

ASSAM ELECTRICITY GRID CORPORATION LIMITED
Regd. Office: 1st Floor, Bijulee Bhawan, Paltan Bazar, Guwahati-
781001CIN: U40101AS2003SGC007238
Ph: -0361-2739520/Fax: -0361-2739513 Web: www.aegcl.co.in.



TENDER DOCUMENT

NAME OF WORK

Procurement of 132kV Isolator for 50MVA TRAFO-I & 25MVA TRAFO-II at 132kV Nalkata GSS.
NIT No: - AEGCL/DGM/TTC/NLP/T-3/2024-25/59 **DTD: 20.09.2024**

Sd/
Deputy General Manager
T&T Circle, AEGCL
North Lakhimpur

- 1.1.0 INFORMATION TO BIDDER:**
- 1. Name of the work:** Procurement of 132kV Isolator for 50MVA TRAF0-I & 25MVA TRAF0-II at 132kV Nalkata GSS.
 - 2. Estimated Amount: Rs 14,20,720.00 (inclusive of GST).**
 - 3. TENDER ADDRESS: O/o the Deputy General Manager, North Lakhimpur T&T Circle, AEGCL, North Lakhimpur.**

- 1.2.0 BIDDING PROCEDURE:-**
- The ASSAM ELECTRICITY GRID CORPORATION LIMITED, (“the Employer”) invites online bid through e-tendering from eligible bidders for the above mentioned works.
The following points are to be noted and given special attention:
 - Bidder must create user ID in the web portal <https://assamtenders.gov.in> in order to participate in the e-tender.
 - Bidders shall be required to bid for the complete Package and no part offer shall be accepted.
 - Bidder must download the bidding documents from the above-mentioned portal and both technical & Price bid must be submitted through **online mode only** along with all scanned supporting documents (Suggested scan at 150 dpi in .pdf format). Bidder can Re-work/Edit their bids before closing date of the tender. Bidders are advised to submit/re-work their bids well advance in time to avoid any last-minute unforeseen hassle. **However, AEGCL may ask bidders to submit hard copies of any major items and any other documents if deemed necessary.**
 - Only Price Bid of responsive Techno-Commercial Bidders will be opened.
 - Bidders may obtain further information from the office of the **Deputy General Manager, North Lakhimpur. T&T Circle, AEGCL, North Lakhimpur.**

- 1.3.0 KEY DATES:-**
- Bid Document Available on website date: 12:00 Hours of 21.09.2024.**
 - Bid Submission Start Time &date: 13:00 Hours of 21.09.2024.**
 - Bid Submission End Time &date: 14:00 Hours of 21.10.2024**
 - Techno-Commercial Bid Opening Time &date: 12:00 Hours of 22.10.2024.**

- 1.4.0 TENDER PAPER COST AND MODE OF PAYMENT: -**
- Bidder has to pay Non-Refundable tender document cost @Rs.1, 000.00 (Rupees One Thousand only) **via online mode only** in the portal, receipt of which should be uploaded along with techno-commercial bid.

- 1.5.0 BID SECURITY/EARNEST MONEY AND MODE OF PAYMENT:-**
- For participation in bidding procedure, participants must compulsorily pay the Bid Security of Rs. **28,500.00** (Rupees Two Eight Thousand Five Hundred) only **via online mode only** in the portal, receipt of which should be uploaded along with techno-commercial bid.
 - The bid security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract.
 - The bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder’s signing of the agreement.
 - The bid security may be forfeited: if a Bidder withdraws its bid during the period of bid validity period
And if the successful Bidder fails to sign the Contract within the specified period.

- 1.6.0 PERFORMANCE GUARANTEE:-**
- The materials and entire work is to be guaranteed against defective design, materials and workmanship and for satisfactory performance for a period of **18 months** from the date of final acceptance of the completed work. Performance Guarantee will be in the form of Bank Guarantee of 10% of the contract amount. The successful Bidder shall have to deposit through a **Bank Guarantee** from a Nationalized or scheduled Bank of RBI in AEGCL’s standard Performa on non-judicial stamp of appropriate value for an amount equivalent to 10% (ten percent) of the total value of the order as performance security, within allotted time on acceptance of letter of Intent/detailed orders (as the case may be), duly pledged in favour of the Purchaser concerned (AEGCL) and such security deposit shall be valid up to 30 days beyond the warranty period as mentioned above.

If the contractor/firm fails or neglects to observe and perform any of his obligations under the contract, Purchaser (AEGCL) shall have the right to forfeit, either in full or in part at his absolute discretion, the security deposit furnished by the contractor/firm.

If the value of the work increases from original ordered value, the contractor has to provide performance guarantee for additional amount.

No interest shall be payable on such deposits.

- 1.7.0 CLARIFICATIONS:-**

A prospective Bidder requiring any clarification of the Bidding Document shall contact the AEGCL in writing at the AEGCL's address indicated in the Bid Document or raise his enquiries prior to 7 (seven) days of closing of the bid. AEGCL will respond to any request for clarification if deemed necessary. Should AEGCL deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so. The Bidder is advised to visit and examine the site where the work is to be Carried out and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract. The costs of visiting the site shall be at the Bidder's own expense. The Bidder and any of its personnel or representatives will be granted permission by AEGCL to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder and its personnel will release and indemnify the Employer and its personnel from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

1.8.0 VALIDITY OF BID:-

Bid shall remain valid for the period of 180 days after the submission deadline date prescribed by AEGCL. In exceptional circumstances, prior to the expiration of the Bid validity period, AEGCL may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing.

1.9.0 TIME OF COMPLETION:-

The allotted time of completion for the work is 90 days from issue of work order.

1.10.0 DISCLAIMER:-

AEGCL is not committed contractually in any way to those Bidders whose Bid are accepted. The issue of this Bid does not commit or otherwise oblige AEGCL to proceed with any part or steps of the process.

1.11.0 AMENDMENT OF TENDER DOCUMENT:-

At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Document by issuing addenda.

To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, AEGCL may, at its discretion, extend the deadline for the submission of bids.

Any corrigendum/Addendum/modifications issued to the bid documents will be published on the website mentioned above will be part of the Bid Document.

1.12.0 LANGUAGE OF BID:-

The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and AEGCL, shall be written in the English and / or Assamese language.

1.13.0 NEGOTIATION WITH BIDDER:-

The AEGCL reserve the right to hold negotiations with lowest bidder if AEGCL feels the quoted rates of particular item(s) are unreasonably high. The bid must be valid, eligible and technically acceptable and considered for award of contract.

1.14.0 VERIFICATION OF DOCUMENTS:-

AEGCL reserves the right to verify the documents submitted by the bidders with issuing authority and if any Abnormalities are observed in the same, their bids will be rejected.

1.15.0 RIGHT TO REJECT:-

AEGCL reserves the right to reject any or all the bids without assigning any reason thereof and AEGCL further reserves the right to split up the work order in favour of more than one Contractor. AEGCL also reserves the right to reject the lowest or any other price without assigning any reason. The clauses which are not appearing in this Bid document will be as per The General Condition of Supply and Erection 2009 of AEGCL. The General Condition of Supply and Erection 2009 of AEGCL is available in the AEGCL's website www.aegcl.co.in.

2.1.0 ELIGIBILITY QUALIFICATION.

2.1.1 ELIGIBLE BIDDERS:-

1. A Bidder may be a private entity or a government-owned entity or any combination of such entity with the intent to enter into an agreement supported by a letter of intent or under an existing agreement in the form of a joint venture, consortium or association. In the case of a JV
 - a. All partners shall be jointly and severally liable, and
 - b. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of all the partners of the JV during the bidding process and, in the event the JV is awarded the contract, during contract execution.
2. A Bidder, and all partners constituting the Bidder, shall have Indian nationality.

3. AEGCL considers a **conflict of interest** to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations, and that such conflict of interest may contribute to or constitute a prohibited practice under Anticorruption Policy of Government of India and Government Of Assam. In pursuance Anticorruption Policy's requirement that Employer as well as bidders, suppliers, and contractors observe the highest standard of ethics. AEGCL will take appropriate actions if it determines that a conflict of interest has flawed the integrity of any procurement process. Consequently, all the Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to be in a conflict of interest with one or more parties in this bidding process if, including but not limited to:-
- they have controlling partners in common; or
 - they receive or have received any direct or indirect subsidy from any of them; or
 - they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or
 - a Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the plant and services that are the subject of the bid.
4. A firm that is under a declaration of ineligibility by the AEGCL or any Government Entity or PSU at the date of the deadline for bid submission or thereafter i.e. on or before contract signing date shall be disqualified.
5. Bidders shall provide such evidence of their continued eligibility satisfactory to the AEGCL, as the Employer shall reasonably request.
6. In case a prequalification process has been conducted prior to the bidding process, this bidding is open only to prequalified Bidders.
7. The bidder must have experience of execution of work of similar nature previously. The bidder must submit experience and Performance Certificate for scrutiny by AEGCL.
8. A person, Firm or any other prospective bidder who is involved in fraud, unethical practices or barred from submitting bids by AEGCL or any sister concerns of AEGCL i.e. APDCL & APGCL will not be allowed to participate in the bids. If such cases are detected after submission of the bids, in later stages of the bidding process, then such bids will be rejected outright.

2.2.0 LEGAL ENTITY:-

Verification may be undertaken to verify that an applicant is a bona-fide registered company or business. Bidders are required to provide evidence of the legal entity by providing a copy of an official document as mentioned in the appendix attached along with this bid document.

2.3.0 EXPERIENCE: -

Bidders must have experience of executing a similar work at any Govt. Deptt., PSU etc. successfully in past 3 (three) years having

Sl. No.	Name of work	Amount (Rs)
1.	1 (One) nos. of work order along with performance certificate of similar nature of work	11,36,576.00
2.	2 (Two) nos. of work order along with performance certificate of similar nature of work	8,52,432.00
3.	3 (Three) nos. of work order along with performance certificate of similar nature of work	6,39,324.00

If the nature of work and value differs from the above stated conditions, it will not be considered while evaluation of technical qualification.

2.4.0 DOCUMENTS COMPRISING THE BID:

2.4.1 The bid submitted by the bidder shall comprise two envelopes submitted simultaneously, one containing only the technical proposal and the other the price proposal.

2.4.2 The Technical Bid submitted by the bidder shall contain the following:

- a) Bid submission sheet as per appendix-1
- b) Documentary evidence to establish that the bidder meet the qualifying requirements as per appendix-2, appendix-3 & appendix-4
- c) All bidding schedules properly filled up including Price Bid Schedules.

- d) All other information and documents such as Guaranteed and Technical Particulars, type test reports, drawings etc. required in the Technical Specifications

2.4.3 To establish its ability and qualifications to perform the contract, the bidder shall provide along with the above-mentioned documents the following additional documents (mandatory) on qualifying requirements such as,

- 1. Pan card**
- 2. GST Registration**
- 3. Up-to-date GST return**
- 4. Valid Trade license/firm registration**
- 5. Valid labour license**
- 6. Valid Electrical license for working in 132kV grid sub-stations**
- 7. Latest Bank Solvency**
- 8. Last 3 years IT Return**
- 9. Last 3 years Audited balanced sheet with PL account**
- 10. In case the bidder is not a manufacturer of the offered products, bidder must be submitted manufacturer's authorization**
- 11. Similar work order and completion certificate etc.**

2.4.4 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements

2.4.5 Notwithstanding anything stated herein above, AEGCL reserves the right to assess the capacity and capability of the of the bidder to execute the work, should the circumstance warrant such assessment in the overall interest of AEGCL.

2.5.0 DOCUMENTS ESTABLISHING CONFORMITY OF THE GOODS AND SERVICES:

2.5.1 Then documentary evidence of the conformity of the goods and services to the bidding document may be in the form of literature, drawing and data, and shall furnish:

1. A detailed description of the essential technical and performance characteristics of the goods and services, including the functional guarantees of the Goods, in response to the specification.
2. A commentary on the Purchaser's Specification and adequate evidence demonstrating the substantial responsiveness of the plant and services to those specifications. Bidders shall note that standards for workmanship, materials and equipment designated by the Purchaser in the bidding document are intended to be descriptive (establishing standards of quality and performance) only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalog numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions are substantially equivalent or superior to the standards designated in the specifications.

2.6.0 FINANCIAL QUALIFICATION:-

1. Minimum average annual turnover must be as mentioned below for respective works. Calculated as total certified payments received for contracts in progress or completed, within the last 3 (Three) Years. Audited Balance sheet must be furnished as a proof of annual turnover. Any other form of supporting documents instead of Audited balance sheet will not be accepted.
2. Current bank solvency certificate must be submitted to show the bidder's financial position.
3. Bidder needs to demonstrate, access to, or availability of financial resources, such as liquid assets, unencumbered real assets, lines of credit and other financial needs other than any contractual advance payments to meet:

The following cash flow requirement, **INR 14,20,720.00**

2.7.0 EVALUATION CRITERIA:-

The Techno-Commercial Evaluation will be done on the basis of technical qualification, financial qualifications and fulfillment of the legal conditions.

The Price Bid of only Responsive Techno-Commercial Bidders will be opened and intimation will be issued in due course.

The following methodology will be practiced for identification and treatment of the Abnormally Low Bids (ALB) in this tender process of AEGCL:

- i. Absolute Approach is to be considered when there is fewer than five substantially responsive bidders and if the bid price is 20% or more below AEGCL's cost estimate then AEGCL's tender evaluation committee should clarify the Bid price with the bidder to determine whether the Bid is Abnormally low.
- ii. Relative approach is to be considered when there are at least 5(five) nos. of substantially responsive bids and the lowest bid price is 20% or more below AEGCL's cost estimate. In this approach, first the Average bid price is determined and then by deducting the standard deviation from the Average bid price,

- potentially ALB may be determined.
- iii. In case of an ALB, the tender evaluation committee/appropriate authority of the respective tenders shall undertake the following three stage review process which is as below:
- To identify ALB as per the steps mentioned in SI no. 10.6.(i) and 10.6.(ii), whichever is applicable.
 - To seek and analyze the clarifications from the abnormally low Bidder in terms of resource inputs and pricing, including overheads, contingencies and profit margins. In that respect, the committee may refer to guideline of World Bank, AIIB, ADB etc. prescribed for ALB.
 - To decide whether to accept or reject the bid.
 - On acceptance of the bid, whether Additional Performance Security is to be imposed on the bidder supplemented by adequate justification.
- iv. In case of acceptance of ALB with Additional Performance Security:
- If any abnormally low bid is accepted with additional performance security, it is to be noted that the total performance security should not exceed 20% of the total contract value.
 - The additional performance security shall be treated as part of the original performance security and shall be valid for a period similar to that applicable for defect liability period of the contract.
 - Non submission of the additional performance security shall constitute sufficient ground for rejection of the bid and similar assessment shall then be initiated for next ranked bidder if that bidder is also identified as ALB.

3.1.0 TECHNICAL REQUIREMENT

1	TECHNICAL REQUIREMENTS
1.1	Intent of specification
	This section of the specification deals with the technical information & criteria for “Procurement of 132kV Isolators for 50MVA TRAF0-I & 25MVA TRAF0-II at 132kV Nalkata GSS. a) 132kV Isolator without earth switch (4set)” The Contractor's proposal shall be based on the use of materials complying fully with the requirements specified herein.
2.0	Scope The major scopes of work are as follows: - a) Supply, delivery of 1. 132kV Isolator without earth switch (4 set)” as mentioned in the bid b) Transportation and movement of supplied materials up to the site and arrangements of any permits required for transportation of supplied materials. However, AEGCL shall assist as far as practicable in the process. c) Transit insurance shall be in the scope of the contractor. d) Erection, testing and commissioning of the 132kV isolator as specified in Price Bid The works to be executed shall be as per the items mentioned in the Price Bid and as per the directions of the site engineer.
3.0	Contractor to inform himself fully
3.1	The Contractor should ensure that he has examined the General Conditions, qualifying criteria, Specifications and Schedules and has satisfied himself as to all the conditions and circumstances affecting the contract price and fixed his price according to his own views on these matters and acknowledge that no additional allowances except as otherwise provided therein will be levied.
3.2	The Employer shall not be responsible for any misunderstanding or incorrect information obtained by the Contractor other than information given to the Contractor in writing by the Purchaser
4.0	Conformity with Indian Electricity rules & other local regulations:
4.1	The Contractor shall note that all substation works shall comply with the latest provisions of Indian Electricity Rules and with any other regulations. Local authorities concerned in the administration of the rules and regulation relating to such works shall be consulted, if necessary, in regard to the rules and regulations that may be applicable.
4.2	The materials covered by this specification shall, unless otherwise stated be designed, constructed, and tested in accordance with the latest revisions of relevant Indian Standards and shall conform to the regulations of local statutory authorities.

4.3	The Contractor shall also comply with the Minimum Wages Act 1948 and the payment of Wages Act (both. Of the Government of India and State of Assam) and the rules made there under in respect of any employee or workman employed or engaged by him or his Sub- Contractor.
4.4	All registration and statutory inspection fees, if any, in respect of his work pursuant to this Contract shall be to the account of the Contractor. However, any registration, statutory inspection fees lawfully payable under the provisions of the statutory laws and its amendments from time to time during erection in respect of the Substation Works, ultimately to be owned by the Employer, shall be to the account of the Employer. Should any such inspection or registration need to be re-arranged due to the fault of the Contractor or his Sub-Contractor, the additional fees to such inspection and/or registration shall be borne by the Contractor.
4.5	In case of any conflict between the standards and this specification, this specification shall govern.
5.0	Drawing and Documents
5.1	All drawing shall conform to relevant International Standard Organization (ISO). All necessary relevant documents and drawings shall be submitted during bidding process.
6.0	Employer Supervision
6.1	The scope of the duties of the Employer, pursuant to the contract, will include but not be limited to the following. a) Witness or authorize his representative to witness works at site. b) Inspect, accept, or reject any material and work under the Contract. c) Issue certificate of acceptance and/or progressive payment and final payment certificate. d) Review and suggest modification and improvement in completion schedules from time to time. e) Issue completion certificate.
7.0	Packing:
7.1	All the materials shall be suitably protected, coated, covered, or boxed and crated to prevent damage or deterioration during transit, handling, and storage at Site till the time of erection. The Supplier shall be responsible for any loss or damage during transportation, handling, and storage due to improper packing.
7.2	The Supplier shall include and provide for securely protecting and packing the materials to avoid loss or damage during transport by air, sea, rail, and road.
7.3	All packing shall allow for easy removal and checking at site. Wherever necessary, proper arrangement for attaching slings for lifting shall be provided. All packages shall be clearly marked for with signs showing 'up' and 'down' on the sides of boxes, and handling and unpacking instructions as considered necessary. Special precaution shall be taken to prevent rusting of steel and iron parts during transit by sea.
7.4	The cases containing easily damageable material shall be very carefully packed and marked with appropriate caution symbols, i.e., fragile, handle with care, use no hook etc. wherever applicable.
7.5	Each package shall be legibly marked by the-Supplier at his expenses showing the details such as description and quantity of contents, the name of the consignee and address, the gross and net weights of the package, the name of the Supplier etc.
8.0	Materials handling and storage:
	(a) All the supplies under the Contract as well as Employer supplied items (if any) arriving at site shall be promptly received, unloaded, and transported and stored in the stores by the Contractor. (b) Contractor shall be responsible for examining all the shipment and notify the Employer immediately of any damage, shortage, discrepancy etc. for the purpose of Employer's information only. The Contractor shall submit to the Employer every week a report detailing all the receipts during the week. However, the Contractor shall be solely responsible for any shortages or damages in transit, handling and/or in storage and erection at site. Any demurrage, and other such charges claimed by the transporters, railways etc., shall be to the account of the Contractor. (c) The Contractor shall maintain an accurate and exhaustive record-detailing out the list of all items received by him for the purpose of erection and keep such record open for the inspection of the Employer. (d) All items shall be handled very carefully to prevent any damage or loss. The materials stored shall be properly protected to prevent damage. The materials from the store shall be moved to the actual location at the appropriate time to avoid damage of such materials at Site. (e) All the materials stored in the open or dusty location must be covered with suitable weatherproof and flameproof covering material wherever applicable. (f) The Contractor shall be responsible for making suitable indoor storage facilities, to store all items/materials, which require indoor storage. (g) The Contractor shall have total responsibility for all equipment and materials in his custody, stored, loose, semi-assembled and/or erected by him at site. The contractor shall make suitable security arrangements including employment of security personnel to ensure the protection of all materials, equipment and works from theft, fire, pilferage and any other damages and loss. (h) The Employer will verify the storage facilities arranged

by the contractor and dispatch clearance will be provided only after Employer is satisfied.

9.0

TECHNICAL SPECIFICATIONS OF 132kV ISOLATORS

Type:		132 kV
I	II	III
1	Main switch	Horizontal Centre break
2	Service	Outdoor
3	Applicable standard	IS : 9921 / IEC-62271- 102
4	No. of Phases	3 phase
5	Design Ambient temperature	50°C
6	Rated voltage (kV)	In KV
	a) Nominal	132
	b) Maximum	145
7	Rated current (Amps)	2000
8	Short time withstand current for 3sec.(kA)	40KA
9	Rated frequency	50 HZ +- 5%
10	System earthing	Effectively earthed
11	Temperature rise	As per relevant IS/IEC standards
12	Lightening Impulse withstand voltage (kVp)	
	(a) Across Isolating distance	750
	(b) To earth	650
13	1-minute power frequency withstand voltage	
	a) Across Isolating distance	315
	b) To earth	275
14	Switching Impulse withstand voltage (kVp)	
	a) Across Isolating distance	-
	b) To earth	-
15	Max. RIV for frequency between 0.5MHz and 2MHz (micro-volt)	500 at 92kV
16	Corona Extinction Voltage (kV)	-
17	Operating mechanism	
	a) Isolator	Motor
	b) Earth switch	-
18	Auxiliary voltage	
	a) Control & Interlock	220V DC 80% to 110%
	b) Motor voltage	3 Phase 415V AC 50Hz
	c) Heater, lamp & socket	Single phase 240 V 50HZ
19	Safe duration of overload	
	150% of rated current	5 minute
	120% of rated current	30 minute
20	Minimum creepage distance of insulator (mm)	25mm/kV
21	Operating time	Less than 12 secs
22	Insulator Data	
	a) Bending Strength (kgf)	800
	b) Height (mm)	1500
	c) Bottom PCD (mm)	184
	d) No. of holes & hole dia.	4X18
	e) Top PCD	127
	f) No. of holes & hole dia.	4xM16
	g) Minimum creepage distance (mm) 31mm/kV	4495
23	Working clearance (live part to ground) (in mm)	4900
24	Phase Spacing (mm.)	3000
25	Minimum clearances in air (mm.)(Centre to centre)	
	a) Phase to Phase	1300

	b) Phase to earth	1300	
	c) Sectional clearance	4000	

10.0

SCOPE

This specification provides for design, manufacturer, testing at manufacturer’s Works and delivery of outdoor station type 132KV, Isolator without earth switches, with electrical interlock, insulators and complete in all respect with bimetallic connectors arcing horns operating mechanism, auxiliary switches, indicating devices, fixing detail etc. as described hereinafter.

10.1

STANDARDS

Disconnecting switches covered by this specification shall conform to latest edition IEC-129/IEC 62271-102 I.S.1813 and IS: 9921, IS-325 and unless specifically stated otherwise in this specification.

10.2

TYPE

The 132KV Isolators (SI or DI) shall be outdoor type with centre break type as required [Single(SI)/Double (DI)] Isolators suitable for electrical as well as manual operation and local/remote operation. They shall have crank and reduction gear mechanism.

All Isolators offered shall be suitable for horizontal upright mounting on steel structures. Each pole unit of the multiple Isolators shall be of identical construction and mechanically linked for gang operation.

Each pole of the Isolator shall be provided with two sets of contacts to be operated in series and the moving contact blades shall rotate in horizontal plane.

The design shall be such that the operating mechanism with the linkages shall be suitable for mounting on any of the outer pole ends without much difficulty and with minimum shifting of parts.

Moving contacts of all isolators shall rotate through 90 deg. from their “fully closed position” to “fully open position so that the break is distinct and clearly visible from ground level.

The Isolators offered by the Bidder shall be designed for Normal rating current for Isolator as follows:

Voltage	132kV
Current	2000/1600/1250A

It should suitable for continuous service at the system voltages specified herein. The Isolators shall be suitable to carry the rated current continuously and full short circuit current of 40 KA for 132 KV for 1 second at site condition without any appreciable rise in temperature. These shall also be suitable for operation at 110% rated (normal) voltage. The Isolators shall be suitable for Isolating low capacitive / inductive currents of 0.7amp at 0.15 power factor. The isolators shall be so constructed that they don’t open under the influence of short circuit conditions.

The Isolators and earthing switches are required to be used on electrically exposed installation and this should be taken into account while fixing the clearance between phases and between phase and earth.

10.3

MAIN CONTACTS

All Isolators shall have heavy duty, self-aligning and high-pressure line type contacts made of high conductivity, corrosion resistant, hard-drawn electrolytic copper strips of proper thickness and contact area. Fixed contact should consist of loops of above copper strips suitable for 2000Amps ratings for 132KV Isolators. The hard drawn electrolytic copper strips should be silver plated 25micron thickness and fixed contacts should be backed by powerful phosphor bronze/stainless steel springs of suitable numbers. The main contacts should be preferably of tulip type design. However, the thickness and contact area of the contact should conform to the drawing approved during type test. Moving contact with moving arm should be of hard- drawn electrolytic copper of proper thickness and contact area. These fixed and moving contacts shall be able to carry the rated current continuously and the maximum fault current of 40 KA for 132KV for 1 seconds without any appreciable rise in temperature. The Isolator blades shall retain their form and straightness under all conditions of operation including all mechanical stress arising out of operation as well as under rated short circuit condition.

	<p>Fixed guides shall be provided so that even when the blades are out of alignment, closing of the switches, proper seating of the blades in between contacts and adequate pressure to give enough contact surface is ensured. The contact shall be self-cleaning by the wiping action created by the movements of the blades.</p> <p>The Isolator shall be self-cleaning type so that when isolators remain closed for long periods in a heavily polluted atmosphere, binding does not occur. No undue wear or scuffing shall be evident during the mechanical endurance tests, contacts and springs shall be designed so that adjustment of contact pressure shall not be necessary throughout the life of the isolator. Each contact or part of contacts shall be independently sprung so that full pressure is maintained on all contact at all times.</p> <p>10.4 ARCING HORN AND GRADING HORN Suitable arcing horn made of tinned electrolytic copper which are required for guiding contacts shall be provided on the fixed and moving contacts of all Isolators. The contacts shall be of “make before and break after” type.</p> <p>10.5 ELECTRICAL INTERLOCK / MECHANICAL INTERLOCK The disconnecting switches whenever required shall be with an approved type electrical interlock for interlocking with the associated circuit breakers and earth switch. Electrical interlock assembly should be more right in construction and properly mounted to ensure reliable operation. The design should be such that the electrical circuit for the interlocking mechanism will only remain energized during operation of the switches.</p> <p>10.6 AUXILIARY SWITCHES All isolators and earthing switches shall be provided with 110V DC auxiliary switches for their remote position indication on the control board and for electrical locking with other equipment. The auxiliary switch shall be provided with a minimum of six auxiliary contacts- 10 normally open and 10 normally closed and 10 normally open and 10 normally closed for earth switch. Separate auxiliary switches shall be provided for isolating and earth switches. 6 additional NO and NC contact to be provided as spare in each case. The auxiliary switches and auxiliary circuits shall have a continuous current carrying capacity of at least 10 Amps. Auxiliary switches shall not be used as limit switches. Details of make, rating and type of limit switch shall be furnished in the offer.</p> <p>10.7 OPERATING MACHANISM The operating mechanism shall be simple and shall ensure quick and effective 1000 operation. The design shall be such as to enable one man to operate it with nominal effort. The operating mechanism box shall be made out of aluminum extruded (Aluminum alloy) sections of minimum 3.0 mm thickness. The operating mechanism shall be strong rigid and not subject to rebound. The Isolator blades shall be in positive continuous control throughout the entire cycles of operation. The operating rods and pipes shall be rigid enough to maintain positive control under most adverse conditions and to withstand all torsional and bending stresses arising from operation. Operation of the switches at any speed should not result in improper functioning, in displacement of parts / machines after final adjustment has been made. All holes in cranks, linkages etc. having moving pins shall be drilled and fitted accurately so as to prevent slackness and lost motion. Provision shall be made for padlocking the operating mechanism of disconnecting and earth switches in both open and closed positions. Bearings shall be ball and roller type shall be protected from weather and dust by means of cover and grease retainers. Bearings pressures shall be kept low to ensure long life and care of operation. Each power operated isolator shall be motor driven as well as manually operated and shall be complete with local / remote selector switch and open / close push buttons. The function of all control facilitates operating isolators. Provision shall be made in the control cabinet to disconnect power supply to prevent local / remote power operation. Limit switches for open and close positions of re-isolations and earth switches. All the terminal blocks to be used in the operating mechanism should of stud type of Poly- amide/Mealmine material of make like Elmex (OAT-6 for non-disconnecting type & OAT –6T for disconnecting type) / connect well (Equivalent).</p>
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10.8	<p>DESIGN, MATERIALS AND WORKMANSHIP</p> <p>The live parts shall be designed to eliminate sharp points, edges and similar corona producing surfaces. Where this is impracticable, adequate shields to be provided. All ferrous metal parts shall be hot dip galvanized, as per IS 2629. All metal parts shall be of such materials or treated in such a way so as to avoid rust, corrosion and deterioration due to continued exposure to atmosphere and rain. All current carrying parts shall be made from high conductivity electrolytic copper / aluminium.</p> <p>Bolts, screws and pins shall be provided with standard locking device viz. Locknuts, spring washers, keys etc. and when used with current carrying parts, they shall be made of copper silicon or other high conductivity and wear resistant alloys.</p> <p>The isolator should not need lubrication of any parts except at very long interval of five year minimum.</p>
10.9	<p>PROTECTIVE COATINGS</p> <p>All ferrous parts including bolts, nuts and washers of the switches assembly shall be galvanized to withstand at least six one minute dips in copper sulphate solution of requisite strength (Prece tests) except the threaded portions which should withstand four dips.</p>
10.10	<p>INSULATORS</p> <p>Support insulators for all type of isolators shall be of solid core type. The insulator shall be made of homogeneous and vitreous porcelain of high mechanical and dielectric strength. It shall have sufficient mechanical strength to sustain electrical and mechanical loading on account of wind load, short circuit forces etc. Glazing of the porcelains shall be of uniform dark brown color with a smooth surface arranged to shed away raise water. The porcelain shall be free from laminations and other flaws or imperfections that might affect the mechanical or dielectric quality. It shall be thoroughly vitrified, tough and impervious to moisture. The porcelain and metal ports shall be assembled in such a manner and with such material that any thermal differential expansion between the metal and porcelain parts throughout the range of temperature specified in this specification shall not loosen the parts or create under internal stresses which may affect the mechanical or electrical strength or rigidity. The assembly shall not have excessive concentration of electrical stresses in any section or across leakage surfaces. The cement used shall not give rise to chemical reaction with metal fittings. The insulator shall be suitable for water washing by rain or artificial means in service condition. Profile of the insulator shall also conform to IEC-815. Insulator shall have a minimum cantilever strength of 600 Kgs for (33KV and 66kV). Caps to be provided on top of the insulator shall be of high-grade cast iron or malleable steel casting. It shall be machine faced and hot dip galvanized. The cap shall have four numbers of tapped holes spaced on a pitch circle diameter of 127mm. The holes shall be suitable for bolts with threads having anti corrosive protection. The effective depth of threads shall not be less than the nominal diameter of the bolt. The cap shall be so designed that it shall be free from visible corona and shall have radio interference level within 300 micro volts. Casing shall be free from blow holes cracks and such other defects.</p>
10.11	<p>CONTROL CABINET:</p> <p>The control cabinet of the operating mechanism shall be made out of minimum 3mm thick aluminium alloy sheet. Hinged door shall be provided with pad locking arrangement. Sloping rain hood shall be provided to cover all sides. 15 mm thick neoprene or better type of gaskets shall be provided to ensure degree of protections of at least IP 55 as per IS 2147/IS-3947. The cabinet shall be suitable for mounting on support structure with adjustment for vertical, horizontal and longitudinal alignment. Details of these arrangements shall be furnished along with the offer.</p>
10.12	<p>MOTOR:</p> <p>Motors rated 1 Kw and above shall be suitable for operation on 3 phase, 415 V, 50 HZ supply. Motors of lower rating shall be single phase type suitable for 240V, 50HZ system. It shall be totally enclosed type if mounted outside the control cabinet. The motor shall withstand without damage stalled torque for at least 3 times the time lag of the tripping device. The motor shall, in all other respects, conform to the requirement of I.S. 325.</p>

10.13	<p>GEAR: The dis-connector / isolator may be required to operate occasionally, with considerably long idle intervals. Special care shall be taken for selection of material for gear and lubrication of gears to meet this requirement. The gear shall be made out of aluminium bronze or any other better material lubricated for life with graphite or better-quality non-drawing and non-hardening type grease. Wherever necessary automatic relieving mechanism shall be provided suitable relay, Device shall be provided to prevent over loading of the motor. Single phase preventer (for 3 phase meter) shall be provided to operate on open circuiting of any phase and shall trip off the motor. Complete details of the devices shall be furnished in the offer.</p>
10.14	<p>SPACE HEATERS: Space heaters suitable for 1 phase 240V AC supply shall be provided for each motor operated operating mechanism to prevent condensation and shall be operated by MCB.</p>
10.15	<p>TERMINAL BLOCK AND WIRINGS Each operating mechanism shall be provided with 1100V grade stud type terminal block. All auxiliary switches, interlocks and other terminals shall be wired up to terminal block. The terminal block shall have at least 20% extra terminals. All wiring shall be carried out with 1.1KV grade Insulated 2.5 sq.mm. copper wires.</p>
10.16	<p>INTERIOR ILLUMINATION: A holder suitable for a 240 V lamp shall be provided in each of the motor operated mechanism of three poles & shall be door operated type.</p>
10.17	<p>CONTROL AND AUXILIARY SUPPLY: A 3-phase switch with MCB for phases and link for neutral, shall be provided for power supply and a 2 pole MCB shall be provided for control supply.</p>
10.18	<p>POSITION INDICATOR: A position indicator to show the isolator is in ON or OFF position to be provided.</p>
10.19	<p>NAME PLATE: Isolator, earthing switches and their operating devices shall be provided with name plate. The name plate shall be weatherproof and corrosion proof. It shall be mounted in such a position that it shall be visible in the position of normal service and installation. It shall carry the following information duly engraved or punched on it.</p> <p>A. Isolator Base</p> <p>Name: AEGCL Name of manufacturer – Order No. – Type Designation – Manufacturers serial No. – Rated voltage – Rated normal current – Rated short time current (rms) and duration –Rated short time peak current (KAP) Weight</p>

	<p>a) Operating Device</p> <p>Name – AEGCL Name of manufacturer – Order No. Type Designation – Reduction gear ratio – AC motor</p> <ul style="list-style-type: none"> • Rated auxiliary voltage • Starting current • Designation of AC motor as per IS 4722/325 • Starting torque at 80% of supply voltage • Over travel in degrees after cutting off supply <p>Total operating time in seconds</p> <p>b) Close operation – Electrical c) Open operation – electrical d) Open operation – manual</p> <p>PAINTING GALVANIZING AND CLIMATE PROOFING:</p> <p>At interiors and exteriors of enclosures, cabinets and other metal parts (other than made up of aluminium) shall be thoroughly cleaned to remove all rust, scales, corrosion, grease and other adhering foreign matter and the surfaces treated by phosphating (e.g. seven tank phosphating sequence). After such preparation of surfaces, two coats of zinc oxide primer shall be given by suitable stoving and air drying before final painting. Colour of the final paints shall be of shade no. 697 of IS:5. The finally painted cubicle shall present aesthetically pleasing appearance free from any dent or uneven surface. Paint inside the metallic housing shall be of anti-condensation type and the paint on outside surfaces shall be suitable for outdoor installation. All components shall be given adequate treatment of climate proofing as per IS:3202 so as to withstand corrosive and severe service conditions. All metal parts not suitable for painting such as structural steel, pipes, rods, levers, linkages, nuts and bolts used in other than current path etc. shall be hot dip galvanized as per IS –2629. Galvanization test will be carried out during routine test. Complete details of painting, galvanizing and climate proofing of the equipment shall be furnished in the offer.</p>
10.20	<p>PAINTING GALVANIZING AND CLIMATE PROOFING:</p> <p>At interiors and exteriors of enclosures, cabinets and other metal parts (other than made up of aluminium) shall be thoroughly cleaned to remove all rust, scales, corrosion, grease and other adhering foreign matter and the surfaces treated by phosphating (e.g. seven tank phosphating sequence). After such preparation of surfaces, two coats of zinc oxide primer shall be given by suitable stoving and air drying before final painting. Colour of the final paints shall be of shade no. 697 of IS:5. The finally painted cubicle shall present aesthetically pleasing appearance free from any dent or uneven surface. Paint inside the metallic housing shall be of anti-condensation type and the paint on outside surfaces shall be suitable for outdoor installation. All components shall be given adequate treatment of climate proofing as per IS:3202 so as to withstand corrosive and severe service conditions. All metal parts not suitable for painting such as structural steel, pipes, rods, levers, linkages, nuts and bolts used in other than current path etc. shall be hot dip galvanized as per IS –2629. Galvanization test will be carried out during routine test. Complete details of painting, galvanizing and climate proofing of the equipment shall be furnished in the offer.</p>
10.21	<p>PAINTING GALVANIZING AND CLIMATE PROOFING:</p> <p>At interiors and exteriors of enclosures, cabinets and other metal parts (other than made up of aluminium) shall be thoroughly cleaned to remove all rust, scales, corrosion, grease and other adhering foreign matter and the surfaces treated by phosphating (e.g. seven tank phosphating sequence). After such preparation of surfaces, two coats of zinc oxide primer shall be given by suitable stoving and air drying before final painting. Colour of the final paints shall be of shade no. 697 of IS:5. The finally painted cubicle shall present aesthetically pleasing appearance free from any dent or uneven surface. Paint inside the metallic housing shall be of anti-condensation type and the paint on outside surfaces shall be suitable for outdoor installation. All components shall be given adequate treatment of climate proofing as per IS:3202 so as to withstand corrosive and severe service conditions. All metal parts not suitable for painting such as structural steel, pipes, rods, levers, linkages, nuts and bolts used in other than current path etc. shall be hot dip galvanized as per IS –2629. Galvanization test will be carried out during routine test. Complete details of painting, galvanizing and climate proofing of the equipment shall be furnished in the offer.</p>
10.22	<p>PAINTING GALVANIZING AND CLIMATE PROOFING:</p> <p>At interiors and exteriors of enclosures, cabinets and other metal parts (other than made up of aluminium) shall be thoroughly cleaned to remove all rust, scales, corrosion, grease and other adhering foreign matter and the surfaces treated by phosphating (e.g. seven tank phosphating sequence). After such preparation of surfaces, two coats of zinc oxide primer shall be given by suitable stoving and air drying before final painting. Colour of the final paints shall be of shade no. 697 of IS:5. The finally painted cubicle shall present aesthetically pleasing appearance free from any dent or uneven surface. Paint inside the metallic housing shall be of anti-condensation type and the paint on outside surfaces shall be suitable for outdoor installation. All components shall be given adequate treatment of climate proofing as per IS:3202 so as to withstand corrosive and severe service conditions. All metal parts not suitable for painting such as structural steel, pipes, rods, levers, linkages, nuts and bolts used in other than current path etc. shall be hot dip galvanized as per IS –2629. Galvanization test will be carried out during routine test. Complete details of painting, galvanizing and climate proofing of the equipment shall be furnished in the offer.</p>

10.23

TESTS:

Type Tests:

Isolators offered, shall be fully type tested as per the relevant standards. The Bidder shall furnish Three sets of the following valid type test reports for their different type of offered Isolators along with the offer. The Purchaser reserves the right to demand repetition of some or all the type tests in the presence of purchaser's representative. For this purpose, the Bidder may quote unit rates for carrying out each type test and this will be taken during bid price evaluation, if required.

- e) short time withstand & peak withstand current test for Isolator.
- f) power frequency (Dry & Wet), Lightning Impulse dry withstand Test
- g) Mechanical endurance Test
- h) IP-55 test

During type tests the isolator shall be mounted on its own support structure or equivalent support structure and installed with its own operating mechanism to make the type tests representative. Drawing of equivalent support structure and mounting arrangements shall be furnished for Purchaser's approval before conducting the type tests.

The type tests shall be conducted on the isolator along with approved insulators and terminal connectors. Mechanical endurance test shall be conducted on the main switch as well as earth switch of one isolator of each type.

Acceptance and Routine Test:

All acceptance and routine test as stipulated in the relevant standards shall be carried out by the supplier in presence of Purchaser's representative.

Mechanical operation test (routine test) shall be conducted on isolator (main switch and earth switch) at the supplier's works as well as purchaser's substation site.

Immediately after finalization of the programme of type / acceptance, routine testing the supplier shall give sufficient advance intimation (clear 20 days advance intimation), along with shop routine test certificates, valid calibration reports from Govt. approved test house for the equipments, instruments to be used during testing for scrutiny by the purchaser to enable him to depute his representative for witnessing the tests. If there will be any discrepancies in the shop routine test certificates and calibration reports furnished by the firm then after settlement of the discrepancies only, purchaser's representative will be deputed for witnessing the tests. Special tests proposed to be conducted (if decided to conduct) as type test on isolators, are given at Annexure- II. These special type test charges shall be quoted along with all other type tests as per relevant IEC standard and these charges shall be included in the total bid price. Test certificates of various items including but not limited to the following shall be furnished at the time of routine tests.

- a) Chemical analysis of copper along with a copy of excise certificate indicating genuine source of procurement of electrolytic grade copper.
- b) Bearings
- c) Fasteners
- d) Universal / swivel joint coupling
- e) Insulators
- f) Motor
- g) Gears
- h) Auxillary switch
- i) Limit switch
- j) Timer
- k) Overload / single phase preventer relay
- l) Interlocking devices
- m) Terminal block
- n) Any other item

10.24	<p>INSPECTION:</p> <ul style="list-style-type: none"> i) The Purchaser shall have access at all times to the works and all other places of manufacture, where the disconnectors, earth switches and associated equipment are being manufactured and the supplier shall provide all facilities for unrestricted inspection of the works raw materials manufacture of all the accessories and for conducting necessary tests as detailed herein. ii) The supplier shall keep the purchaser informed in advance of the time of starting of the progress of manufacture of equipment in its various stages so that arrangements could be made for inspection. iii) No material shall be dispatched from its point of manufacture unless the material has been satisfactorily inspected and tested. iv) The acceptance of any quantity of the equipment shall in no way relieve the supplier of his responsibility for meeting all the requirements of this specification and shall not prevent subsequent rejection if such equipment is later found to be defective.
10.25	<p>Dismantling of existing 132kV isolator assembly shall have to be done. Retrofitting/fabrication/modification on existing foundation shall be done for erection of new isolator as per the instructions of site in charge, followed by testing and commissioning of the new isolators. The material required for retrofitting shall be arranged by the contractor/bidder itself.</p>

4.1.0 QUALITY ASSURANCE PLAN:

4.1.1 The Bidder shall invariably furnish following information along with his offer, failing which his offer shall be liable for rejection.

1. Name of sub suppliers for raw materials, list of standards according to which the raw materials are tested, list of tests normally carried out on raw materials in presence of supplier's representative, copies of test certificate.
2. Information and copies of test certificate as in (i) and (ii) above in respect of brought out accessories.
3. List of manufacturing facilities available
4. Level of automation achieved and lists of areas where manual processing still exists.
5. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and detailed of such tests and inspections.
6. List of testing equipments with calibration certificates from Govt. approved test house available with supplier for final testing equipment and test plant limitation if any, visit-a-visit the type, special acceptance and routine test specified in the relevant standards. These limitations shall be very clearly brought out in the specified test requirements.

4.1.2 The supplier shall within 30 days of placement of order, submit following information to the purchaser.

- a) List of raw material as well as bought out accessories and the names of sub-suppliers selected from the lists furnished along with offer.
- b) Type test certificates of the raw material and both bought out accessories.
- c) Quality Assurance Plan (QAP) withhold points for purchaser's inspection.

4.1.3 The supplier shall submit the routine test certificates of bought out accessories and raw material viz. Copper, Aluminum conductors, lubricating material, gear material etc. at the time of routine testing of the fully assembled isolator.

5.1.0 DOCUMENTATION:

5.1.1 List of Drawing and Documents:

The Bidder shall furnish four sets of following drawings/documents along with his offer.

1. General outline and assembly drawings of the isolator operating mechanism, structure, insulator and terminal connector.
2. Sectional views and descriptive details of items such as moving blades, contacts, arms contact pressure, contact support bearing housing of bearings, balancing of heights, phase coupling pipes, base plate, operating shaft, guides, swivel joint operating mechanism and its components etc.
3. Drawing with structure for the purpose of type tests.

4. Name plate
5. Schematic drawing
6. Type test reports
7. Test reports, literature, pamphlets of the bought-out items and raw materials.

6.1.0 PACKING AND FORWARDING:

6.1.1 The equipment shall be packed in crates suitable for vertical/horizontal transport, as the case may be and suitable to withstand handling during transport and outdoor storage transit. The supplier shall be responsible for any damage to the equipment during transit, due to improper and improper and inadequate packing. The easily damageable material shall be carefully packed and marked with the appropriate caution symbols.

Wherever necessary, proper arrangement for lifting, such as lifting hooks etc. shall be provided. Any material found short inside the packing cases shall be supplier without any extra cost.

Each consignment shall be accompanied by detailed packing list containing the following information:

- I. Name of the consignee.
- II. Details of consignment.
- III. Destination.
- IV. Total weight of consignment.
- V. Handling and unpacking instruction.
- VI. Bill of material indicating contents of each package.

The supplier shall ensure that the bill of material is approved by purchaser before dispatch.

7.1.0 SUPERVISION OF ERECTION TESTING AND COMMISSIONING (ET&C):

Purchaser proposes to utilize the services of the supplier for supervision of testing and commissioning of the equipment being supplied by him, if it is required. For this purpose, the supplier should make available the services of trained personnel (Engineers) who shall correct in the field, any errors or omissions in order to make the equipment and material properly perform in accordance with the intent of this specification. The Engineer shall also instruct the plant operators in the operation and maintenance of the commissioned equipment. The supplier shall be responsible for any damage to the equipment on commissioning the same, if such damage results for the faulty or improper ET&C. Purchaser shall provide adequate number of skilled / semi-skilled workers as well as ordinary tools and equipment and cranes required for equipment erection, at his own expenses. Apart from the above, the Purchaser shall not be responsible for providing any other facilities to the supplier. Special tools if required for erection and commissioning shall be arranged by the supplier at his cost and on commissioning these shall be supplied to the purchaser free of cost for future use.

LIST OF SPECIAL TESTS TO BE CARRIED OUT IF DECIDED BY THE PURCHASER

Sl. No.	Name of the Tests	Standard to which it conforms.
01.	Tests on insulators	IS-2544 IEC. 168
02.	Tests on terminal connectors	IS:5561

8.1.0 GENERAL CONDITIONS OF CONTRACT:

8.1.1 INSPECTION OF SITE:-

The Bidder is advised to visit and examine the site where the work is to be carried out and its surroundings, nature of work, site conditions, area for storage of materials, establishment of labour camp, site office, means of access to the site etc. and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract. The costs of visiting the site shall be at the Bidder's own expense. However prior permission should be sought from the tender inviting authority for visiting the site. Non- familiarity with the site conditions will not be considered a reason either for extra claims or for not carrying out the work in strict conformity with the specifications & requirement.

8.1.2 PREPARATION OF BID:-

Cost of Bidding:

The Bidder shall bear all costs associated with the preparation and submission of its Bid, and AEGCL shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

Documents Establishing Conformity of the Goods and Services: -The documentary evidence of the conformity of the goods and services to the Bidding Document may be in the form of letter, drawings and data, and shall furnish. A detailed description of the essential technical and performance characteristics of the goods and services, including the functional guarantees of the Goods, in response to the specification.

Bidder should note clearly that department should not take any responsibility for issuing of any materials, equipment and T&P's that may be required in the work.

All materials, labours, equipment, T&P and heavy vehicle etc. required in the work shall have to be arranged by the bidder/contractor from his own sources in the event of allotment of the said work to him/them.

Water to be used in the work should be clean and free from all impurities; the bidder should note that no water will be provided to them for the execution of the work from the department

The department is also not bound to supply power that may be required in the execution of the work. However subject to the availability of the power source near the vicinity of the work site, the department on payment of tariff as applicable at the time of execution of work may arrange one point near the work site.

The bidder should clearly understand that all materials to be utilized in the work must confirm to the specifications. No substandard materials will be allowed to utilize in the work. Samples of each and every material to be brought to the site of work shall have to be get approved by the competent authority of the department before use.

The contract must not be sublet under any circumstances. If any contractor found in doing so, his work liable to be terminated.

The specification for the work shall be as per specification laid down in the items of work contained in the enclosed schedule of items of work or as per the APWD schedule of rates for Building (civil works), sanitary and Water supply and internal electrification respectively (whichever is applicable) but, certain modification in the specification and method of execution of work if required shall have to be carried out which shall be finalized with the contractor bilaterally through discussion.

8.1.3 **PRICE BID:-**

Unless otherwise specified in the Bid Document and/or AEGCL's Requirements, bidders shall quote for the entire plant and services on a single responsibility basis such that the total bid price covers all the Contractor's obligations mentioned in or to be reasonably inferred from the bidding document in respect of the including procurement, delivery, testing of materials, construction, labour cost, insurance, statutory requirements, and any other expenditure deemed necessary for completion of the Work. The rate should also include the cost of testing of materials at the approved laboratory, carriage and transportation of sample, preparation of report, submission of report in all respect as required by AEGCL. This includes all requirements under the Contractor 's responsibilities for completing the work and where so required by the bidding document, the acquisition of all permits, approvals and licenses, etc.; the operation, maintenance and training services and such other items and services as may be specified in the Bidding Document, all in accordance with the requirements of the General Conditions. Items against which no price is entered by the Bidder will not be paid for by the Employer when executed and shall be deemed to be covered by the prices for other items.

Bidders are required to quote the price for the commercial, contractual and technical obligations outlined in the bidding document.

Bidders quoted price should include all cost of testing of materials, transportation of sample, storage, preparation and submission of report during approval period, construction period as well as after completion of the work.

Bidders quoted price should include all cost of testing of concrete (destructive or non-destructive) transportation of sample, storage, preparation and submission of report.

Taxes like work contract, income tax etc. which need to be deducted at source as per the prevailing law, will be deducted at source.

The Bided Price should on Fixed Price basis, prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account.

8.1.4 **SITE FACILITIES: -**

AEGCL will not provide any accommodation at the work site to the contractor and their field personnel. The same has to be arranged by the contractor on their own. However, AEGCL may provide space for storage of the materials but responsibility of the material and their safety shall be taken care of by the Contractor. In case of none availability of space under AEGCL the same should be arranged by the contractor outside AEGCL campus/work site at their own cost and responsibility.

AEGCL shall not be responsible for the safety of the workers at site either on account of the works executed by the Contractor or on account of the works executed by any other agency involved at that time.

AEGCL shall on no account be responsible for the expenses incurred by the Contractor during the progress of work at site, towards any incidental expenditure like medical amenities to the workers at site, security arrangements.

The quoted price shall be deemed to include charges for all site facilities for labour that are considered necessary for execution of the work. Subject to availability of land, AEGCL may provide free site for labour camp, construction of yard etc. close to site of work.

No assurance can be given regarding the availability of AEGCL's land given for use to the Bidder to natural

calamities. AEGCL undertakes no responsibility or liability in this regard.

The bidder shall make his own arrangement for arranging power supply as may be required for work. AEGCL may, however assist in recommending his/their application to the Electricity Supply Utility for the power supply on payment basis as per norms of the Electricity Supply Utility.

AEGCL on no account shall be responsible for storage of materials or loss or pilferage or theft either in respect of the material stored or material already billed and paid for by the AEGCL.

Any facilities available at site shall be utilized only with prior permission of AEGCL and it should not be taken as granted for availing such services.

8.1.5 DEFECT AFTER COMPLETION OF WORK: -

The contractor shall make good at his own cost and to the satisfaction of AEGCL all defects, or other faults which may appear during the defect liability period.

In default, AEGCL may employ and pay other agency or persons to amend and make good such damages. Losses and expenses consequent thereon or incidental thereto shall be made good and borne by the contractor, failing which the same shall be recoverable from the payment due to the contractor and performance guarantee. In the event of amount due and performance guarantee being insufficient, the balance amount will be recovered from the contractor from the amount due or retained for other works executed in AEGCL.

8.1.6 DEVIATION/ERROR IN DRAWING AND SPECIFICATIONS.

In case of non-suitability of drawing or specifications, the matter to be brought to the notice of Competent Authority without any delay. Any modification or deviation should only be done after approval of Competent Authority.

In case of any omission and error in the drawing and specification the same procedure as above should be followed.

8.1.7 VARIATION AND DEVIATION OF QUANTITY:-

Deletion of work:

AEGCL and its representative have the right to delete or decrease any item or quantity from schedule of quantity at its discretion if deemed necessary. No claim by the contractor will be admissible for this deletion or deduction of Item/quantity from schedule of quantity.

8.1.8 LABOUR LEGISLATION: -

The Bidder shall comply with the provisions of the Apprentices Act 1961, payment of Wages Act 1936, Minimum Wages Act 1948, Employees Liability Act 1938, Workmen's Compensation Act 1923, Industrial Disputes Act 1947, Maternity Benefits Act 1961, and the Contract Labour (Regulation and Abolition) Act 1970, Provident Fund Act or the modifications thereof or any other laws relating thereto and the rules made there under from time to time.

The Bidder shall indemnify and keep indemnified AEGCL against payments to be made under and for the observance of the laws aforesaid and the Contractors' Labour Regulations without prejudice to his right to claim.

The laws aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract.

The Bidder shall at his own expense arrange for all the safety provisions for the safety of all workers and employees directly or indirectly employed on the work by the Bidder.

The Bidder shall be fully responsible at his own expenses for compliance all the labour regulations and rules to be observed by them. The Bidder shall fully indemnify AEGCL against any action by the state and/or Central Government for any default or alleged default by the Bidder for violation of any of such rules and regulations. If, due to any default of the Bidder, AEGCL has to incur any expenditure for compliance of the rules and regulations or for any other reason connected with such default, AEGCL shall be entitled to recover from the Bidder all such expenditure in full from any payment due to the Bidder.

8.1.8 GOVERNMENT AND LOCAL RULES: -

The Contractor shall conform to the provisions of all local bye-laws and acts relating to the work and to the regulations etc. of the Government and Local Authorities and of any Company whose system and design is proposed to be connected/utilized. The cost, if any, shall be deemed to have been included in his quoted rates, taking into account all liabilities and shall indemnify AEGCL against such liabilities and shall defend all actions arising from.

8.1.9 ELIGIBILITY OF CONTRACTORS EMPLOYEES: -

The Contractor shall employ in and about the Execution of the works only such persons as are skilled and experienced in their several trades. A list of such personal should be submitted in corresponding Appendix.

8.1.10 ENGINEER AT LIBERTY TO OBJECT: -

AEGCL's Site in-charge shall have right to remove any person provided by the Contractor who, in the opinion of the Site in-charge, misconducts himself, or is incompetent or negligent in the proper performance of his duties, or whose presence on Site is otherwise considered by the Engineer to be undesirable, and such person shall not be again allowed upon the Works without consent of the Engineer. Any person so removed from the Works shall be replaced immediately without hampering the work.

8.1.11 TAXES:-

Any taxes, royalties and duties as per Govt. Law should be responsible of the contractor and must be included in their quoted rate.

8.1.12 INSURANCE:-

- 8.1.12.1 The "Contractor" shall, have, unless, otherwise specified by the Purchaser, insure the materials through their underwrites at their cost and shall keep it insured against any loss/ damaged/ pilferage in transit, destruction or damage by fire/ flood, without exposure to vagaries of weather or through riot, civil commotion, war or rebellion, for the full value of the materials until the materials are received at the purchaser's destination store.
- 8.1.12.2 The "Contractor" shall be responsible for safe arrival at destination, unloading and receipt of the materials by the consignee. The Purchaser will discharge consignee's responsibilities only and shall not be responsible for any damage/ loss/ pilferage/ non-delivery by the carriers.
- 8.1.12.3 In case of any loss/ damage/ pilferage/ non-delivery/ short delivery by carriers etc.; the Contractor shall replace free of cost missing/damaged/lost materials within 30 (thirty) days from the receipt of report thereof from the consignee(s) without waiting for settlement of their claims with their carriers/under-writers. Normally, such reports from the consignee(s) to the Contractor shall be initiated within a period of 30(thirty) days from the date of receipt of each consignment by him /them.
- 8.1.12.4 If it is considered necessary that the damage equipment either in part or in full to be sent back to the manufacturer's works for repair, the manufacturers/ Contractors will furnish the Bank Guarantee for the full value of equipment needing repairs and such Bank Guarantee shall remain valid till such time, the equipment are repaired and returned to the consignee in good condition. The to and fro freight, handling and insurance charges in such cases will be borne by the Contractor.
- 8.1.12.5 Unless, otherwise mutually agreed upon, in case of failure by the Contractor to replenish /make good of the loss/damage/short supplied quantities, within the stipulated period, the Purchaser reserves the right to forfeit the security deposit and/or adjust any outstanding payment to the "Contractor" with the Purchaser or take any other appropriate action.

DAMAGE TO PERSON AND PROPERTY:-

- 8.1.13** The Contractor shall be responsible for all injury to the work or to workmen, to persons, animals or things and for all damages to the structural and/or decorative part of property which may arise from the operations or neglect of contractor or its employees, against whether such injury or damage arise from carelessness, accident or any other cause whatsoever in any way connected with the carrying out of this Contract. The Contractor shall at his cost effect the insurance necessary and indemnify AEGCL entirely from all responsibility in this respect. The scope of insurance is to include loss or damage to the work and workmen due to carelessness, accident including fire, earthquake, floods, all medical expenses, compensation to be borne in the event of accident etc., damage or loss to the Contract itself till this is made over a complete state. Insurance is compulsory and must be affected from the very initial stage and should cover the entire contract period till handing over of complete works. The Contractor shall also be responsible for anything which may be excluded from damage to any property arising out of incidents, negligence or defective carrying out of this Contract.

AEGCL shall be at liberty and is hereby empowered to deduct the amount of any damages, compensations, costs, charges and expenses arising or occurring from or in respect of any such claim or damages from any sums due or to become due to the Contractor.

8.1.14 ACCEPTANCE OF BID AND CONTRACT AGREEMENT:-

An agreement shall have to be drawn on non-judicial stamp of appropriate value with AEGCL by the selected Contractor in AEGCL's General Conditions of Supply and Erection 2009 of contract within 10 (ten) days from the date of issue of the LOI.

Wherever there is any variation in between the conditions of AEGCL's General Conditions of Supply and Erection 2009 and the above terms & conditions, this bid conditions will supersede the conditions of AEGCL's General Conditions of Supply and Erection 2009.

8.1.15 STATUTORY AND SAFETY REQUIREMENT:-

Each and every safety measures for MAN and MACHINE will be the sole responsibility of the Contractor without any prejudice. Compensation claim if any will also be the responsibility of the contractor without any prejudice. During the execution of the work, the contractor shall have to mark the site with banner warning/indicating precautions.

8.1.16 PAYMENT TERMS:-

No advance/Mobilization advance shall be made in this contract.

Two no's of Running bill payment will be made on completion of 30% and 60% of the work in terms of value. Final bill shall be released to the contractor only after final acceptance by AEGCL.

No claim for interest shall be entertained by AEGCL in respect of any money or balance which may be in AEGCL's hands owing to any dispute or difference or misunderstanding between the contractor and the AEGCL or due to the reason beyond the reasonable control of AEGCL.

Payment is subject to availability of specific fund.

The quantities may vary as per site requirements. Actual work done quantities will be measured after completion of work and will be paid as per certification by Engineer-in charge.

TDS at actual will be deducted from the payable amount against each invoice/bill.

8.1.17 RETENTION MONEY:-

10% retention money will be deducted from running bill, which will be released along with the final bill on completion of the work in all respect.

8.1.1 WARRANTY:-

8.1.18.1 The Contractor/Manufacturer warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.

8.1.18.2 The Contractor/Manufacturer further warrants that the Goods shall be free from defects arising from any act or omission of the Contractor or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination.

8.1.18.3 The warranty shall remain valid for **18 (Eighteen) months** from the date of successful and complete delivery of materials at the final destination indicated in the Purchaser's Requirement.

8.1.18.4 If during the Period Warranty any defect should be found, the Purchaser shall give Notice to the Contractor/Manufacturer stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Contractor/Manufacturer to inspect such defects.

8.1.18.5 If having been notified, the Contractor/Manufacturer fails to remedy the defect within a period of 15 (fifteen) days, the Purchaser may, following notice to the Contractor/Manufacturer, proceed to do such work, and the reasonable costs incurred by the Purchaser in connection therewith shall be paid to the Purchaser by the

8.1.19 EXTENSION OF TIME:-

Time is the essence of the contract. No extension of time shall normally be allowed except on valid and genuine ground.

8.1.20 CHANGE OF NAME OF THE TENDERER:-

At any stage after tendering, AEGCL shall deal with the Contractor only in the name and the address under which he submitted the tender. All the liabilities/ responsibilities for due execution of the contract shall be that of the Contractor.

Any change/ alteration of name/ constitution/ organization of contractor shall be duly notified to the AEGCL and the AEGCL reserves the right to determine the contract, in case of any such notification.

8.1.2 DEATH, BANKRUPTCY ETC.:-

If the Contractor becomes bankrupt or being a corporation is in the process of winding up, amalgamation or reorganization, the AEGCL shall be at liberty to:

Terminate the contract forthwith by notice in writing to the Contractor or to the liquidator or receiver or to any person in whom the contract may become vested.

Give such liquidator, receiver or other person the option of carrying out the contract subject to his providing a guarantee for the due and faithful performance of the contract up to an amount to be determined by the AEGCL.

In case of death of the Contractor before completion of work and supply, the Engineer or AEGCL shall be at liberty to:

8.1.22 CONTRACTUAL FAILURE, LIQUIDATED DAMAGE AND PENALTY:-

Liquidity Damages 1.0% (one percent) of the amount of delayed work per week subjected to the maximum 10 % of the contract value.

8.1.23 TERMINATION OF CONTRACT:-

If the performance of the contract is not satisfactory and not corrected within 15 days of receiving notice, then employer shall be at liberty to terminate the contract and get the work executed through other means at the risk and cost of the Contractor.

8.1.24 PAYMENT ON TERMINATION:-

In the event of termination of the contract, AEGCL shall be at liberty to get balance work done by any third party at the risk and cost of the contractor and due payment of the contractor, if any shall be released after the completion of whole of the works.

8.1.25 SUSPENSION OF BUSINESS DEALINGS WITH FIRMS/ CONTRACTORS:-

The AEGCL may suspend business dealings with a Firm/ Contractor, if:-

The Central Bureau of Investigation or any other investing agency recommends such a course in respect of a case under investigation; and if a prima facie case is made out that the firm is guilty of an offence involving unethical, unlawful, fraudulent means in relation to business dealings, which, if established, would result in business dealings with it being banned.

The AEGCL has past record of non-performance of the Firm in its previously awarded contracts.

The AEGCL has record of ban against the Firm by other Government /Public sector utility.

However, the AEGCL shall give the Firm/ Contractor a fair chance to explain the circumstances of such previous suspensions.

8.1.26 BANNING OF BUSINESS DEALINGS WITH FIRMS/CONTRACTORS:-

The AEGCL may ban business dealings with a Firm/ Contractor, if:-

The owner (s) of the Firm/ Contractor is convicted by a court of law following prosecution for offences involving unethical, unlawful, fraudulent means in relation to business dealings.

There is strong justification that the Firm has been guilty of malpractices such as, bribery, corruption, fraud, substitution of tenders, interpolation, mis-representation, evasion or habitual default in payment of any Government tax etc.

8.1.27 FORCE MAJEURE CONDITION

Force Majeure condition shall be considered as any circumstances beyond reasonable control of the party claiming relief, including but not limited to strikes, lockout, civil commotion, riot insurrection, hostilities, mobilization, war, fire, flood, earthquake, malicious damage or accidents could entitle contractor to extension time. Any such delay should intimated within 10 (ten) days from the beginning of such delay to consider/approved, any claim without prior information may not be considered under force Majeure.

8.1.28 SETTLEMENT OF DISPUTE AND ARBITRATION:-

Any dispute arising out of the contract will be first settled bilaterally between AEGCL and Contractor. In case, dispute cannot be settled bilaterally, it will be referred to arbitration. The contractor shall not stop the work during settlement of any dispute. All disputes shall be subjected to the jurisdiction of District Court of respective District of work.

8.1.29 POLLUTION AND ENVIRONMENT:-

Each and every measure should be taken to adhere to the standard norms to avert any occasion of Air Pollution, Water Pollution, Soil Pollution and Sound Pollution. In case of any deviation leading to any legal action the Contractor will be solely responsible without any prejudice.

8.1.30 ACCEPTANCE AND TAKEOVER:-

When the term of contract shall be fully complied with completing all works as per approved drawing and technical specifications to the satisfaction of the Department for a period as applicable, the Contractor/Firm shall have to submit Performance Certificate to the office of the undersigned after the satisfactory completion of the work through the executing authority for finalization of the work/payment as well as for the final acceptance and taking over the completed work and to issue the necessary certificate thereof.

Appendix-1

COVERING LETTER (ON THE BIDDERS LETTER HEAD)

To,
*The Deputy General Manager
T&T Circle, AEGCL,
North Lakhimpur*

Sub: Submission of Tender.

Ref:-

1. NIT No.
2. Name of work:-

Sir,

Having examined the terms & conditions, technical specifications, detailed items of work etc. as well as acquainting myself/ourselves with site of work, surroundings to get the required materials etc. I am/we are to submit herewith my/our tender for the above mentioned work. My/our rates are quoted as per the specification laid down in the schedule of items of work.

I /We clearly understand that all materials, tools and plants, machineries, labours, testing of material, storage, haulage etc. required in the work shall have to be arranged by me/us from my/our own resources in the events of allotment of the work to me/us.

I /We also clearly understand that in the event of acceptance/approved of my/our tender, the work shall have to be executed strictly as per specifications and the same shall have to be completed in all respects within the stipulated time failing which I am/We are liable to be penalized as per rules laid down in Tender document as well as agreement thereof.

Appendix-2

PROFILE OF THE BIDDER

Soft copy of the following documents are to be uploaded with Techno-Commercial Bid.

Sl. No.	Particulars	To be filled by Bidder
a)	Name of the Bidder	:-
b)	Registration with Memorandum of Association	:-
c)	PAN	:-
d)	GST Registration number	:-
e)	Employees Provident Fund	:-
f)	ESIC	
g)	Electrical license	
h)	Labour License registration	:-
i)	Income Tax Clearance Certificate	:-
j)	Professional Tax Registration	:-
k)	Date of Establishment/ Incorporation	:-
l)	Postal Address	:-
	House No.	:-
	Lane	:-
	Street	:-
	Town/Village	:-
	Post Office	:-
	P.S.	:-
	District	:-
	Pincode	:-
m)	Telephone Number	:-
	Mobile No.	:-
	E-Mail Address	:-
	Website	:-
n)	Name(s) of the Owners / Directors/Partners	:-
o)	Name of the Banker with Address and Telephone Number	:-
p)	Contact Person Details <i>(Furnish here name of that person with whom AEGCL may get in touch for more information or clarifications)</i>	Name:- Designation:- Mobile Number:- Email Address:-

Appendix-3

WORK EXPERIENCE OF THE BIDDER

Following documents to be uploaded with Techno-Commercial Bid

In order to techno-commercially qualify for this Bid, the bidders have to submit required nos. of work order along with Performance certificate for similar nature of work executed within last 5 (five) years at any Govt. Deptt., PSU etc. of value not less than Rs..... ..

If the nature of work and value differs from the above stated conditions, it will not be considered while evaluation of technical qualification.

Sl. No.	Name of work	Nature of Work	Executed Amount	Starting Date	Completion Date
a)					
b)					
c)					
d)					

NB:- The Bidder may prepare extra sheet if required

Appendix-4

FINANCIAL QUALIFICATIONS

Following documents to be uploaded with Techno-Commercial Bid

In order to techno-commercially qualify for this Bid, the bidders have to submit annual audit report for last 5 (five) years. The average of best 3 (three) years out of 5 (five) years will be considered for average annual turnover.

1.	Financial Qualifications:
a)	Minimum average annual turnover of Rs..... .. calculated as total certified payments received for contracts in progress or completed.
b)	Minimum cash flow of Rs..... .. showing financial resources such as liquid assets unencumbered real assets, line of credit and other financial means. Bank solvency certificate to be submitted.

NB:- The Bidder may prepare extra sheet if required.

Appendix 5

Bank Guarantee

(To be stamped in accordance with Stamp Act)
(The Non-Judicial Stamp Paper should be in the name of issuing Bank)

..... **Bank’s Name and Address of Issuing Branch and Office**.....

Beneficiary: **Name and Address of Purchaser**

Date:

Bid Security No.:

We have been informed that *Name of Bidder*..... (Hereinafter called “the Bidder”) has submitted to you its bid dated
.... (Hereinafter called “the Bid”) for the execution of *Name & Identification No of Bid* Under Invitation for Bid No (“the IFB”).

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we *Name of Bank* Hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount *Amount in figures* (.... *Amount in words*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or
- (b) does not accept the correction of errors in accordance with the Instruction to Bidders (hereinafter “the ITB”); or
- (c) having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the Performance Security, in accordance with the ITB.

This guarantee will expire: (a) if the Bidder is the successful Bidder, upon our receipt of copies of the Contract Agreement signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; and (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy your notification to the Bidder of the name of the successful Bidder; or (ii) twenty-eight days after expiration of the Bidder’s Bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

..... **Bank’s Seal and authorized signature(s)**

Note: All italicized text is for use in preparing this form and shall be deleted from the final document

Appendix 6

GUARANTEED TECHNICAL AND OTHER PARTICULARS
(To be filled in by Bidder and shall be furnished with the Technical Bid)

1. 132kV Isolator

	Type:	132 kV
I	II	III
1	Main switch	
2	Service	
3	Applicable standard	
4	No. of Phases	
5	Design Ambient temperature	
6	Type of operation	
7	Rated voltage (kV)	
	c) Nominal	
	d) Maximum	
8	Rated current (Amps)	
9	Short time current for 1sec.(kA)	
10	Rated frequency	
11	System earthing	
12	Temperature rise	
13	Lightening Impulse withstand voltage (kVp)	
	(a) Across Isolating distance	
	(b) To earth	
14	1-minute power frequency withstand voltage	
	a) Across Isolating distance	
	b) To earth	
15	Switching Impulse withstand voltage (kVp)	
	a) Across Isolating distance	
	b) To earth	
16	Max. RIV for frequency between 0.5MHz and 2MHz (micro-volt)	
17	Corona Extinction Voltage (kV)	
18	Operating mechanism	
	a) Isolator	
19	Auxiliary voltage	
	a) Control & Interlock	
	b) Motor voltage	
	c) Heater, lamp & socket	
20	Safe duration of overload	
	150% of rated current	
	120% of rated current	
21	Minimum creepage distance of insulator (mm)	
22	Mounting structure	
23	Operating time	
24	Insulator Data	
	a) Bending Strength (kgf)	
	Type:	
	b) Height (mm)	

	c) Bottom PCD (mm)	
	d) No. of holes & hole dia.	
	e) Top PCD	
	f) No. of holes & hole dia.	
	g) Minimum creepage distance (mm) 31mm/kV	
25	Working clearance (live part to ground) (in mm)	
26	Phase Spacing (mm.)	
27	Minimum clearances (mm.)	
	a) Phase to Phase	
	b) Phase to earth	
	c) Sectional clearance	

Appendix-7

Price Bid

Rates should be quoted Exclusive of GST

BOQ as uploaded