusive discount if any.

(b) Taxes, if any shall be mentioned extra. The tenderer may quote rate in respect of Different make Materials as per scheduled.

2. VALIDITY: -

The offer should be valid for at least a period of **180 (one hundred eighty)** days from the date of opening of the tender.

3. TERMS OF PAYMENT: -

100 % Payment with taxes etc. against Security Deposit else 90% shall be made within 30 days after receipt of materials in full and in good condition & verification thereof by the consignee subject to availability of funds from Head office.

4. DELIVERY:-

The materials in full quantity shall be delivered within 30 days of receipt of purchase order, failing which purchase order shall be liable for cancellation with forfeiture of Earnest money/ Security Deposit. However early delivery shall be preferred.

5. PENALTY FOR DELAY IN DELIVERY:

If the supplier shall fail to deliver the materials within the delivery period as stipulated under clause No.4 (Section-III) of this Tender document or any extension granted there to, the purchaser shall recover from the supplier penalty for a sum of half percent (i.e. 0.5 percent) of the contract price for each calendar week or part thereof of delay. However the total amount of penalty shall not exceed 5% (five percent) of the contract/undelivered items price. Materials will be deemed to have been delivered only when all the component parts are also delivered. If certain components are not delivered in time, the supply will be treated as delayed until the time, the missing/ undelivered parts are delivered.

6. EXTENSION OF TIME: If the delivery of materials is delayed due to reason beyond the control of supplier, the supplier shall without delay give justification. The purchaser on receipt of such notice may agree to extend the contract delivery date if reasonable but without prejudice to other terms and conditions of this contract

7. EARNEST MONEY: - The Tenderers are requested to deposit EMD of **Rs. 5000.00 (Rupees Five Thousand only)** in shape of cash/ demand draft in favour of E.H.T. (O&M) Division, OPTCL, Meramundali and payable at "STATE BANK OF INDIA", Bhushan Steel Plant, Narendrapur Branch. The EMD will be refunded to the un-successful bidders, after finalization of tender. The EMD of Successful bidder will be refunded after award of finalization of contract on submission of security deposit. The EMD submitted by the contractors along with their bids shall not carry any interest from OPTCL. The Tender without EMD will be summarily rejected.

8. INSURANCE: Insurance of materials is to be done by the supplier at their own cost. The responsibility of delivery of the materials at destination in good condition rests with the supplier. Any claim with the insurance company, Railway authority/ Road transport authorities arising due to loss or damage in transits has to be settled by the supplier. ***The supplier shall undertake free replacement of materials damage or lost which will be reported by the consignee within 30 Days of the receipt of the materials at destination without waiting for the settlement of the claims with the carriers and underwriters.***

9. DESPATCH INSTRUCTIONS: The materials should be securely packed and dispatched by Rail/ road transport at locations as mentioned below to the consignee. The cost of transportation will be borne by the supplier.

10. FREE REPLACEMENT: Free replacement of materials lost/ damaged due to transit shall be made immediately on receipt of the intimation from the consignee / paying Officer without waiting for settlement of the claim of bidders with Railway/ Lorry/ Insurance Company.

11. GUARANTEE: - The materials covered under this contract should be guaranteed for trouble free and satisfactory performance against any defect in design, materials and workmanship for a Period of 12 months from the date of delivery. Any defect noticed during this period should be rectified / replaced by the firm free of cost provided such defects are due to faulty design, bad workmanship or bad materials used. *The replaced materials should also have similar guarantee. The guarantee certificate in triplicate should be submitted to the office of the undersigned for necessary approval.*

12. Security Deposit:

- i) The successful bidder has to submit security deposit in shape of DD or cash i.e. 10% value of the work order/purchase order in favour of ***E.H.T (O&M) Division, Meramundali.***
- ii) No interest is payable on security deposit.
- iii) In case of non-fulfillment of contractual obligation as required in the detailed purchase order / specification, the security deposit shall be forfeited.
- iv) The security deposit shall be refunded only after successful completion of guarantee period and after adjustment of any dues.
- v) The security deposit should be submitted separately to each paying authority.
- vi) **In case of non-deposit of the security amount, the same will be deducted from the bill.**

13. STANDARD: The materials offered self-confirm to relevant IS & ISI standard.

14. ADDITION & ALTERATION: -The authority reserves the right to add or to reduce the quantum of materials without assigning any reasons thereof.

15. RIGHT TO REJECT / ACCEPT ANY TENDER: -The Authority reserves the right, either to reject or accept any or all the tenders without assigning any reasons thereof.

16. JURISDICTION OF THE COURT: -For the purpose of jurisdiction of court in the event of dispute if any shall be deemed to have entered into any court of law to which the jurisdiction of Orissa High Court extends and it is hereby expressly agreed that neither party shall be competent to bring a suit in regard to the matter covered by this purchase at any place outside State of Odisha.

17. SUBMISSION OF GST REGISTRATION CERTIFICATE:-Clear attested Xerox copies of PAN No. & GST Registration certificate should be submitted along with the tender, failing which, the tender will be rejected.

18. LANGUAGE AND MEASURES: - All documents pertaining to the contract including Specifications, Schedule, Notices, Correspondence, Operating and Maintenance instructions, Drawings or any other writing shall be written in English language. The metric system of measurement shall be used exclusively in this contract.

19. DEVIATION FROM SPECIFICATION: -It is in the interest of the Tenderers to study the Specification, works etc. specified in the tender should thoroughly before tendering so that, if any deviations are made by the Tenderers, the same are prominently brought out on a separate sheet under heading "Deviations". A list of deviation shall be enclosed with the Tender. Unless deviation in scope, technical and commercial stipulations are specifically mentioned in the list of deviations, it shall be presumed that the Tenderer has accepted all the conditions stipulated in the Tender Specification, not withstanding any exemptions mentioned therein.

20. RIGHT TO REJECT / ACCEPT ANY TENDER: -The owner reserves the right either to reject or to accept any or all tenders if the situation so warrants in the interest of the organization. Orders may also be split up between different Tenderers on individual merits of the Tenderer. **Orders may also be split among more than one tenderer for any particular item/s on basis of L1 price of independent items, if considered necessary in the interest of the Purchaser.** It may be clearly understood by the Tenderer, that the owner need not assign any reason for the above action (s).

21. CONTRACTOR TO INFORM HIMSELF FULLY: - The Contractor shall examine the instructions to Tenderers, General Conditions of contract, Specification and the Schedules of Quantity and delivery to satisfy himself as to all terms and conditions and circumstances affecting the contract price. He shall quote price(s) according to his own views on these matters and understand that additional allowances except as otherwise provided therein will be levied. The owner shall not be responsible for any misunderstanding or incorrect information obtained by the Contractor other than the information given to the Contractor in writing by the owner.

22. FORCE MAJEURE: - The Contractor shall not be liable for any penalty for delay or for failure to perform the contract for reasons of force Majeure such as acts of God, acts of the public enemy, acts of Govt., Fires, Floods, Epidemics, Quarantine restrictions, strikes, Freight Embargo, provided that the Contractor shall within ten (10) days from the beginning of such delay notify the owner in writing of the clause of delay, upon which, the owner shall verify the facts and grant such extension as facts justify.

23. CORRESPONDENCES:

- i) Any notice to the Contractor under the terms of the contract shall be served by Registered Post or by hand at the Contractor's Principal Place of Business.
- ii) Any notice to the owner shall be served at the owner's Principal office in the same manner.
- iii) The address with Telephone No. should be given for immediate contract in case of any problems and negligence or emergency duties.

24. OUTRIGHT REJECTION OF TENDERS: - Tenders shall be out rightly rejected if they are not complying with the following requirements:

- i) The Tenderer shall submit the bid before submission date & time and shall submit the cost of tender documents.
- ii) Tenders shall not be submitted telegraphically or by FAX.
- iii) Tenders shall be accompanied by the prescribed Earnest Money Deposit on or before the date & time of opening of the bid unless otherwise qualified for exemption from furnishing of EMD.
- iv) The bidder having any pending legal suit against the organization.
- v) For any warning for unsatisfactory works taken up or termination of agreement for similar works by OPTCL.
- vi) The tender should quote "firm" price only and the price should be kept valid for a minimum period of 180 days from the date of opening of the tender.

25. DOCUMENTS TO BE TREATED AS CONFIDENTIAL:

The Contractor shall treat the details of the Specification and other Tender documents as private and confidential and they shall not be reproduced without authorization from the Purchaser.

26. Consignee : Manager, 400/220/132 KV Grid s/s, Meramundali.

27. Paying Officer : Dy.GM (Elect.), EHT (O&M) Division, Meramundali.

SECTION-III
ANNEXURE-I (SCOPE OF SUPPLY)

Technical Specifications for 1.1 kV grade, Aluminium conductor, Power cables

This section covers the technical specifications for design, engineering, manufacturing, inspection, testing at manufacturer's works, packaging and delivery by road (properly packed in non-returnable steel drums), 1.1KV grade, Multi-stranded Aluminium conductor, XLPE insulated, extruded PVC inner sheathed, GI round-wire armoured, extruded FRLS PVC ST2 outer sheathed. Power Cables for effectively grounded system, conforming to the latest revisions of IS: 7098 (Part –I), 1988 & as per the technical specifications attached herewith.

1. STANDARDS

The design, manufacture and testing of the cable shall comply with the latest editions/amendments of the following Indian Standards, unless otherwise specified. Equipment complying with equivalent standards shall also be acceptable.

- | | |
|-----------------------------|--|
| a). IS-7098, 1998 (Part-I): | Cross linked polyethylene insulated PVC sheathed cables for working voltages up to 1100V. |
| b. IS-3961: | Recommended current ratings for cables |
| c. IS 8130-1984: | Specification for conductors for insulated electric cables and flexible cords. d. IS-3975, 1999: Low Carbon galvanized steel wires, formed wires & tapes for armouring of cables |
| e. IS-4759: | Specifications for Hot dipped galvanized coating on round steel wires |
| f. IS-5831: | PVC insulation and sheath of electric cables. |
| g. IS-10418: | Drums for electric cables. |
| h. IS-10810 (Part 0 to 64): | Method of test for cables. |

2. SERVICE CONDITION

The cable shall be designed with the following service conditions into consideration:

- a. Cables shall be capable of satisfactory operation under a power supply system frequency variation of +3% and voltage variation of $\pm 10\%$.
- b. Cables shall be suitable for laying in conduits, ducts, trenches, channels, trays, racks or for direct buried in ground in both dry and wet locations with chances of flooding by water.
- c. The cables shall be suitable for the following ambient condition: Ambient Air temperature: 40°C Ambient ground temperature: 30°C
- d. The current rating shall be based on maximum conductor temperature depending on the type of insulation for continuous at the rated current.
- e. The one second short circuit current rating values shall be furnished and shall be subjected to the purchaser's approval.
- f. The cables will have current ratings and de-rating factors as per relevant Indian Standards.

Full technical details and descriptive literature shall be furnished indicating the construction details, standard applicable for the components of the cable and current ratings of the cables in air and ground. De-rating factors to be considered for the ambient temperature, ground temperature, de-rating due to cable location in air and ground shall also be furnished. The certificates for the type tests conducted on cables similar to the cables covered herein shall be submitted along with the tender.

3. DESIGN AND CONSTRUCTION PARTICULARS

3.1. General

The cables supplied under this specification shall be adequate insulated to operate continuously at the specified voltage with a high degree of safety and reliability throughout the life of the cables. The sheathing material shall be high quality PVC based compound. The construction of cable shall be as per IS: 7098 (Part I) – 1988. Cable shall be designed and manufactured to prevent damage during transportation, installation & operation under all climatic & operating conditions to which cable may be subjected to.

3.2. Technical parameters

- i. Quantity: Refer Table-1, Sl. No: 1.1 to 1.19
- ii. Packaging: Steel drum packaging, each having single length cable \geq 500 metres.
- iii. Cable Type: A2XWY/ 2XWY (refer Table1 for details)
- iv. No. of Cores: 3/3.5/4 (refer Table-1 for details)
- v. Voltage Level: 1.1kV
- vi. System Grounding: Solidly Grounded
- vii. Nominal System voltage: 400V \pm 10%
- viii. Nominal System Frequency: 50Hz \pm 3%
- ix. Maximum conductor temperature at rated current: 90oC
- x. Maximum conductor temperature at Short-circuit: 250oC
- xi. Conductor Material: H4-Grade Aluminium of purity > 99.6% Electrolytic grade Copper, Purity > 99.97% Conductor type : Stranded with number of strands as per IS 8130 (Part-I) 1984
- xii. Insulating material: Cross-Linked-Polyethylene (XLPE) Compound
- xiii. Core Identification Strips: Red, Yellow, Blue & Black (for neutral)
- xiv. Material of Inner Sheath: FRLS, PVC ST-2 Compound
- xv. Armor: Single layer of Galvanized Steel Round Wire according to IS-3975
- xvi. Outer Sheath : FRLS, PVC ST-2 Compound according to IS-5831

3.3. Conductor

ALUMINIUM: The Aluminium conductor used shall be of H-4 grade (Tensile strength above 150 N/mm²). High conductive aluminium, stranded (Class-II, stranded circular shaped), uniform in quality and free from scale, inequalities, spills, splits and other defects. The aluminium used shall have purity meeting the criteria for maximum resistance allowed. Two sample conductor randomly selected from finished lot of cables, shall be tested for its purity at any 3rd party NABL accredited lab.

3.4. Insulation

The insulating material for power cables shall be extruded cross linked polyethylene (XLPE) compound as per IS-7098(Part-I)-1988. The minimum thickness of insulation shall not be less than the values specified in Table-2 of IS-7098 (Part-I) 1988. No negative tolerance shall be applicable for the thickness. The insulation of the cable shall be designed and manufactured for the specified system voltage. The manufacturing process shall ensure that insulation shall be free from voids. The insulation shall withstand mechanical and thermal stress under steady state and transient operating conditions. The cores shall be identified as per the following colour scheme: 3-Core - Red, Yellow & Blue 3 ½ or 4-Core - Red, Yellow, Blue & Black

3.5. Inner Sheath

The inner sheath shall be extruded FRLS PVC, Type ST2, compatible with thermal rating of insulation conforming to IS-6380-1984. The sheath shall have adequate thickness, mechanical strength and elasticity, as specified in IS 5831. The material shall be soft thermoplastic type, applied by extrusion method. The thickness of the inner sheath shall be as per IS: 7098

(Part I) and the color of the inner sheath shall be Grey. The inner sheath shall be so formed that it fits closely on the laid up cores and could be easily removed without damaging insulation. One or more layer of proofed plastic tape shall be provided over the laid up core before extrusion.

3.6. Armouring

The Armouring arranged over the inner sheath shall consist of one layer of galvanized round steel wires for all sizes of cable. The armour round wire used on the cable shall conform to IS: 3975 for all requirements. The direction of lay of armour shall be opposite to that of the cores. The zinc coating on the galvanized steel strip shall comply with relevant standards. The joints in armour wires/strips shall be made by brazing or welding and the surface irregularities shall be removed. A joint in any wire/strip shall be at least 300 mm away from the nearest joint in any other wire/strip in the completed cable.

3.7. Outer Sheath

Extruded outer sheath shall be provided over the Armouring. The material used for sheathing shall be FRLS PVC sheath, Type ST-2 base compound conforming to IS 1554/ IS 5831 for power cable. The outer sheath shall be so formed that it fits closely on the laid up armour and could be easily removed without damaging the intermediate sheath and insulation. The colour of the outer sheath shall be black. The thickness of outer sheath shall be in accordance with the IS 1554 (Part-I)-1988. Suitable additives shall be added to prevent attack by rodents and termites. All serving must be given anti-termite treatment. Cables shall have suitable fillers laid up with the conductor to provide a substantially circular cross section before the sheath is applied. Fillers shall be suitable for the temperature of the cable and compatible with the insulating material. The material shall be of the best quality and workmanship. The fillers and sheath material shall be non-hygroscopic. All materials shall be new, unused and of the finest quality.

4. TESTS

All the tests specified below shall be carried out in accordance with the Indian Standards by the manufacturer in the presence of Purchaser's representative. If the cable fails to pass the test specified, the Purchaser shall have the option to reject it. Shipping release shall be obtained from the Purchaser's representative. The Purchaser, however reserves the right to waive off the inspection. The tests at works shall include electrical, mechanical and hydraulic tests in accordance with the appropriate clauses of Statutory Regulation, relevant codes and standards, in addition any test called for by the Purchaser or his representative to ensure that the equipment being supplied fulfils the requirement of the specification. For test not covered by any code or specifically mentioned in this specification, the test procedures are to be agreed with the Purchaser. Pre Dispatch Inspection The manufacturer shall be given at least 15 days advance notice prior to the commencement of testing, so that Purchaser's representative can plan to witness the tests. All the tests indicated in the test clause of this specification shall be carried out in the presence of Purchaser's representative by the manufacturer and shall provide all the facilities and equipment for testing. Six copies of the Test Certificate shall be furnished to the Purchaser for approval prior to dispatch of cables from factory. Visual check to conform the details given in this specification is to be done. In addition to the above, the general workmanship of the cable drums and cables laid in drums shall be checked. Manufacturer shall have proper test set up for testing all the routine tests & type tests on finished cables as per IEC. List of type tests mentioned in the tender specifications shall be conducted on four drum irrespective of type test certificates given or not.

4.1. Type Test

Type tests on four randomly selected cable drums will have to be conducted in the presence of the department's representative. The test samples will be taken from finished cables. This test shall be in accordance to IS: 7098, Part-1, 1988.

a. *Test on Conductor*

- Annealing test for copper conductors
- Tensile test for aluminium conductor
- Wrapping test for aluminium conductor
- Conductor Resistance Test

b. *Test on Insulation*

- Physical dimension measurement
- Tensile strength and elongation at break
- Hot set test
- Shrinkage test
- Ageing in air oven
- Water absorption test

c. *Test on round Armour*

- Physical dimension measurement
- Tensile strength
- Elongation at break
- Torsion test for round wires
- Winding test for firmed wire
- Mass of zinc coating.
- Uniformity of zinc coating
- Resistivity measurement, Resistance test for armour

d. *Test on Sheath*

- Physical dimension measurement
- Tensile strength & Elongation at break test
- Ageing in air oven
- Loss of mass in air oven
- Shrinkage test
- Hot deformation test
- Heat shock test
- Thermal stability test

e. *Insulation Resistance Test*

f. *High Voltage Test at room temperature*

g. *Volume resistivity at room temperature & at 90o C. (IS-10810-Part 43)*

h. *Flammability test*

i. Test requirement of FRLS inner and outer sheath the inner and outer sheath of cables shall meet the following test requirements related to flame retardant, low smoke emission, low acid and toxic gas emission. The BIDDERS shall have proper test apparatus to conduct all the relevant tests as per the applicable standards:

- Flame retardant test on single cable
- Oxygen Index Test The critical oxygen index value shall be minimum 29 when tested at 27+2°C as per ASTM D-2863
- Temperature index test Temperature index value shall be minimum 250 °C at oxygen index of 21 when tested as per NES 715.
- Flammability test Cables shall pass test under fire conditions as per IS-10810- Part-53. Cables shall also pass tests as per IS-10810 Part- 61 & Part-62. Flammability shall be as per IEC 332-1 and IS 694: 1990.
- Smoke Density Test: The cables shall satisfy the tests conducted to evaluate the percentage obscuration by smoke in an optical system placed in the path of the smoke.

The maximum smoke density rating shall not be more than 60% when tested as per ASTM-D-2843.

- Acid Gas Generation test (halogen acid gas evolution) The hydrochloric acid generation when tested as per IEC 754-1 shall be less than 20% by weight.
- Test for specific optical density of smoke
- Anti termite and rodent property test

The sequence of electric tests shall be as per the relevant Indian/International standards. The Bidder shall submit the sequence of tests for the approval of the purchaser before conducting the tests. A copy of the adopted standard shall also be supplied.

4.2. Routine Test (On each drum): The following routine tests shall be carried out by the Manufacturer on each and every length of the cable in the presence of Purchaser's representative at manufacturer's works.

- a. Resistance test for conductors
- b. Insulation resistance test
- c. High voltage test

4.3. Conductor purity test: Two samples of aluminium and copper shall be taken from any of the finished set of cables at random and the sample shall be tested for its purity at a NABL accredited lab.

Qualifying Criteria: The test results should be within limits as per IS 7098. All the routine tests as per IS 7098 / IEC shall be conducted and passed as per the limits given in the standards. All the bought out certificates will be verified and the test results shall be as per respective standards.

5. IDENTIFICATION

The following details shall be marked sequentially for each meter run length of the cable by non-erasable embossing on the outer sheath:

- a. Reference to Indian Standard
- b. Name of the manufacturer/ Trade Name
- c. Name of the project: MRDL, OPTCL
- d. Configuration of the cable: viz. Voltage grade, no. of Core, Sq. mm, A2XWY/2XWY/YWY / YY as applicable
- e. Year of manufacturing
- f. Sequential marking of running meter length the running length of the cable shall be identified at regular intervals of one meter (Increasing order from inner end to outer end of the cable)

6. PACKAGING

- Each drum shall consist of single length cable \geq 500 meters.
- The cable shall be wound on non-returnable steel drums of suitable size, packed and marked.
- Packing shall be sturdy to protect the cable from any injury during transportation, handling and storage. The cut ends of the cable shall be sealed by means of non-hygroscopic sealing material preferably Heat shrinkable end caps.
- One end of the cable shall be brought out of the drum and suitably clamped to the drum flange with proper mechanical protection. Location of the other end may be marked on the drum.
- The cable shall be placed on drums in such a manner that it will be protected from injury during transit. Each end of the cable shall be firmly and properly secured to the drum. No undue stress shall appear on cables when laid on drums.

• The cable drum shall carry the following information stenciled on a metallic label, securely attached to each end of the drum:

- i. Reference to the Indian standard
- ii. Manufacturer's name, brand or trade mark
- iii. Type of cable and voltage grade
- iv. No. of cores
- v. Nominal cross-sectional area of conductor
- vi. Cable code
- vii. Length of cable on drum
- viii. No. of lengths on reel, drum or coil (if more than one)
- ix. Gross weight
 - x. Country of manufacture
 - xi. Year of manufacture
 - xii. Direction of rotation of drum (an arrow)
 - xiii. ISI certification mark

7. **PREFERRED MAKE:** FINOLEX/POLYCAB/KEI/RRKable or reputed brand possessing system certification of ISO 9001:2008, ISO14001:2004, OHSAS18001:2007 & EN 160012009 and product certifications IS: 7098 (Part-I), CE, UL etc. Quotations without these certification details will not be considered for technical evaluation. Preferred make of bought out material:

- a. Aluminium for Conductor: Hindalco /Balco /Nalco
- b. XLPE compound of Insulator: Dow/Borealis
- c. Armor Steel: TATA/Jindal.

8. **GUARANTEE:**

All the cables shall be guaranteed against faulty material, defective design & poor workmanship for a period of 18 months from the date of supply. The materials becoming defective during the guarantee period shall be replaced free of cost and the defects arising out of the works shall be rectified free of charge without delay.

ANNEXURE-II

PRICE SCHEDULE

Sl. No.	Description of Item	Unit	Qty.	Unit Ex. Price In Rs.	GST	Unit Price Including all Taxes & duties	Total in Rs. (column 4 x column 7)
1	2	3	4	5	6	7	8
1	4C X 300 SQMM aluminium conductor, XLPE insulated, voltage up to and including 1100 Volts, extruded PVC inner sheathed, extruded FRLS PVC outer sheathed, GI round wire armoured cables, suitable for solidly grounded system. The cables shall confirm to IS 7098-Part 1 with latest amendments. Make- Havell's, Polycab, KEC & any reputed brand	Rmt.	240				
2	GRAND TOTAL in Rs.						

(Rupees) Only

- NB:**
- 1. Price Schedule must be filled in complete shape.**
 - 2. Tax extra will be paid as per prevailing norm of OPTCL**
 - 3. All the materials to be supplied as per Technical Specification mentioned in Annexure-I of Section III.**

(FULL SIGNATURE OF THE CONTRACTOR WITH SEAL)

SECTION-IV
DECLARATION FORM
(TO BE SUBMITTED WITH THE TENDER PAPER)

To
The Dy.General Manager (El),
E.H.T. (O&M) Division
OPTCL, Meramundali

Sub: Tender Notice No.

Sir,

Having examined the above tender paper we hereby offer to Supply of 4C x 300 Sqmm 1.1 kV armored aluminium power cable for 400/220/132kV grid S/S, Meramundali under EHT (O&M) Division, Meramundali, complete in all aspects to the rate/s entered as mentioned in our tender enclosed herewith.

1. We certify to have purchased a copy of tender paper remitting Rs.....by Cash/ Bank Draft and this has been acknowledged by you in your receipt No..... Dated.....

2. We enclosed herewith Rs. 5000.00 (Rupees Five Thousand only) as EMD in shape of Bank Draft/ Cash in favour of E.H.T. (O&M) Division, OPTCL, Meramundali payable at "STATE BANK OF INDIA", Bhushan Steel Plant, Narendrapur Branch.

Cash receipt/ Bank Draft No. Dt. .

3. We agree to the Security Deposit conditions if our bid will be considered for contract.

Yours faithfully,

Signature of Bidder
(with Seal)

THE BIDDERS ARE REQUIRED TO FURNISH THE FOLLOWING DETAILS AS PER THE FORMAT GIVEN BELOW WHICH IS A MANDATORY REQUIREMENT FOR EVALUATION OF BIDS

SL NO	DETAILS	TO BE FILLED BY THE BIDDER
1	BIDDER'S NAME	
2	BIDDER'S SITE NAME (NAME OF THE PLACE)	
3	ADDRESS	
4	CITY	
5	STATE	
6	COUNTRY	
7	PIN CODE	
8	PHONE NUMBER	
9	FAX NUMBER	
10	GST REGISTRATION NUMBER	
11	PAN NUMBER	
12	CONTACT PERSON'S NAME	
13	POSITION/DEPARTMENT OF CONTACT PERSON	
14	CONTACT PERSON'S E-MAIL ID	
15	CONTACT PERSON'S PHONE NO.AND MOBILE NO.	
16	CONTACT PERSON'S FAX NUMBER	

Signature of Bidder with Seal