(A Government of West Bengal Enterprise)
GARIA DIVISIONAL OFFICE, GARIA DIVISION
GARIA. 24 PARGANAS (S) Administrative Building ,Hindustan More
NSC Bose Road ,Garia
Kolkata -700084

NOTICE INVITING e-TENDER

NIT No. : DM/GARIA/PROC/2023-24/ 1646 **Date: 22.08.2023**

Subject: : Supply, loading at factory, transportation of **Rachyem/Ensto/SKIC** make Suspension Clamp with Bracket for 50 sq mm messenger (including moveable connecting link & lever) to Garia Divisional store, unloading at Garia Divisional store including guaranteed obligation of complete supply of materials in conformity to the technical specification enclosed herewith, for the work of ongoing modification scheme of existing LT network at KMC Ward no-111,112 and maintenance work under Garia Division, WBSEDCL.

The Divisional Manager, Garia Division Office, WBSEDCL invites e-Tender (on Item Rate Template) from genuine bonafide, experienced & resourceful manufacturers / Distributors for supply, delivery of the following items :

Tender Value :	Rs 986960.00 (Nine lakh eighty six thousand nine hundred sixty only)
Earnest Money (Rs.) :	Rs. 20000.00 (Twenty thousand only)

Sl No	Material Description	Unit	Quantity	Delivery Location	Delivery Time
1	Suspension Clamp with Bracket for 50 sq mm messenger (including moveable connecting link & lever)	Nos	2704	The supply of the material will be directly at Garia Divisional Store under Garia Division WBSEDCL	20 days from the issuance of P.O.

Scope: - The scope of work in brief shall include supply, loading at factory, transportation of Rachyem/Ensto/SKIC make Suspension Clamp with Bracket for 50 sq mm messenger (including moveable connecting link & lever) to Garia Divisional store, unloading at Garia Divisional store including guaranteed obligation of complete supply of materials in conformity to the technical specification enclosed herewith, for the work of ongoing modification scheme of existing LT network at KMC Ward no-111,112 and maintenance work under Garia Division, WBSEDCL.

The Suspension Clamp with Bracket for 50 sq mm messenger (including moveable connecting link & lever)are procured for the work of ongoing modification scheme of existing LT network at KMC Ward no-111,112 and maintenance work under Garia Division, WBSEDCL. The supply of the materials will be directly at the Garia Divisional Store. After successful delivery to store papers will be regularized from Garia Divisional Store (Site store is subject to be changed as per site requirement).
N.B. : Authorized Dealers of the original manufacturers of the items shall be allowed to participate in the tender on request of the manufacturer. WBSEDCL may consider placement of order on the dealer on behalf of the said manufacturer and/or they may be allowed to receive payment, on behalf of the co., provided that all responsibilities & warranties, as per terms of the tender specification

1. Intending Bidders shall login to the e-Procurement portal of Government of west Bengal https: / /wbtenders.gov.in using his login Id and password
2. Earnest Money Deposit (EMD) in e-tendering process will be collected and refunded in online mode via dedicated bank account maintained at corporate level instead of depositing DD/Pay Order to the tender inviting authority.
3. E-tender portal is maintained by NIC and payment gateway facility available in e-tender portal is maintained by ICICI Bank.
4. Facility for collecting EMD via offline mode has been discontinued in e-tender portal as per order.
5. As per the procedure defined for online collection in e-tender process, EMD amount deposited by bidders is initially held in a pool account of Government of West Bengal maintained by ICICI. Only the amount corresponding to successful bid will be transferred to WBSEDCL Bank Account after completion of tendering process on awarding Award of Contract (AOC). EMD for unsuccessful bids will be returned to bidders automatically from NIC portal after completion of tendering process.

6. For technically rejected bids, EMD amount will be automatically returned to bidders after the bid is technically rejected in e-tender portal.
7. Payment status of bids submitted against NIT's will be available in MIS reports provided in e-tender portal maintained by NIC.
8. Successful bidder (s| shall have to create vendor id through WBSEDCL web portal vendor corner, if not created earlier.
9. The bidder shall select the tender to bid and initiate payment of EMD. Following payment options are available for paying EMD amount through online mode:

i. Net-banking through Payment Gateway

ii. RTGS/NEFT Payment: On selection of RTGS/ NEFT as the payment mode, the e-Procurement portal will show a pre-filled challan having the details to process RTGS/NEFT transaction. The bidder will print the challan and use the prefilled information to make RTGS/NEF-I payment using his bank account. Once the payment is made, the bidder will come back to the e-procurement portal to continue the bidding process after expiry of a reasonable time to enable the RTGS/NEFT process to be completed.

iii. Submission of EMD through BG: For submission of EMD in the form of BG, bidders will have to opt for EMD Exemption in e-tender portal and upload scanned copy of BG in the EMD exemption document upload section. Physical copy of BG shall be submitted at the office of tender inviting authority as per respective clauses of NIT.

10. General Instructions for Online Payment:

a. The bidder will have to mandatorily pay through Net-banking facility once Net banking mode is opted for payment.
b. Status of NEF-I/RTGS payment through Challan for a bid may take time for bank settlement which is updated in 24 Hrs. (approx.). As such bidders opting to pay through NEFT/RTGS mode shall make payment well before 24 Hrs. to avoid anv complicacy.
c. In case actual EMD amount as per NIT is more than the one shown in E-tender Portal, bidders will have to opt for NEFT/RTGS mode (challan mode). In that case the total actual EMD amount is to be paid only through NEFT/RTGS mode (challan mode).
d. The bank account used for payment of EMD by the bidders shall be maintained operative until the completion of tendering process. All refunds will be made mandatorily to the Bank A/c from which the payment of EMD has been initiated.

11. Refund/ Settlement of EMD Amount:

a. For unsuccessful bidders, EMD amount submitted against the tender shall be refunded automatically, through an automated process, by NIC portal on receipt of updated status of any bid.
b. For successful bid(s), EMD will be refunded from WBSEDCL authority after completion of tendering process and following due procedures.
c. The bank account used for payment of EMD by the bidders shall be maintained operative until the completion of tendering process. All refunds will be made mandatorily to the Bank A/c from which the payment of EMD has been initiated.
d. For any queries related to payments and refunds, bidders will have to communicate with ICICI Customer Support, viz, 033_4O267512/ l3 since payment gateway facility used by E-tender portal is maintained by ICICI.

13. Eligibility criteria:

1. All categories of intending Bidders who have successfully delivered tendered items to WBSEDCL / other Power Utilities / Other Govt. Departments against Purchase Orders, Inspection Offer letter (if any), Despatch Instructions (if any), Signed Challans etc. for completing supply & delivery of Similar type of tendered item of similar make of similar voltage level during last 3(three) years, subject to fulfilment of the following criteria:

   One similar contract of costing not less than the amount to **50 %** of the estimated cost against a particular contract during last 3 (three) years.

   Bidders shall submit copies of orders executed (Purchase Orders, Inspection Offer letter (if any), Despatch Instructions (if any), Signed Challans etc) successfully for the relevant years and abstract thereof to prove the quantity as supplied.

2. Manufacturer's certificate or valid dealership certificate.

3. Type test report from NABL accredited Laboratory, for the specified materials conducted within five years from the date of opening of bid (Technical). Bids not accompanied with type test reports conducted within five years & the drawings of the offered Materials dully approved by the Type Testing Agency shall not be considered for evaluation.

4. The sample of the item as per specification should be submitted to this office within due date as a part of Techno-commercial qualification and those manufacturers will be allowed whose type test certificates and sample will be found in order.

5 . The prospective Bidders or any of their constituent partner shall neither have abandoned any work nor any of their contract have been rescinded during the last 5 (five) years. Such abandonment or rescission will be considered as disqualification towards eligibility. (A declaration in this respect has to be furnished by the prospective bidders).

6. The bidder should not have been blacklisted from any Govt. organization across India in last three calendar years or must not have any criminal records like embezzlement money or fund misappropriation in the past and undertaking in this regard shall be provided by the authorized signatory of the bidder. During contract period if the undertaking submitted by the vendor is found to be false, the order issued on vendor shall be terminated.

7. I.T. return for last 3 (three) financial years.

8. Copies of valid Professional Tax (PT) payment certificate, PAN, GSTIN, Registration No. of the Company, Trade License are to be submitted by the Bidder.

These are required for acceptance of the Technical Bid unless of which the bid may be considered as non responsive.

14. The ordered materials should be delivered within 20 days from issuance of P.O , otherwise, penalty may be imposed as per rule of WBSEDCL for delay in delivery of ordered materials. If the above materials are found beyond Specification / satisfaction, the same will be rejected and fresh material is to be submitted at the own cost of the successful bidder.

15. Earnest Money / Bid Guarantee: The amount of Earnest money @ *2%* (two percent) of the pro-rata tendered amount of the offered quantity shall be submitted individually along with the offer.

16. Bid Validation: Bid shall remain valid for a period not less than 180 days after date of Bid opening of tender. If the Bidder modifies/withdraws the bid during the validity period of bid, the bid will be cancelled with forfeiture of earnest money deposit (EMD).

17. Both Technical Bid and Financial Bid are to be submitted concurrently duly digitally signed by the Bidder through the website https: //wbtenders.gov.in. Technical Document and Financial Bid should be submitted online on or before as per stated 'Date &Time Schedule'.

18. The FINANCIAL OFFER of the prospective bidder will be considered only if the TECHNICAL BID of the Bidder is found qualified by the WBSEDCL. The decision of the WBSEDCL will be final and absolute in this respect. The list of Qualified Bidders of Technical Bid will be displayed in the website.

19. No mobilization advance and secured advance will be allowed.

20. Date and Time Schedule:

Sl No	Particulars	Date and Time
1	Date of uploading of NIT & other Documents (Publishing Date)	24.08.2023 at 11.00 hrs
2	Documents download start date	24.08.2023 at 11.00 hrs
3	Pre- Bid meeting date	25.08.2023 at 11.00 hrs
4	Bid submission starting date	25.08.2023 at 15.00 hrs
5	Bid submission closing date	31.08.2023 at 15.00 hrs
6	Last date of submission of sample of tendered item	01.09.2023 at 15.00 hrs
7	Techno-commercial bid opening date	04.09.2023 at 15.00 hrs
8	Price bid opening date	To be intimated later.

21. WBSEDCL reserves its right to take decision keeping its financial interest. The provisions of Vendor Rating & Holiday Listing, will be applicable as per Revised Purchase Policy of WBSEDCL which is available in Website**:** **www.wbsedcl.in**

22. If the offer is submitted without or inadequate Earnest Money, the bid will not be opened. In case of incomplete offer, the tender will be liable for rejection and Earnest Money Deposit will be forfeited.

23. The quoted rates should be inclusive of all taxes & duties, freight and incidental charges with loading and unloading charge .The rate quoted by the contractor i.r.o. each item is inclusive of all such taxes, cess and others as stated above excluding GST. Applicable GST will be paid as per.

24. Any evidence of unfair Trade practices including overcharging, price fixing, cartel etc. as defined in various statutes, will automatically disqualify the bidders. Any bidder against whom FIR/ Complaint is lodged with Police by WBSEDCL shall not be eligible to participate in the bidding process,

25. The quantities provided in the schedule are provisional only, which may vary upto any extent or may be deleted altogether. The quoted rate of each item shall remain Firm. The company reserves the right to alter, amend, and omit or otherwise vary the quantities as may be necessary but such variation will be limited to ± 25% (plus or minus twenty five percent) of the contract price. Payment shall be made as per actual execution.

26. Specification of materials: **Rachyem/Ensto/SKIC** make, Suspension Clamp with Bracket for 50 sq mm messenger (including moveable connecting link & lever), applicable standard NFC 33-040 or equivalent I.S , if any.

27. The Bidder, at his own responsibility and risk to visit and examine the site of works and its surroundings and obtained all information that may be necessary for preparing Bid and entering into an agreement for the work / works as mentioned in the NIT, before submitting offer with full satisfaction. The costs for visiting the working site shall be at the bidder own expense.

28. The intending Bidders shall clearly understand that whatever may be the outcome of the present invitation of the Bid, no cost of Bidding shall be reimbursable by the Tender Inviting Authority. The Tender Inviting Authority reserves
the right to accept or reject any / all offer without assigning any reason whatsoever and is not liable for any cost that might have incurred by the Bidder at the stage of Bidding.

29. Payment of supply materials will be depended on availability of fund. Intending bidders may consider this criteria while submission of tender and quoting their rate through online.

30. No Conditional Bid / Incomplete Tender will be accepted under any circumstances.

31. The intending bidder(s) required to quote the rate in item rate BOQ to tender online considering that no escalation and / or price adjustment will be allowed by the department under any circumstances.

32. At any stage during scrutiny, if it is found that the credential or any other papers which the Bidder uploaded during Bidding process, found incorrect / manufactured / fabricated, that bid will be considered a nonresponsive and outright rejected with forfeiture of Earnest Money and action will be taken as per stipulation of IT Rules in force.

33. The Tender Inviting Authority reserves the right to cancel the NIT due to unavoidable circumstances and no claim in this respect will be entertained.

Any further information along with WBSEDCL's Revised Purchase Policy may be had from the Website**:** **www.wbsedcl.in** and the following office:

Office of the Chief Engineer (Procurement & Contracts),
West Bengal State Electricity Distribution Company Limited,
Vidyut Bhavan, 4th Floor,
Bidhannagar,Kolkata - 700091.
Phone No. 033-2319-7563

Sd/-

Divisional Manager
Garia Division, WBSEDCL

INSTRUCTION TO BIDDERS :

1. General guidance for e-Tendering: Instructions/Guidelines for electronic submission of the tenders online have been annexed for assisting the contractors to participate in e-Tendering.

2. Registration of Contractor: Any contractor willing to take part in the process of e-Tendering will have to be enrolled & registered with the Government e-Procurement System of West Bengal, through logging onto http://www.wbtenders.gov.in (the web portal) the contractor is to click on the link for e-Tendering site as given on the web portal.

3. Digital Signature certificate (DSC): Each contractor is required to obtain a Class-II or Class-III Digital Signature Certificate (DSC) for submission of tenders from the approved service provider of the National Informatics Centre (NIC) on payment of requisite amount. Details are available at the Web Site stated in Clause-2 of Instruction to Bidder. DSC is given as a USB e-Token.

4. Downloading of Tender documents: The contractor can search & download N.I.T. & Tender Document(s) electronically from computer once logs on to the website mentioned in clause 2 using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.

5. Submission of Tenders: Tenders are to be submitted through online to the website in two folders at a time for each work, one in Technical Proposal & the other in Financial Proposal before the prescribed date & time using the Digital Signature Certificate (DSC). The documents are to be uploaded (virus scanned copy) duly Digitally Signed. The documents will get encrypted (transformed into non readable formats/.pdf format).

5.1 **Technical proposal***:* The Technical proposal should contain scanned copies of the following standardized formats in two folders :

Non-Statutory Folder Containing :

i) Company details
ii) I.T. return for last 3 (three) financial years
iii) Copies of valid Professional Tax (PT) payment certificate, PAN, GSTIN, Registration No. of the Company, Trade License are to be submitted by the Bidder.
iv) **Credentials**: As mentioned in Eligibility criteria

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Manufacturer's certificate/ Distributor's certificate, Purchase Orders, Dispatch Instructions (if any), Signed Challans and valid Type test report from NABL accredited Laboratory, Make & Brand of delivered materials with approved valid GTP and Drawing of NABL for acceptance of the Technical Bid unless of which the bid may be considered as non responsive.

Note: Failure of submission of any of the above mentioned documents will render the tender liable to be rejected for both statutory & non statutory cover.

THE ABOVE STATED NON-STATUTORY / TECHNICAL DOCUMENTS SHOULD BE ARRANGED IN THE FOLLOWING MANNER: Click the check boxes beside the necessary documents in the My Document list and then click the tab "**Submit Non Statutory Documents**" to send the selected documents to Non-Statutory folder. Next Click the tab "**Click to Encrypt and upload**" and then click the "**Technical**" Folder to upload the Technical Documents.

Sl. No.	Category Name	Sub-category Description	Details
01.	Certificates	Certificates	a) Copies of valid Professional Tax (PT) payment certificate, PAN, GSTIN, Registration No. of the Company, Trade License are to be submitted by the Bidder. b) Copy of I.T. return for last 3 assessment years
02.	Company Detail(s)	Company Detail	Manufacturer's certificate/ Valid Delarship certificate.
03.	Technical Details	GTP & Drawing	a)Type test report from NABL accredited Laboratory as per IS specification. b) The sample of the item as per specification should be submitted to this office within due date as a part of Techno-commercial qualification and those manufacturers will be allowed whose type test certificates from NABL accredited Laboratory and sample will be found in order by the technical committee of the Division.
04.	Credentials	Credential	All categories of intending Bidders who have successfully delivered tendered items to WBSEDCL / other Power Utilities / Other Govt. Departments against Purchase Orders, Inspection Offer letter (if any), Despatch Instructions (if any), Signed Challans etc. for completing supply & delivery of Similar type of tendered item of similar make of similar voltage level during last 3(three) years, subject to fulfilment of the following criteria: One similar contract of costing not less than the amount to **50 %** of the estimated cost against a particular contract during last 3 (three) years. Bidders shall submit copies of orders executed (Purchase Orders, Inspection Offer letter (if any), Despatch Instructions (if any), Signed Challans etc) successfully for the relevant years and abstract thereof to prove the quantity as supplied.
05.	Financial Information	Financial Information	Copy of I.T. return for last 3 assessment years
06.	Earnest Money and Cost of Tender	Earnest Money	Scanned copy of Bank Draft

5.2 Notwithstanding anything stated above, the Owner (WBSEDCL) reserves the right to assess the capacity and capability of the Bidder to execute the work, should the circumstances warrant such assessment in the overall interest of the Owner. W.B.S.E.D.C.L reserves the right to check the original, if required.

5.3 **PENALTY FOR SUPPRESSION / DISTORTON OF FACTS**

If any Bidder fails to produce the original hard copies of the documents (especially Completion Certificates and audited balance sheets), or any other documents on demand of the Tender Committee within a specified time frame or if any deviation is detected in the hard copies from the uploaded soft copies or if there is any suppression, the tender committee will take actions deem fit against such defaulting Bidder.

The Employer reserves the right to accept or reject any Bid and to cancel the Bidding processes and reject all Bids at any time the prior to the award of Contract without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the ground for Employer's action.

5.4 The sample of the material is to be submitted to Garia Divisional Store physically within the schedule date. The tag of the sample should contain the name of the sample as well as the name of the Vendor/Bidder, For a valid bidder, the sample has to be approved by the Technical inspection committee of the Division. The technical evaluation of the bidders, whose sample is not approved by the committee, will be rejected or disqualified. After LOA is awarded, the awardees can adjust the sample with the ordered quantity and rest of all samples can be taken back by the respective bidders.

5.5 ***Financial*** **proposal:** The financial proposal should contain the following documents in one cover (folder) i.e. Bill of quantities (BOQ). The contractor is to quote the rate (on item rate) online through Computer in the space marked in the BOQ. Only downloaded copies of the above documents are to be uploaded virus scanned & Digitally Signed by the contractor.

6. Cost of bidding: The Bidder shall bear all cost associated with the preparation and submission of their bid and WBSEDCL in no case shall be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

7. Opening, Evaluation and comparison of bids:

7.1 On examination of document submitted under different covers WBSEDCL will evaluate and compare the bid, determined to be substantially responsive at each step.

7.2 Evaluation of bid will include and will take into account:

7.2.1 Cost of purchase items including taxes & duties etc. but excluding GST.

7.2.2 The owner shall evaluate and compare only the bids (Item rate BOQ) determined to be substantially responsive.

7.2.3 The bids shall be evaluated on the basis of total price for the entire scope of work covered under this bid document also.

7.2.4 Evaluated bid price of all bidders shall be compared among themselves to determine the lowest evaluated bid and as a result of this comparison, the lowest bid will be selected for award of contract if satisfied all requirements.

7.2.5 Conditional rebate, if any, offered by any bidder shall not be considered in Bid evaluation

(i) Opening of Technical proposal: Technical proposals will be opened by the Divisional Manager, Garia Divisional Office, Administrative Building (1st Floor), Hindustan More, Garia, NSC Bose Road, Kolkata – 700084, WBSEDCL and his authorized representatives electronically from the web site stated using their Digital Signature Certificate (DSC) only who have submitted cost of tender and EMD in offline mode within scheduled date and time. Cover (folder) for Statutory Documents will be opened first and if found in order, cover (folder) for Non-Statutory Documents will be opened. If there is any deficiency in the Statutory Documents the tender will summarily be rejected. Summary list of technically qualified bidders will be uploaded online. Pursuant to scrutiny & decision of the Department, the list of eligible bidders will be uploaded in the web portal.

(ii) Techno-commercial Evaluation : On examination of documents submitted under different covers WBSEDCL will evaluate and compare the bid, determined to be substantially responsive at each step. The bids shall be evaluated on the basis of total price for the entire scope of work covered under this bid document. Evaluated bid price of all bidders shall be compared among themselves to determine the lowest evaluated bid and as a result of this comparison, the lowest bid will be selected for award of contract. Conditional rebate, if any, offered by any bidder shall not be considered in Bid evaluation.

(iii) Opening and evaluation of Financial Proposal: Financial proposals of the declared techno-commercially eligible, will be opened electronically by the Tender Inviting Authority from the web portal stated above on the prescribed date. The encrypted copies will be decrypted and the rates will be read out to the bidders remaining present at that time. After opening of the financial proposal the preliminary summary result containing inter alia, name of bidders and the rates quoted by them will be uploaded. The Tender Accepting Authority may ask any of the bidders to justify the rate quoted by them.

8. **Language and measures:** All documents pertain to the contract including specifications, schedule, notice, correspondences, operating and maintenance instructions, drawings or any other writings be written in English language.

9. Notification of Award : Prior to expiration of Bid validity the Employer shall notify to the successful bidder in writing the Letter of Award. The bidder shall provide unconditional acceptance of LOA within one week.. Failure of the successful bidder to comply with the requirement of acceptance of LOA, shall constitute sufficient ground for the annulment of the Award and forfeiture of Bid security /EMD.

10. Corrupt or fraudulent practice: Owner expects that Bidders/Suppliers/Contractors observe the highest standard of ethics during the execution of such contracts. In pursuance of this policy, the Owner: Defines, for the purposes of this provision, the terms set forth below as follows : i) "Corrupt Practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution, and

11) "Fraudulent Practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the determent of the Owner, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Owner of the benefits of free and open competition. iii) Will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question. iv) Will declare a firm ineligible, either indefinitely or for a stated period of time, if Owner any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing the Contract.

Sd/-
Divisional Manager
Garia Division Office, WBSEDCL

GENERAL CONDITIONS OF CONTRACT FOR SUPPLY AND DELIVERY OF EQUIPMENT/ MATERIALS:

1. DEFINITATION OF TERMS: In writing these General Conditions of Contract, Specification and Bill of Quantity / Bidding Schedule (Schedule of work), the following words shall have normally the meanings here-in-after indicated unless there is something in the subject matter of content inconsistent with such construction.
The Company / Purchaser / Owner / Department shall mean the WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED (WBSEDCL), having its head office at Vidyut Bhawan, Block-DJ, Sector-II, Kolkata-700091.
The Engineer-in-Charge / Controlling Officer shall mean the Engineer deployed by the company for the purpose of this contract.
Company's representative shall mean any person or persons of WBSEDCL appointed by the Company .The Vendor shall mean the Bidder who will be awarded with the contract by the Company.
The work Site shall mean the site of proposed work as detailed in the specification or any other place where the work is to be executed under the contract.
The terms Services shall mean all works to be undertaken by the Vendor as laid down under the head
'Scope of Work' or elsewhere in the specification enclosed. When the words 'approved', 'subject to approval', 'as directed', 'accepted', 'permitted' etc. are used, the approval, judgment, direction etc. are understood to be a function of company.
Writing shall indicate any manuscript, type written, printed or other statement reproduced in any visible form.
Date of Contract shall mean the date on which the notification of award of contact / letter of award has been issued. Zero Date will be reckoned from the date of handing over of site.

2. Contract Documents means all documents forming part of Contract (and all parts thereof) are indicated to be correlative, complementary and mutually explanatory of the Contract Agreement. The Contract shall be read as whole.

3. Tender Submission:- Any Bidder willing to take part in the process of e-Tendering will have to be enrolled & registered with the Government e-Procurement system, through logging on to http://wbtenders.gov.in (the web portal).

4. PERFORMANCE BOND/SECURITY DEPOSIT: As a contract security the contractor shall have to furnish Performance Bond in the form of Demand Draft amounting to 10**% (ten percent) of the contract price (to be mentioned in the LOI/Order)** to guarantee the faithful performance and security of the contract in accordance with all the conditions and terms stipulated herein. Performance Bond will also have the guarantee for successful and satisfactory performance of the works to be done under the contract till the expiry of the guarantee period. The Performance guarantee is to be submitted to the Controlling Officer of the work immediately on receipt of the Order.

5. Refund of Performance Bond / Security Deposit & Earnest money for Successful Bidder: Refund of Security deposit shall be subject to Company's right to deduct/appropriate its dues against the contractor under this contract or any other contract. The Security Deposit for all type of bids shall be released only after satisfactory expiry of the warrantee period. Refund of earnest money for the successful bidder shall be released only after submission & acceptance of performance bond.

6. FORFEITURE OF EARNEST MONEY DEPOSIT (EMD): (i) If successful Bidders fail to accept Purchase Order / LOI issued within their offered validity period, (ii)if any cartel is formed in their quotation in case of failure to supply material by the supplier as per delivery schedule, company may, at its discretion resort to Risk Purchase clause as provided in G.C.

7.PAYMENT: 100% payment of bill will be made within 45 (forty five) days from the date of submission of bill against SRV, original receipt of challan/invoice duly signed by an Officer in the rank of Sr. SAE/Jr. Manager (Stores) attached to the respective stores and submission of performance bond/security deposit .

8. GOODS & SERVICES TAX (GST): GST at prevailing rate will be paid extra.

9. PAYING OFFICER: The Manager (F&A), Garia Division shall be the Paying Authority.

10. CONTROLLING OFFICER: The Divisional Manager, Garia Division shall be the Controlling Officer for the above mentioned work.

11. WARANTEE: In the event of any defect in the equipment/materials arising out of faulty design, materials, workmanship within a period of 12 months of commissioning or 18 (eighteen) months from the date of last despatch of any integral part of the equipment/materials whichever is earlier the supplier shall guarantee to replace or repair the same to the satisfaction of the purchaser. If the supplier fail to do so within a reasonable time, WBSEDCL reserves the right to effect repair or replacement by any other agency and recover charges for repair or replacement from the supplier.

12. LIQUIDATED DAMAGE FOR DELAY IN DELIVERY: The time of delivery of the equipment/materials are to be treated as an essence of the contract and the WBSEDCL reserves the right to repudiate the contract, if the equipment / materials are Not physically delivered within stipulated period as per physical delivery clause. But WBSEDCL may at his discretion waive this condition and accept the material with imposition of liquidated damage @ 1/2% of the Value of the materials beyond the schedule delivery period for each week of delay Subject to maximum of 5%of the particular lot and accept the goods beyond the stipulated period.

13. MANNER OF EXECUTION OF CONTRACT: The successful bidder has to submit acceptance of the LOI / Order within 7 **(Seven) days** from the date of issue of the Letter of Intent / Order.

14. EXTENSION OF TIME: An extension of time without imposition of liquidity damage, may be granted for delay in execution of work provided there is no fault whatsoever on the part of the contractor. Such extension may only be granted on the basis of application to be submitted timely (within schedule time of completion) by the contractor who has to establish that the extension of time required by him is not due to his fault.

15. RISK PURCHASE: The time of delivery (offer for inspection) or physical dispatch stipulated in the purchase order shall be deemed to be of the essence of the contract and if the supplier fails to deliver or dispatch any consignment within the period prescribed for such delivery or dispatch in the said purchase order/contract/letter of intent, the purchaser shall be entitled to purchase such consignment or if not available, the best and nearest available substitute elsewhere on the account and at the risk of the supplier or to cancel the contract and the supplier shall be liable to compensate for any loss or damage which the purchaser may sustain by reason of such failure on the part of the supplier. The Company at its discretion may not issue subsequent tender if earlier Purchase Order against earlier tender is not executed fully. If there is a failure to execute the contract fully, WBSEDCL reserves the right forfeit Earnest Money deposit/cash security to the extent of loss so suffered by the WBSEDCL on risk purchase or otherwise, and may deduct the additional amount, if any, so incurred by the Company from other claim / bill lying with the WBSEDCL.

16. LEGAL JURISDICTION: If any dispute or difference arises with respect to quality/quantity of the equipment/materials pertaining to this order or any other terms and conditions of the order including its execution, such dispute/difference shall be subject to settlement under the jurisdiction of Courts in Kolkata.

17. FORCE MAJEURE: The supplier shall be under no liability if he is prevented from carrying out any of his obligations by reason of war, invasion, act of foreign country, hostilities (whether war declared or not), riots, civil commotion, mutiny, insurrection, rebellion, revolution, accident, earthquake, fires, floods Govt. order and/or restrictions (except power supply restriction) delay or inability to obtain materials due to import or other statutory restriction and other cause beyond the reasonable control of the supplier. However, such force majeure circumstances are to be intimated immediately and to be established subsequently with proper documents/proofs to the entire satisfaction of the purchaser.

18. CANCELLATION / TERMINATION OF ORDER (if placed): The time period for effecting complete supply and delivery of the above materials/equipment as indicated through the delivery schedule enclosed shall have to be treated as the essence of the contract. The Company reserves the right to repudiate the contract if the above period is not strictly adhered to. In the event of failure in effecting the desired supply and delivery of the above equipment/materials within above stipulated due date as incorporated through the schedule enclosed, the above order may be cancelled on submission of necessary notice in this regard and fresh order may be placed on the next higher bidder or on any other bidder, as a result of which the extra cost thus liable to be incurred shall be realized from the original supplier's pending bills which may be lying with the WBSEDCL.

22/08/2023

Divisional Manager
Garia Divisional Office, W.B.S.E.D.C.L.

ANNEXURE –I

PROFORMA FOR UNDERTAKING TO BE SUBMITTED BY THE BIDDER (For genuineness of the information furnished on-line and authenticity of the documents produced before Tender Committee for verification in support of his eligibility)

I._____, Partner/Legal Attorney/Accredited representative of M/S_____, solemnly declare that:

1. We are submitting Tender for the Work _____against Tender Notice No_____Dated_____

2. None of the Partners of our firm is relative of employee of W.B.S.E.D.C.L.

3. All information furnished by us in respect of fulfilment of eligibility criteria and qualification information of this Tender is complete, correct and true.

4. All documents/credentials submitted along with this Tender are genuine, authentic, true and valid.

5. If any information and document submitted is found to be false/incorrect any time, department may cancel my Tender and action as deemed fit may be taken against us, including termination of the contract, forfeiture of all dues including Earnest Money and banning/delisting of our firm and all partners of the firm etc.

Signature of the Bidder

Dated_____

ANNEXURE-II
Format of Letter of Bid

LETTER HEAD OF BIDDER (AS ENROLLED ONLINE ON e-tendering PORTAL OF NIC)

To.
The Tender Committee

Sub : Letter of Bid for the work
_____
_____
_____

Ref : 1. NIT No_____dated_____

2. Tender Id No_____

Dear Sir,

We offer to execute the work as per our offered bill of quantity in accordance with the conditions of the NIT document as available in the website. The details of the EMD being submitted by us has been furnished on-line.

This Bid and your subsequent Letter of Acceptance/Work Order shall constitute a binding contract between us.

We hereby confirm our acceptance of all the terms and conditions of the NIT document unconditionally.

Signature of the Bidder

Dated_____

ANNEXURE-III

Dated:_____

DECLARATION BY THE BIDDER

I/We have inspected the site of work and have made myself/ourselves fully acquainted with local conditions in and around the site of work. I /We have carefully gone through the Notice Inviting Tender and other tender documents mentioned therein. I/We have also carefully gone through the 'Bill of Quantities'.

My/Our tender is offered taking due consideration of all factors regarding the local site conditions stated in this Detailed Notice Inviting Tender to complete the proposed construction in all respects.

I/We promise to abide by all the stipulations of the contract documents and carry out and complete the work to the satisfaction of the department.

_____

Signature of Bidder

_____

Postal address of the Bidder

ANNEXURE-IV

PROFORMA OF DECLARATION OF BLACK LISTING/HOLIDAY LISTING

Ref : Notice Inviting e-Tender no :……dtd ……

In the case of a Proprietary Concern:

I hereby declare that neither I in my personal name or in the name of my Proprietary concern M/s _____ which is submitting the bid for the work nor any other concern in which I am proprietor nor any partnership firm in which I am involved as a managing partner have been placed on black list or holiday list declared by WBSEDCL, WBSETCL or any central/ state power utility services, except as indicated below:

(Here give particulars of black listing or holiday listing, and in absence thereof state "NIL")

In the case of a Partnership Firm:

We hereby declare that neither we, M/s _____ submitting the bid for the work nor any partner involved in the management of the said firm either in his individual capacity or as proprietor or managing partner of any firm or concern have or has been placed on black list or holiday list declared by WBSEDCL, WBSETCL or any central/ state power utility services, except as indicated below:

(Here give particulars of black listing or holiday listing, and in absence thereof state "NIL")

In the case of a Company:

We hereby declare that we have not been placed on any black list or holiday list declared by WBSEDCL, WBSETCL or any central/ state power utility services, except as indicated below:

(Here give particulars of black listing or holiday listing, and in absence thereof state "NIL")

It is understood that if this declaration is found to be false in any particular WBSEDCL, WBSETCL or Administrative Ministry, shall have the right to reject the Bid and if the bid has resulted in a contract, the contract is liable to be terminated.

ANNEXURE-V

PROFORMA OF DECLARATION REGARDING ABANDONMENT OR RESCISSION OF WORK

Ref : Notice Inviting e-Tender no : …… dated ……..

In the case of a Proprietary Concern:

I hereby declare that neither I in my personal name or in the name of my Proprietary concern M/s _____ which is submitting the bid for the work nor any other concern in which I am proprietor nor any partnership firm in which I am involved as a managing partner neither have abandoned any work nor any of our contract have been rescinded during the last 5 (five) years, except as indicated below:

(Here give particulars of abandonment or rescission of work and in absence thereof state "NIL")

In the case of a Partnership Firm:

We hereby declare that neither we, M/s _____ submitting the bid for the work nor any partner involved in the management of the said firm either in his individual capacity or as proprietor or managing partner of any firm or concern neither have abandoned any work nor any of our contract have been rescinded during the last 5 (five) years except as indicated below:

(Here give particulars of abandonment or rescission of work and in absence thereof state "NIL")

In the case of a Company:

We hereby declare that we neither have abandoned any work nor any of our contract have been rescinded during the last 5 (five) years, except as indicated below:

(Here give particulars of abandonment or rescission of work, and in absence thereof state "NIL")

It is understood that if this declaration is found to be false, The WBSEDCL shall have the right to reject the Bid and if the bid has resulted in a contract, the contract is liable to be terminated.

TECHNICAL SPECIFICATION FOR INSULATION PIERCING CONNECTORS, ANCHOR (DEAD END) & SUSPENSION ACCESSORIES & OTHER ACCESSORIES FOR AERIAL BUNCHED CABLES FOR WORKING VOLTAGE UP TO AND INCLUDING 1100 VOLTS

01. SCOPE

This specification covers the design, manufacture, assembly, testing and supply of Accessories for anchoring, suspending & making connections to Aerial Bunched Cables rated 1100 volts and insulated with cross-linked polyethylene.

02. STANDARD

The design, performance and test requirements shall confirm to this specification and the following standards. However in case of any conflict, the requirements of this specification shall prevail.

1	NFC 33-020	Document defines the characteristics and the tests applicable to insulation piercing connectors for overhead distributions and services with bundle assembled cores, of rated voltage 0.6/1KV and NF EN 50483-4:2009: Test requirements for low voltage aerial bundled cable accessories -- Part 4: Connectors as mentioned in NFC 33-020 -2013.
2	NFC33-021	Documents defines characteristics and tests applicable to pre-insulated compression type connecting equipment for overhead distributions and services with bundle assembled cores, of rated voltage 0.6/1KV
3	NFC 20-540	Environmental testing. Test methods. Climatic ageing test of equipment and synthetic materials for outdoor use.
4	NFC 33-004	Insulated Cables and their accessories for Power System - connecting equipment for overhead Distribution and Services of rated Voltage 0.6/1kV with at least one insulated core - Electrical aging test
5	NFC 33-040	Documents defines characteristics and tests applicable to suspension equipments for overhead distribution with bundle assembles cores, of rated voltage 0.6/1 KV
6	NFC 33-041	Documents defines characteristics and tests applicable to anchoring devices for overhead distribution with bundle assembled cores, of rated voltage 0.6/1 KV
7	NFC 33-042	This document defines characteristics and tests applicable to anchoring devices for overhead and overhead-underground services with insulated cables, of rated voltage 0,6/1 kV
8	IS 14255	LV Aerial Bunched Cables and other IS as referred there

The accessories shall also be compatible with the cables of sizes & dimensions as defined in the Cable Specifications for the cables with which they are intended to be used.

03. CLIMATIC CONDITIONS

For the purpose of designing the climatic conditions as specified in **Annexure-1** shall be considered.

04. CABLE DATA

The standard sizes and characteristics of the phase and street lighting conductors, messenger wires shall be as specified in IS: 14255-1995 with latest amendments.

The Accessories of LT XLPE Insulated Aerial Bunched Cables (ABC) with insulated messenger cum neutral are specified below:

a) The ABC accessories should be of proven design with a major utility. Order copies and Performance Certificates should be enclosed with the offer.

b) Since ABC accessories are to be used with insulated neutral-cum-messenger, their design should incorporate specific features to prevent damage to the insulation which meeting the required electrical, mechanical & thermal requirements.

c) The accessories should provide "Double Insulation" so that a single point failure of insulation will not result in the system tripping.

05. THE ABC ACCESSORIES

The ABC Accessories shall consist of the following:

a)	Insulation Piercing Connectors (IPC)	:	For making tap-off/branch connectors/service connector to an ABC line.
b)	Anchoring Assembly (AA)	:	For fitting onto a pole for anchoring the end of a length of ABC, or for a major change in direction.
c)	Suspension Assembly (SA)	:	For supporting a length of ABC at an intermediate pole in a length, with small angle of deviation.
d)	Junction Sleeves	:	For Phases, neutral messengers & Street lighting conductor.
e)	ABC Service Main Distribution Box	:	For Distribution of multiple no. of Service Connections from Main AB cable.

05.1. Insulation Piercing Connectors (IPC)

In the process of replacing the Bare Conductors with LT AB Cables to reduce power theft & Transmission Losses, it is important to analyze the proper method of providing service connection from AB Cables to consumers without damaging the cable. Removal of Bare Conductor, Stringing of LT AB Cable & re-establishing the service connections should be simultaneous process.

In this regard the Insulating Piercing Connectors are required-

a) For providing service connections from LT pole

b) For providing supply to Junction/ Distribution Box from AB Cable &

c) For establishing Tee connection from LT ABC to LT ABC.

d) For establishing system earthing with insulated messenger cum neutral wire wherever required.

These Insulating Piercing Connectors should not be exposed to any bare conductor in the environment during connection. The connectors should be totally Weather & Moisture-proof so that no water or moisture can enter through the pierced holes onto the cable insulation. It must have Shear Head type mechanism to control the effective Torque during connection and to ensure perfect installation. Connectors should not have any losable parts, which may drop and then lost while installation at overhead conditions. For individual connectors Torque required for different conductor sizes should be mentioned in the equipment.

05.1.1. Insulation Piercing Connectors (IPC) are used for making Tee / Tap-off / Service connectors to an ABC / Bare Overhead Line.

05.1.2. Insulation Piercing Connectors are designed to make a connection between the uncut main conductor and a branch cable conductor without having to strip either cable to expose the conductor instead the tightening action of the IPC will first pierce the Insulation, then make good electrical contact between the main end and branch conductor while simultaneously insulating and sealing the connection.

05.1.3. **Constructional Features of IPC**

The connectors should be totally insulated with no loose parts. The connectors should be totally Weather & Moisture proof so that no water or moisture can enter through the pierced holes on the cable insulation.

05.1.3.1. The housing shall be made entirely of mechanical and weather resistant & UV resistant reinforced polymer insulation material and no metallic part outside the housing is acceptable except for the tightening bolt.

05.1.3.2. Any metallic part that is exposed must not be capable of carrying a potential during or after connector installation.

05.1.3.3. Screws or nuts assigned for fitting with IPC (Insulating Piercing connector), must be fitted with torque limiting shear heads to prevent over tightening or under tightening (min & max torque values to be specified by Manufacturer).

05.1.3.4. The IPC must perform piercing and connection on Main and Branch cable simultaneously.

05.1.3.5. The IPCs shall be water proof and the water tightness shall be ensured by appropriate elastomeric materials and not by grease, gel or paste alone.

05.1.3.6. Design of IPC should be such as to not cause damage to insulation of adjacent conductors due to vibration and relative movement during service.

05.1.3.7. The connector shall have a rigid removable end cap which can be slide fitted onto the main connector body on either right or left by the installer (depending on site requirement) for sealing the cut end of the branch cable. Once the connector is fitted, it should not be possible to remove the cap without removing the connector.

05.1.3.8. All the metallic parts of the connector should be corrosion resistant and should be proven in Salt Fog chamber & Wet SO_2 gas chamber and there should not be any appreciable change in contact resistance & temperature after overloads & load cycling.

i. The contact plates should be made of Aluminium Alloy and for street light phase contact plates should be made of tinned copper

ii. Connector teeth should be factory greased & sealed to retard water or moisture ingress & corrosion.

iii. The Insulation material should be made of weather & UV resistant reinforced polymer.

iv. The outer metallic part should have potential free tightening bolts to allow safe installation on live lines.

05.1.4. **Mechanical Tightening and Electrical Continuity**

05.1.4.1. Connectors shall be tightened upto 70% of the minimum torque indicated by the Manufacturer. At this torque electrical contact should have occurred between conductors to be joined. Then connectors shall be tightened up to the breakdown of the shear heads and lastly, upto 1.5 times the maximum torque indicated by the manufacturer.

05.1.4.2. For the connector fitted with two screws on the same core, after the breakdown of the shear heads tightening may be carried out manually and alternatively using a torque meter. The test conditions shall be as close as possible to those defined for the use of the test machine as per NF-C standard.

05.1.4.3. At 1.5 times the maximum torque indicated by the manufacturer, there shall be no breakdown of any part of the connector or the core conductor.

05.1.4.4. **Maximum rated torque** shall not exceed 20 N.m for conductor <95 sq.mm and 30N.m for >95 but <150 sq.mm.

05.1.4.5. Tightening screws shall have hex.

05.1.5. **Effect of Tightening on Main Core of IPC**

05.1.5.1. The connector shall be fitted approx. at the center of the main core, which is secure between two anchoring points 0.5 mtr. To 1.5 mtr. apart. At the time of fitting the connectors, the main core shall be under longitudinal tension at 20% of the load indicated in Table-1 :

Table - 1

Nominal Cross – section (sq.mm.)	Tensile Strength (Newton)
16	1200
25	1800
35	2500
50	3500
70	5000

Tensile strain shall be increased to the full value indicated in the Table 1 and held minute.

There should be no breakdown of the core conductor.

05.1.6. **Effect of Tightening on Branch Core of IPC**

05.1.6.1. Test specimen shall be made up as in clause 05.1.5. [Page 4 of this document] except that this shall be done the smallest cross sections of main and branch conductors within its range.

05.1.6.2. An increasing tensile load shall be applied to the Branch Conductor along the axis of the recess for the Branch cable. Load shall increase at 100 – 500 N/minute until it reaches the value specified in the Table 2 and maintained for 1 minute.

Table - 2

Nominal Cross – section (sq.mm.)	Tensile Strength (Newton)
16 (Alu)	290
25	450
35 & above	500

05.1.6.3. No slippage or breaking of conductor shall occur.

05.1.7. **Dielectric & Water Tightness Test of IPC**

05.1.7.1. The connector is tightened up to the minimum torque indicated by the manufacturer.

05.1.7.2. Connectors are mounted on

- Minimum cross section of main core.
- Maximum cross section of main core.

05.1.7.3. In each case Branch is of minimum cross section.

05.1.7.4. Protection caps for the branch cable are to be used in accordance with the requirements of clause 05.1.3.7. [As noted in Page 3 of this document]. An additional water tight cap of any design may be used to seal one end of the main cable if it is immersed under water. No additional gel or any protection is to be provided while installing connector.

05.1.7.5. The entire assembly shall be immersed at a depth of approx. 30 cms. for 30 minutes with the free ends of main and branch cable out of the water.

05.1.7.6. An AC voltage of 6 kV shall be applied between the water bath and each of the cores in turn for 1 minute. There shall be no flashover or electrical tripping with a trip setting of 10 mA ± 0.5mA.

05.1.8. **Electrical & Ageing Test of IPC**

05.1.8.1. Two test configurations are used according to Table 3 with the connections tightened to the minimum torque specified by their manufacturers and resistance recorded.

Table - 3

Configuration	Main core cross section	Branch core cross section Tensile Strength (K.N)
1st Configuration	Maximum	Maximum
2nd Configuration	Maximum	Maximum

05.1.8.2. The configurations are subjected to 200 heat cycles by injecting suitable current into them. In

each cycle the temperature of the conductor shall be raised from ambient to 120 + 5°C as, measured by a thermocouple.

05.1.8.3. The duration of each heating cycle is chosen to maintain a sufficiently steady temperature of 120 + 5°C for 15 minutes. The duration of each cooling cycle is chosen to bring the conductor temperature to within 2°C of ambient.

05.1.8.4. Nominal heating current is indicated in the Table-4. It shall be permissible to accelerate the temperature rise by using a current up to 1.5 times the nominal current and to accelerate the cooling period by use of a fan or air blower.

Table - 4

Nominal Cross – section (sq. mm.)	Nominal Heating Current (A)
16	102
25	139
35	175
50	225
70	283

05.1.8.5. The over current test of Clause 5.1.9 shall be done after 50 cycles if the connector is a safety connector designed to ground a phase connector while the line is being worked on.

05.1.8.6. At the end of the 200 cycles the resistance shall again be measured. It shall not differ from the initial value by more than 12%.

05.1.9. **Over Current Test of IPC**

05.1.9.1. Over current test is required to establish the performance of Safety Connectors that are intended to provide a safe path to ground for the phases while the line is de-energised for working. It establishes the performance of the connector under short term over load conditions.

05.1.9.2. After the first 50 cycles of clause 5.1.8, the connectors are subjected to 4 over currents of 1 sec duration each.

05.1.9.3. The conductor temperature at the start of the over current test should be not more than 35°C.

05.1.9.4. Current density during over current shall be 100 A/sq.mm for Aluminium and 95 A/sq.mm for Aluminium – Alloy Conductor.

05.1.9.5. Variation in time of over current is permissible between 0.85 sec & 1.15 sec., provided if maintains the relationship $I^2t = K$ where,
I = rms value of over current in Amps.
t = time in seconds
K = Constant

05.1.9.6. After the over current test the electrical ageing test of clause 5.1.8 shall be resumed.

05.1.9.7. According to NFC 33-020 -2013, clause 6.9: as a preliminary measure, it is ensured that resistance of the contacts is below 630μΩ.

05.1.10. **Test of IPC**

05.1.10.1. Type Test Reports should be submitted from an Independent Laboratory of Repute or the Works Laboratory in case of a foreign manufacturer covering the following (on any convenient size of fitting of same design made from the same materials).

05.1.10.2. The installation of the connectors shall be done by the laboratory following instructions provided by the manufacturer.

05.1.10.3. The Test report shall record the embossing and marking on the connector.

NFC	Clause	Test	Type Test	Acceptance test
		Visual		√*
		Dimensional		√*
NFC 33-020; 2013	6.3	Mechanical Test	√	√**
NFC 33-020; 2013	6.3.1	Shear head function's test and connector bolt tightening test	√	√*
NFC 33-020; 2013	6.3.2	Test for mechanical damage to the main conductor	√	√
NFC 33-020; 2013	6.3.3	Branch Cable Pull-out test	√	√
NFC 33-020; 2013	6.4	Dielectric voltage test and water tightness test	√	√**
NFC 33-020; 2013	6.5	Low Temperature assembly test	√	
NFC 33-020; 2013	6.6	Climatic Ageing Test	√	
NFC 33-020; 2013	6.7	Corrosion Test	√	
NFC 33-020; 2013	6.8	Electrical ageing test	√	
NFC 33-020; 2013	6.9	Temperature Rise and Over Current Test	√	√**

The above tests are to be carried out as per sampling plan below.

In case of random failure/defect, double the sample lot is to be drawn and there should be no failure/defect exceeding half the permissible defects (rounded down) shown in the chart.

Lot Size	For tests Marked*		For Tests Market **	
	Sample Size	Max. permissible Defects	Sample Size	Max. permissible Defects
Upto 100	2	Nil	2	Nil
101 to 1000	6	Nil	4	Nil
>1001	0.01% subject to min. 6 pieces	0.1% of pieces checked	4	Nil

Capacity needed: For ABC 16 to 95 mm^2

Model 1 for customer service Main 16 to 95 mn^2

Tap 2.5 to 10 mm^2 (For Street lighting) Design as per furnished drawing (Anx-I)

Model 2 for customer service Main 16 to 95 mm^2

Tap 04 to 35 mm^2 (for distribution box charging) Design as per furnished drawing (Anx-II)

Model 3 for customer service Main 25 to 95 mm^2

Tap 25 to 95 mm^2 (For ABC to ABC Tee Joint) Design as per furnished drawing (Anx-III)

05.2. Dead End Clamp or Anchoring Clamp for Insulated Messenger:

The clamps should be designed to Anchor LT-AB cable with insulated messenger. The clamp should consists of an Aluminium alloy corrosion resistant castled body, bail of stainless steel and self adjusting plastic wedges which shall anchor / hold the neutral messenger without damaging the insulation.

i. No losable part in the process of clamping arrangement
ii. The clamp should conform to the standard NFC 33-041 and 33-042 or equivalent I.S. if any.
iii. The clamp body should be made of corrosion resistant Alluminium alloy, bail should be of stainless steel and wedges should be weather and UV resistant polymer.
iv. Ultimate tensile strength of the clamp should be as per Table-6 of Technical Specification

05.2.1. Anchoring assemblies are used to firmly attach the messenger of ABC to a support and transmit the mechanical tension.
   i. At the end of a run or to the supporting structures
   ii. At a major change in direction.

05.2.2. Each Anchoring Assembly shall include.
   i. One number tension bracket.
   ii. One number wedge type tension clamp
   iii. Flexible Rope for fixing tension clamp to bracket.

05.2.3. Anchoring assemblies shall be supplied in sets to ensure compatibility of the materials against corrosion or wear of moving parts.

05.2.4. **Tension Bracket of AA**

05.2.4.1. The tension bracket shall be made out of a single piece of Aluminium alloy suitable for attachment to a pole either by
   i. 16mm galvanized steel bolt (s) or
   ii. Two stainless Steel straps of 20 x 0.7 mm.

The tension bracket should be designed to ensure the Flexible rope cannot slip out at any angle.

The tension bracket should be rated and tested for the loads specified in Table-5. The load shall be applied at an angle of 45^0 from the normal to the surface of mounting of the bracket.

Table - 5

Conductor Size (Sq.mm.)	Rating	Load for deformation <10mm (Newtons)	Load for deformation <30mm & no-break (Newtons)
25-35	1500 Kg.	12,000	15,000
50-95	2000 Kg.	15,600	19,500

05.2.5. Flexible Rope of AA

05.2.5.1. The Anchoring assembly shall be supplied with a stainless steel flexible Rope to connect the Tension Clamp to the Tension Bracket.

05.2.5.2. The rope should have sufficient flexibility to ease the torsional movement of the ABC System.

05.2.5.3. The Rope should be pre-fitted with compression type end fittings to secure the tension clamp.

05.2.5.4. A wear resistant moveable saddle should be un-loose-ably fitted on the Rope to prevent abrasion at the point of fitting into the tension bracket.

05.2.5.5. The Rope should have sufficient mechanical strength to withstand the mechanical test for the complete assembly tests in this specification.

05.2.6. Wedge Type Tension Clamp of AA

05.2.6.1. Wedge type clamps shall be used for clamping the messenger without damaging the insulation.

05.2.6.2. The clamp shall be capable of clamping an uncut messenger so that it can continue without break to the connecting point or next span.

05.2.6.3. The clamp shall be fully insulating type of mechanical and weather resisting thermoplastic.

05.2.6.4. No bolts or loose parts are allowed as part of the Clamping system.

05.2.6.5. No tools shall be needed for fitting the messenger into the clamp.

05.2.6.6. The clamp shall be self tightening and capable of holding without slippage the load specified in the Table-6.

Table - 6

Conductor Size		Rating (Kg.)	T start (1 minute) (Newtons)	T final (1 minute) (Newtons)
Sq. mm.	Dia. (mm)			
25-35	08-11	1000 Kg.	8,000	10,000
50-54	12-14	1500 Kg.	12,000	15,000
70-95	13.5-16	2000 Kg.	12,000	15,000

05.2.6.7. After fitting the insulated messenger in the clamp, load T start will be held for 1 minute & then load increased to T final at rate between 5000 – 7,500 N/mtr. In each case there shall be no breakdown of any part of clamp and slippage of messenger in relation to the clamp.

05.2.7. Voltage Test on Clamp of AA

05.2.7.1. Voltage test is carried out on anchor clamps to ensure no damage is caused to the insulated messenger.

05.2.7.2. A conductive rod of dia. corresponding to the average dia. that can be accommodated in the clamp is fitted into the clamp, protruding by approx. 50mm at each end of the tightening piece.

05.2.7.3. The rod and clamp is subjected to tensile load as stated in Table 7 below when fixed to a

support in its normal manner.

Table - 7

Conductor Size		Normal rating (kg)	Load Applied (N)
Sq. mm.	Dia. (mm)		
25-35	8-11	1000	2000
50-54	12-14	1500	4000
70-95	13.5-16	2000	4000

05.2.7.4. A power frequency voltage of 6 kV is applied for 1 minute between the rod and conductive part of the clamp, or fixation point in absence of conductive part.

05.2.7.5. No breakdown or flashover shall occur. There shall be no tripping due to leakage with a setting of 10 + 0.5 mA.

05.2.8. Endurance under Mechanical & Thermal Stress of AA

05.2.8.1. This test is done on clamp rated 1500 Kg. or 2000 Kg. using insulated messenger 50 to 70 sq. mm.

05.2.8.2. A neutral messenger is fitted between two anchor clamps, with clamp spacing approx. 5 mtr. & 1 mtr. of messenger protruding from the end. Marks are made to enable measurement of slippage.

05.2.8.3. The sample is subjected to 500 cycles of 90 minutes each as described below :

05.2.8.3.1. Messenger temperature is raised by passing an AC current to 60+3^{0}C within 15 minutes. This temperature is maintained for at least 30 minutes to give a total heating period of 45 minutes per cycle.

05.2.8.3.2. Messenger is allowed to cool naturally to ambient for further 45 minutes to complete 90 minutes Cycle time.

05.2.8.3.3. Mechanical load is applied during the cycle as per table 8 below. Load F1 is applied throughout the cycle, except for a short period of 5 sec. to 60 sec. when it is gradually increased from F1 to F2 at any time during the last 15 minutes of the 90 minute cycle.

Table - 8

Conductor Size		Rating (Kg.)	F1 (Newtons)	F2 (Newtons)
Sq. mm.	Dia. (mm)			
25-35	08-11	1000 Kg.	2,200	5,000
50-54	12-14	1500 Kg.	4,000	7,500
70-95	13.5-16	2000 Kg.	4,500	10,000

05.2.8.3.4. There should be no slippage greater than 4 mm after 2 cycles or greater than 8 mm after 500 cycles.

05.2.8.3.5. Voltage test is done at the end of the 500 cycles by immersing the test specimen of neutral messenger and clamps in water of resistively not less than 200 Ohm mtr. for 30

minutes.

05.2.8.3.6. A voltage of 10 kV ac is applied for 1 minute between messenger and water bath using a trip setting of 10 + 0.5 mA. There should be no breakdown or tripping.

NFC	Clause	Test	Type Test	Acceptance test
		Visual		√*
		Dimensional		√*
NFC 33-041; 1998	2.3	Mechanical Test like Tensile Strength Test	√	√**
NFC 33-041; 1998	2.4	Voltage Test	√	√*
NFC 33-041; 1998	2.6	Climatic Ageing Test	√	
NFC 33-041; 1998	2.7	Corrosion Test	√	
NFC 33-041; 1998	2.9	Endurance test under mechanical and thermal Stresses	√	
NFC 33-041; 1998	2.9.3.1	Slip Strength Test	√	√**

05.3. Suspension clamp for insulated neutral messenger:

The clamp should be designed to hang L.T – AB cable with insulated neutral messengers. The neutral messengers should be fixed by an adjustable grip device. A movable link should allow longitudinal and transversal movement of the clamp body.

i. No losable part in the process of clamping arrangement.
ii. The clamp should conform to the standard NFC 33-040 or equivalent I.S, if any.
iii. The clamp and the link made of Polymer should provide an additional insulation between the cable and the pole.
iv. The clamps and movable links should be made of weather and UV resistant glass fibre reinforced polymer.
v. Clamps should be fixed with pole by eye hook / bracket. Bracket should be made of corrosion resistant alluminium alloy.
vi. Ultimate tensile strength of the clamp should be as per Table – 10 of Technical Specification.

05.3.1. Suspension Assembly is used for supporting an ABC by installation on the messenger at an intermediate point of support such as a pole. It can accommodate small angles of deviation upto 30^0.

Each Suspension Assembly shall consist of :

i. One number Suspension Bracket.
ii. One number moveable (articulated) connecting link.
iii. One number Suspension Clamp.

05.3.2. Suspension Assemblies shall be supplied in sets to ensure compatibility of the materials against corrosion or wear of rotating/moving parts.

05.3.3. Suspension Bracket of SA

05.3.3.1. The Suspension Bracket shall be made from single piece aluminium alloy suitable for attachment to a pole by either.

i. 16 mm galvanized steel bolt or

ii. Two stainless steel straps.

05.3.3.2. The Suspension Bracket shall be provided with an upper bulge to prevent the clamp from turning over on the Bracket for more than 45^0 from the horizontal or to within less than 60 mm from the pole / fixing structure.

05.3.3.3. The Suspension Bracket should be so designed to ensure that the articulated link cannot slip out of it.

05.3.3.4. Suspension Brackets shall be designed to withstand a load applied at the anchoring point of the movable link as per Table – 9 below without deformation of more than 10mm or breakdown at 33^0 below horizontal (there should be no longitudinal component of load parallel to the plane of fixing).

Table - 9

Conductor Size		Normal Rating	Load (Newtons)
Sq. mm.	Dia. (mm)		
25-54	8-15	1500 Kg.	12500
70-95	13-17	2000 Kg.	14000

05.3.4. **Movable (Articulated) Link of SA**

05.3.4.1. Movable Links are used between the Suspension Bracket and Suspension Clamp to allow a degree of movement and flexibility between the two.

05.3.4.2. Moveable Links should be made fully of insulating type of mechanical and weather resistant thermoplastic. A metallic wear resistant ring should however be fitted at point of contact between the Suspension Bracket and the movable link.

05.3.4.3. The Movable link should be unloosably fitted to the Bracket and the Clamp.

05.3.5. **Suspension Clamp of SA**

05.3.5.1. Suspension Clamps are used for locking the messenger of the ABC bundle without damaging the insulation or allowing the messenger to become dismounted from the fitting.

05.3.5.2. The Suspension Clamp shall accommodate messenger wires from 25 to 95 sq.m.

05.3.5.3. The Suspension Clamp shall be made fully of insulating type of mechanically strong and weather resistant plastic.

05.3.5.4. Bolts should not be used for clamping / locking the messenger in the Clamp.

05.3.5.5. There shall be no losable parts in the Suspension clamp.

05.3.5.6. The Suspension Clamp should be unloosably fitted to the rest of the Suspension Assembly.

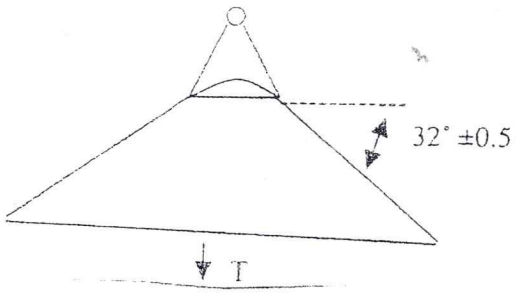
05.3.6. **Mechanical Test on Clamp of SA**

05.3.6.1. The Sub Assembly shall be subjected to a vertical load applied as per drawing in accordance with Table-10. There shall be no breakdown or permanent deformation at load T initial for 1 minute or when the load is increased to T final and released.

Table - 10

Conductor Size		Rating (Kg.)	T start (I minute)	T final (I minute)
Sq. mm.	Dia. (mm)		(Newtons)	(Newtons)
25-54	8-15	1500 Kg.	9,600	12,000
70-95	13-17	2000 Kg.	12,800	16,000

Fig. : A



05.3.6.2. A sample messenger shall be fitted into a fixed suspension clamp and subjected to a gradually applied longitudinal load of 300 N. There shall be no permanent slippage.

05.3.7. **Voltage Test of SA**

A copper foil is wrapped at the clamping point around the maximum size of messenger allowed in that clamp. An ac voltage of 6 KV is applied between the copper foil and nearest conductive point of the clamp or into its absence to the point of fixation. The voltage should be withstood for 1 minute without breakdown or flashover.

05.3.8. **Test Under Mechanical & Thermal Stress**

05.3.8.1. The test specimen is made up of approx. 10mts. of messenger wire strung between two anchor clamps with a Suspension Clamp fixed in the middle. Masses of 40 Kg. are suspended at a distance of 1-2mtr. On either side of the Suspension Clamp with a fixing mechanism of mass 2 ±1 Kg.

05.3.8.2. The specimen is subjected to 500 cycles of 90 minutes each. Each cycle consists of the following:

i. For first 75 minutes a constant longitudinal tension of 4000 N is applied to the messenger for rating of 1500 Kg. and of 4500 N rating of 2000 Kg. while 64 cycles right and left oscillation are produced on the clamp 32^0 on either side of the vertical.

ii. During the first 45 minutes an intermittent current of 4-5 A/sq.mm is applied to maintain the conductor temp at 60 ± 3^{0}C.

iii. During the next 45 minutes of the cycle the conductor is allowed to cool down naturally to the ambient.

iv. At the 75th minute, after having completed 64 oscillations, the oscillations are stopped and the longitudinal tension is increased to 7500 N for 1500 kg. Rating and 10000 N for 2000 Kg. Rating.

05.3.8.3. No messenger slippage should occur within the Suspension Clamp during the 500 cycles.

05.3.8.4. At the end of the 500 cycles, the messenger is immersed in water for 30 minutes. It is then tested to withstand 10 kV ac for 1 minute with a trip setting of 10 ± 0.5 mA. There should be no breakdown or flashover.

NFC	Clause	Test	Type Test	Acceptance test
		Visual		√*
		Dimensional		√*
NFC 33-040; 1998	2.3	Mechanical Test like Tensile Strength Test	√	√**
NFC 33-040; 1998	2.4	Voltage Test	√	√*
NFC 33-040; 1998	2.6	Climatic Ageing Test	√	
NFC 33-040; 1998	2.7	Corrosion Test	√	
NFC 33-040; 1998	2.9	Endurance test under mechanical and thermal Stresses	√	

In case of random failure/defect, double the sample lot is to be drawn and there should be no failure/defect exceeding half the permissible defects (rounded down) shown in the chart.

Lot Size	For tests Marked*		For Tests Market **	
	Sample Size	Max. permissible Defects	Sample Size	Max. permissible Defects
Upto 100	2	Nil	2	Nil
101 to 1000	6	Nil	4	Nil
>1001	0.01% subject to min. 6 pieces	0.1% of pieces checked	4	Nil

The above tests (for AA & SA) are to be carried out as per sampling plan below. In case of random failure/defect, double the sample lot is to be drawn and there should be no failure/defect exceeding half the permissible defects (rounded down) shown in the chart.

	For tests Marked*		For Tests Market **	
Lot Size	Sample Size	Max. permissible Defects	Sample Size	Max. permissible Defects
Upto 100	2	nil	1	Nil
101 - 500	5	1	2	Nil
501 - 2500	10	2	2	Nil
2501 & above	10 + 0.2%	2 + 10% pf addl. Sample quantity	4	1

06. JUNCTION SLEEVES

The sleeves should be Pre-Insulated for phases, neutral messengers and street lighting conductors.

i. Sleeve should be made of Alluminium, insulated with an Anti-UV black thermoplastic tube hermetically sealed two ends with 2 flexible rings.

ii. Die reference, size and strip length are indicated on the sleeve itself.

iii. Sizes needed: 16-70 & upto 150 mm2 for Alluminium XLPE insulated cable.

iv. Reference standard: NFC 33021 or equivalent I.S. if any.

v. Design as per furnished drawing.

07. EYE HOOKS

i. Eye hooks should be designed as to hold suspension clamps and Dead end clamps and to be installed with the pole clamp.

ii. Eye-hooks should be made of forged Galvanised steel. Eye-hooks should be electro galvanized- Coating thickness as per IS: 1573-1986. For Hot dip Galvanization, minimum Value of Mass of zinc coating should be 610 g/m2

iii. The clamps corrosion resistance should conform the standards I.S. 2629 & I.S.2633.

iv. Ultimate Tensile strength (UTs) of the clamp should 20 KN.

v. Design as per furnished drawing.

Test	Type Test	Acceptance test
Visual		√
Dimensional		√
Mechanical Test (Slip Strength Test	√	√
Ultimate Tensile Strength Test	√	√
Galvanizing (for ferrous parts)	√	√
Chemical Composition Test as per IS 2486 (Part 1):1993 and IS 2004:1991	√	

08. Technical Specification of Three Phase 4 wire L.T. Service Main Distribution Box for Aerial Bunch Conductor

08.1. Scope

08.1.1. The L.T Distribution Box shall be used for connection through over head conductors or ABC lines and forgiving connections to the consumers. The specification covers the design, Manufacture, inspection, testing and supply of L.T distribution box. The L.T Distribution box will be installed at the poles and it shall withstand solar radiations, rain, wind pressure and pollution.

08.2. CONSTRUCTIONAL AND TECHNICAL PARTICULARS-

08.2.1. The distribution box shall be made from 20 SWG CRCA MS Sheet by DEEP DRAWN METHOD WITH POWDER COATING. Size of the box shall be 418mm x 300mm x 120mm. There shall not be any welding joint to make base and cover of the distribution box. Roof of the box shall be tapered on both sides to drain the rain water.

08.2.2. Distribution box shall have Insulated Multiple OUT GOING Connectors for R, Y, B phases and Neutral. Distribution box shall have arrangement for one incoming AB cable of size 3x70+1x16+1x50 sq mm. Arrangement for 3 to 4 outgoing cables of size up to 4 core 25 sq mm for 3 phase connection shall be provided in the distribution box. Each incoming and outgoing cable shall be fixed inside the connection terminals by two screws of size not less than M8.The connection terminals shall be such that the outgoing cables can be fixed or removed easily without disconnecting the power supply. No current carrying part shall be approachable by hand or finger. Any current carrying part should be at a minimum distance of 5mm from the outer edge of the insulations. Insulation shall be Fire retardant.

08.2.3. Connections terminals for R, Y & B Phases shall be mounted in a single line and neutral shall be mounted parallel to R, Y & B Phases. Mounting arrangement shall be such that minimum clearance of 40mm is maintained between each phase and neutral.

08.2.4. Box shall be provided with U-latch sealing arrangement. A hole of 8mm and 2.5mm shall be provided in the U-latch to provided a padlock and sealing of the box respectively. U-latch shall be jointed with stainless steel rivet. Box should be duly powdered coated after 7-tank phosphating process. Box should be of light Admiralty Grey Color (IS: 5:1993, COLOR NUMBER 697).The L.T. Distribution Box shall be powder coated only. The facility 7-Tank phosphating and powder coating shall be in-house of the tenderer to insure proper quality, since these boxes are for outdoor applications.

08.2.5. Holes for incoming cables and 9 to 12 no holes for outgoing cables shall be provided on the lower wall of the box Cable holes shall be provided with rubber or plastic glands duly pasted with the box. Incoming and outgoing cable gland shall have internal diameter of 20 mm. Cable glands shall be made

such that internal diameter of glands provided for cables should be closed with film of minimum Imm thickness. Cable will go through the cable gland by piercing the film of the glands .Gap of the minimum 100 mm shall be maintain between the lower wall and neutral mounted inside the distribution box for easy handling of incoming and outgoing cables.

08.3. **MARKING**: - Following shall be provided on the cover of the box.

a) Manufacturers name duly embossed
b) Utility name duly embossed
c) Name of scheme duly embossed
d) Danger marking in red color

08.4. M.S. Earthing screw of diameter 6mm with washer shall be provided in the threads of the earth clamp welded to the main body of the box.

08.5. The Box shall comply with the requirement IP-54. The Box shall be fully type tested along with dimensional details as per the requirement of relevant Indian Standard (latest edition) IS: 13947, Part-I and latest amendments. Tests shall be carried out from laboratories which are accredited by National Board of Testing and Calibration Laboratories (NABL) of Govt. of India to prove that the complete box meet the requirement of IP-54. The type test reports shall not be older than 5 years.

08.6. Distribution Box shall be duly packed in 3-ply corrugated box. The tolerance permissible on the overall dimensions of the MMB (Maximum Material Boundary) shall (±) 3%.

08.7. Pole mounting clamp 50x6 mm Hot Dip galvanized, heavily coated as per IS:2633.

08.8. Material of Bus Bar: EC grade Aluminum should conform IS 4026:2007 with current carrying capacity 200 Amps.

08.9. **TESTS**: Following tests shall be performed on the box during inspection:

TEST	DESCRIPTION
Visual Examination	The L.T. Distribution Box will be inspected visually, externally and internally for proper powder coating layer, fitting of the all the components in accordance with technical specification.
Verification of Dimensions	Verification of dimensions external/internal clearances will be carries out as per technical specifications.
Verifications of Fittings	Components like insulated connection terminals, screws etc will be verified as per technical specifications.
High Voltage Test	The Voltage of 2.5KV, 50HZ shall be applied for 1 min. as follows: a) Between each phase b) Between each phase and earth screw c) On the insulation of connection terminals There shall not be any puncture or flashover during these tests.
Current Carrying Capacity	Current of 200 Amps. shall be applied for 30 minutes through high current source on the each phase. There shall not be over heating of the terminals during the test.
Chemical Composition test of Bus bar	Aluminium used shall be grade 63401 WP conforming to IS 5082:1998
Chemical Composition test of Sheet (CR3)	As per IS: 513 (Part I); 2016
	Other tests as per relevant IS.

ANNEXURE – 1

METEOROLOGICAL DETAILS

Sl. No.	Parameters	Unit	Value
1	Maximum ambient air temperature	°C	50
2	Maximum temperature of air in shade	°C	50
3	Maximum temperature of air in Sun	°C	60
4	Maximum daily average temperature	°C	45
5	Maximum yearly average temperature	°C	30
6	Maximum yearly weighted average temperature	°C	32
7	Minimum ambient air temperature	°C	4
8	Minimum temperature of air in shade	°C	4
9	Maximum relative Humidity	%	100
10	Average annual Rainfall	mm	3175
11	No. of months of tropical monsoon	No.	5 (June-Oct.)
12	Average no. of rainy days per annum	No.	80
13	Maximum wind pressure	Kg/m^2	100
14	Number of Dust Storms	Days/annum	5
15	Average no. of stormy rainfall (exceeding 30 minutes in 24 hrs.)	Days/annum	10
16	Average number of thunderstorms	Days/annum	100
17	Earthquake acceleration	$Mtr./sec^2$	0.04x2 g.
18	Seismic Zone as per IS : 1893 – 1984	-	III & IV
19	Maximum height above mean sea level	Mtrs.	1000

Note :

1) Any specific meteorological data other than those listed above applicable for a particular equipment/item will be available in the technical specification for that equipment/item.
2) When values specified above contradicts with respective equipment TS, the later will prevail for that equipment.
3) The atmosphere in the area is laden with industrial and town gases and smoke with dust in suspension during the dry months and subject to tough colder months.
4) Heavy lightning is usual in the area during the months from May to November.

ANNEXURE-2

GENERAL CONDITIONS FOR MANUFACTURE

The products shall be in accordance recognized standards used in L.T. ABC or equivalent I.S., if any.

1	Marking	:	Each product shall be clearly identified with manufacturer name or trade mark, reference and capacity of the item and batch no.
2	Packaging	:	Manufacturer shall mention the packaging of each item. Installation instruction should be included in packaging.
3	Type test	:	Each supplier should provide type test reports with the offer, carried out in accordance with one of the reference standards in NABL Accredited Laboratory.
4	Routine test	:	Supplier shall provide a control plan, which will be implemented on each item. Routine test reports should be submitted by the manufacturer with inspection call.
5	Quality	:	All suppliers should preferably be ISO-9000 certified.

1) Anchoring and suspension clamps should be installable on existing poles using appropriate devices (hooks, pigtails, brackets etc.).

2) All crimped connectors should be installed with mechanical or hydraulic hand crimping tools.

ANNEXURE – 3

GUARANTEED TECHNICAL PARTICULARS FOR ANCHOR CLAMPS SUITABLE FOR INSULATED SERVICE LINE CABLE

Sl. No.	Parameters	Unit	Bidder's Offer
1	Type of Clamp		
2	Name of the Manufacturer		
3	Standard		
4	Place of Manufacturer		
5	Range of conductor size	mm. (Dia.)	
6	Type of design		
7	Installation (with / without disassembly)		
8	Type & grade Metallic / Nonmetallic material		
9	Marking		
10	Colour of Nonmetallic parts		
11	Dimensions	Mm	
12	Approximate weight	Kg	
13	Breaking Load	KN	

ANNEXURE – 4

GUARANTEED TECHNICAL PARTICULARS FOR EYE HOOK (FLAT TYPE)

Sl. No.	Parameters	Unit	Bidder's Offer
1	Type of Clamp		
2	Name of the Manufacturer		
3	Place of Manufacturer		
4	Type of design		
5	Type & grade Metallic / Nonmetallic material		
6	Type of hot dip galvanizing & thickness of Zinc coating		
7	Dimensions	Mm	
8	Approximate weight	Kg	
13	Ultimate tensile strength	KN	

ANNEXURE – 5

GUARANTEED TECHNICAL PARTICULARS FOR WATERPROOF PREINSULATED COMPRESSION TYPE BIMETALLIC SOCKET FOR LT 1.1KV

1	Name & address of the Manufacturer	
2	Applicable standard	
3	Type of Cable jointing kit	
4	Application	
5	Nominal system voltage (kV)	
6	Maximum system voltage (kV)	
7	Number of cores	
8	Type of Insulation	
9	Type of screening	
10	System Neutral Earthing	
11	Maximum performance	
12	AC voltage	
13	Load cycling 90°C + 5°C (no. of cycles)	
14	Impulse voltage	
15	Partial discharge voltage	
16	Thermal short circuit	
17	DC voltage	
18	Dynamic short circuit	

ANNEXURE – 6

GUARANTEED TECHNICAL PARTICULARS FOR PREMOULDED STRAIGHT JOINT FOR LT 1.1 KV

1	Name & address of the Manufacturer	
2	Applicable standard	
3	Type of Cable jointing kit	
4	Application	
5	Nominal system voltage (kV)	
6	Maximum system voltage (kV)	
7	Number of cores	
8	Type of Insulation	
9	Type of screening	
10	System Neutral Earthling	
11	Maximum performance	
12	AC voltage	
13	Load cycling 90°C + 5°C (no. of cycles)	
14	Impulse voltage	
15	Partial discharge voltage	
16	Thermal short circuit	
17	DC voltage	
18	Dynamic short circuit	

ANNEXURE – 7

GUARANTEED TECHNICAL PARTICULARS FOR INSULATING PIERCING CONNECTORS

		For Street Light	For DB Charging	For ABC to ABC TEE
1	Name of the Manufacturer			
2	Is Manufacturer of accessories as ISO 9001-2000 company a) Copies of certificate enclosed b) Are GA Drawing enclosed			
3	Applicable			
4	Applicable standard			
5	Type of connectors	Main : 16-95sqmm Tap : 1.5-10 sqmm	Main: 16-95sqmm Tap : 4-35 sqmm	Main: 25-95sqmm Tap : 25-95 sqmm
6	Application	For 1.1 KV	For 1.1 KV	For 1.1 KV
7	Is any metallic part carrying potential in operation exposed during installation			
8	Are end caps of branch cable a) Slide on type b) Rigid			
9	Are torque limiting shear heads provided to tightening bolts			
10	Range of cable sizes accommodated for main & branch	Main : 16-95sqmm Tap : 1.5-10 sqmm	Main: 16-95sqmm Tap : 4-35 sqmm	Main: 25-95sqmm Tap :25-95 sqmm
11	Min. & Max. torque defined			
12	Torque for establishing connection between main and branch			
13	Max. tensile load for no breakdown of main conductor (for each cross section)			
14	Max. tensile load on branch conductor for no break/slippage			
15	Voltage withstand under water emersion			
16	Is electrical Ageing test report enclosed			
17	No. of Cycles			
18	Max. temp. at each cycle			
19	Marking and embossing on the connection			

ANNEXURE – 8

TESTING STANDARDS :

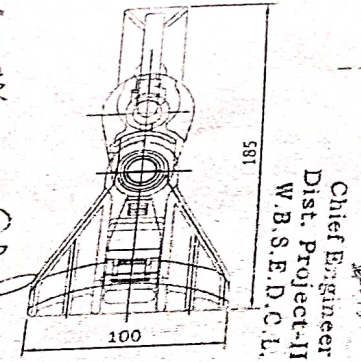
The Insulating Piercing Connector should conform to following std. :

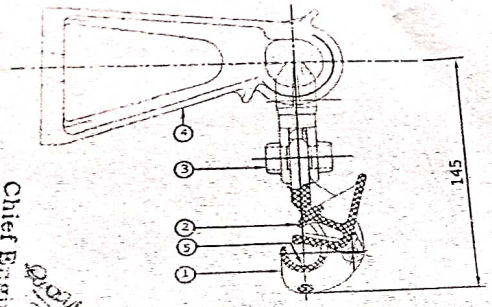
Tests	Tests Standard / Test Procedure
Corrosion Qualification Test	As per NF C 33-020 (Sept '2013), or equivalent I.S., if any. Exposure in Saline Environment : The exposure should be carried out as per NF en 60068-2-11 (Aug. '99) std. requirement. The concentration of Saline solution must be of 5% + 1% in mass, & the temperature of the test chamber must be maintained at 35°C + 2°C. Exposure in Sulphur environment saturated of humidity – The exposure should be carried out as per NF T 30-055 (Mar. '74) std. requirement. SO2 concentration in the chamber should be 0.067% in volume. The temperature of the test chamber should be increased to 40°C + 3°C. The total test should include four identical periods of 14 days, in which 7 days of exposure in Saline environment & in other 7 days – 8 hrs. cycles in SO_2 environment & 16 hrs. in laboratory environment.
Electrical Ageing Test	As per NF C 33-020 (Sept '2013) & NF C 33-004 (Jun '98) or equivalent I.S., if any. Total no. of cycles 200, Heating time -60 mins., Cooling time -45 mins., Pause time – 2 mins.
Dielectric Investigation Test in	As per NF C 33-020 (Sept '2013) or equivalent I.S., if any. The connector should be placed in an ambient temperature between
Water	15°C & 30°C & relative humidity between 25% & 75%. The tightening of the connectors should be at minimal value of the torque indicated by the manufacturer. The sample should be placed in tank full of water on 30 cm height, after an immersion length of 30 mins. The set is subjected to a dielectric test under a voltage of 6 KV at industrial frequency during 1 min. No flashover / breakdown should occur at 6 KV during 1 min.
Mechanical Tests	As per NF C 33-020 (Sept '2013) or equivalent I.S., if any. For checking electrical continuity, shear heads & mechanical behaviour of the connector's suitable tests as per the above specification have to conduct.

SUSPENSION ASSEMBLY :-

NOTE :-
MATERIAL: SEE TABLE
MARKING: ES 54 14 GR
WBSEDCL / WBEDGMP

SL	QTY	DESCRIPTION	MATERIAL	COLOUR
5	10gms	SILICON CARBIDE GRAINS + EPOXY GLUE		NA
4	1	MOUNTING BRACKET CS14	HEAT TREATED ALUMINIUM ALLOY	NA
3	2	WEDGE CS14/54/LM 1506	THERMO PLASTIC	BLACK
2	1	CLAMP ES 54 14	THERMO PLASTIC	BLACK
1	1	BODY ES 54	THERMO PLASTIC	BLACK





Superintendent Engineer (Elect.)
Dist. Project-III
W.B.S.E.D.C.L.

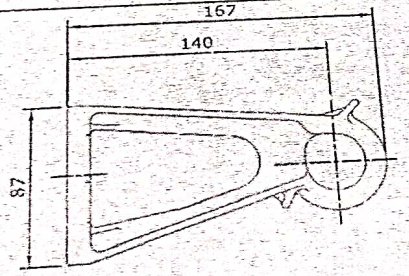
Chief Engineer
Dist. Project-III
W.B.S.E.D.C.L.

Addl. Chief Engineer
Dist. Project-III
W.B.S.E.D.C.L.

BRACKET :- CS 14

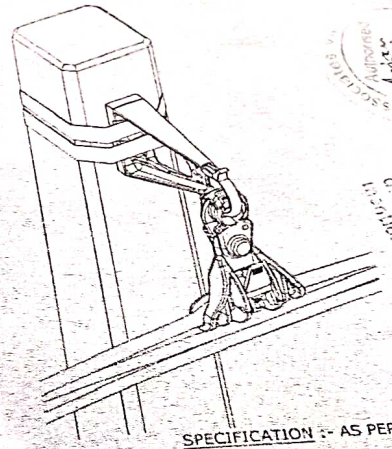
NOTE :-
MATERIAL: HEAT TREATED ALUMINIUM ALLOY

MARKING: CS 14



* Bracket dimension 140 x 87 x 35 mm (minimum)
* Suspension clamp dimension 140 x 185 x 100 mm (minimum)
* Maximum angle of deviation of Conductor 60 degree.
* Zinc oxide/Aluminium oxide/Silicon oxide along with glue shall be provided inside the thermoplastic material (wedge) to hold the bare messanger.

Rev.	Modifications	By	Date
A	Creation		



May be accepted subject to acceptance / incorporation of necessary suggestions as mentioned by us.

SPECIFICATION :- AS PER NF C33-040

Product Reference	Messenger Type	Cable Range (mm²) Min	Max	Dia (mm) Min	Max
ES 54 14 GR	BARE	25	70	6	14

WBSEDCL PO NO:	A) 52000092 92 dated 24.01.2022 FOR ASANSOL (PART-I)
	B) 52000092 92 dated 24.01.2022 FOR ASANSOL (PART-II)
NOA NO	CE/P.IIIAWB.UG/LOA/ASANSOL-PART-I/SUPPLY/2021-22/PK.UG/ 5816 Dated 25.01.2022
	CE/P.IIIAWB.UG/LOA/ASANSOL-PART-I/ERECT/2021-22/PK.UG/ 5816 Dated 25.01.2022
	CE/P.IIIAWB.UG/LOA/ASANSOL-PART-II/ERECT/2021-22/PK.UG/ 6844 Dated 27.01.2022
	CE/P.IIIAWB.UG/LOA/ASANSOL-PART-II/SUPPLY/2021-22/PK.UG/ 6844 Dated 27.01.2022
	CE/P.IIIAWB.UG/LOA/ASANSOL-PART II/ERECT/2021-22/PK.UG/ 6844 Dated 27.01.2022
Name of Project	SUPPLY AND INSTALLATION OF COVERSION OF OVERHEAD HT AND LT NETWORK INTO UNDERGOUND CABKLE SYSTEM AST ASANSOL PART-I, TOWN IN PASCHIM BURDWAN REGION UNDER WEST BENGAL GRID MODERNISATION PROJECT (A1/05/01) THROUGH TURNKEY MODE THROUGH WORLD BANK LOAN AND GoWB FINANCING
Contractors Name:	M/S VAISHNO ASSOCIATES VIDYUT PROJECTS LLP
CLIENT	WBSEDCL

SUSPENSION ASSEMBLY
ES 54 14 GR

MATERIAL: SEE TABLE	TREATMENT: /
VOLUME mm3. /	GENERAL TOLERANCE: ±5%
SCALE: NTS	PART NUMBER: 10084148
A3	DWG NUMBER: E10084148 A

GUARANTEED PARTICULARS TECHNICAL PARTICULARS FOR SUSPENSION CLAMPS FOR LT AB CABLE			
Sl no	**PARAMETERS**	**UNIT**	**GUARANTEED PARTICULARS (To be furnished by bidder)**
1	Type of Clamp		
2	Name of the Manufacture		
3	Standard		
4	Place of Manufacturer		
5	Range of conductor size	mm(Dia)	
6	Type of design		
7	Installation - (with / without disassembly)		
8	Type & grade Metallic / Nonmetallic material		
9	Marking		
10	Colour of Nonmetallic parts		
11	Dimensions	Mn	
12	Approximate weight	Kg	
13	Breaking Load	KN	
14	Maximum angle of deviation of conductor	Degree	
15	Guarantee		