

# ASSAM ELECTRICITY GRID CORPORATION LIMITED

Regd. Office: 1st floor, Bijulee Bhawan, Paltan-bazar, Guwahati-781001

CIN: U40101 AS2003SGC007238

Phone: 0361-2739520/Fax: 0361-2739513 [web: www.aegcl.co.in](http://www.aegcl.co.in)



## Bidding Document For

Procurement of 1(One) No. of 33/0.4kV, 250KVA Station Transformer  
at 220kV Namrup Grid Sub-Station, AEGCL

**DEPUTY GENERAL MANAGER T&T CIRCLE AEGCL,  
DIBRUGARH-786001**

NOTICE INVITING TENDER NO: AEGCL/AEGCL/DGM/TTC/DBR /TC-02/2026/4247, Dated: 09/02/2026

Sd/

*Musumee Boli*  
Deputy General Manager,  
T&T Circle, AEGCL,  
Dibrugarh.

Tender Cost:	₹1,000.00
EMD:	₹ 20,060

For & on behalf of the **Managing Director, AEGCL, the Deputy General Manager, T&T Circle, AEGCL, Dibrugarh**, invites tenders in prescribed form, from reputed Firms/Contractors/Manufacturers with sound technical and financial capabilities for the following work. A single stage two envelope procedure (**Techno-Commercial and Price Bid**) will be adopted for this tender.

Sl. No.	Name of work	Estimated Cost In INR	Time of Completion In Days	Bidding Address
1	<b>Procurement of one number 250KVA, 33/0.433 kV Outdoor Transformer, at 132/33 kV 220kV GSS Namrup, AEGCL.</b>  <b>BIS Level-2 as per Amendment-4 &amp; IS 1180 (part-1):2014</b>	<b>10,03,000 (Rupees Ten Lakhs and Three Thousand) Only.</b>	<b>150 days from the date of issue of the Supply order.</b>  Bidders should know that time is the essence of the bid.	O/o The Deputy General Manager, T&T Circle, AEGCL, Niz Kadamoni, Dibrugarh-786001, Assam. Dibrugarh-786001 Email address: <a href="mailto:dgmttc.dibrugarh@aegcl.co">dgmttc.dibrugarh@aegcl.co</a>

### **1.0 Cost of Bidding Document:**

Bidder has to pay Non-Refundable tender document cost of **Rs.1,000.00 (Rupees One Thousand)** only in the form of A/C payee Demand draft (Non-refundable) pledged in favour of “Managing Director, AEGCL, Paltan Bazar, Guwahati-01”, payable at Guwahati.

### **2.0 Bidding Address:**

Tender papers can be purchased on application in plain paper from the **Deputy General Manager, T&T Circle, AEGCL, Dibrugarh**.

### **3.0 Key Dates: -**

<b>a) Bid Document available in Website</b>	<b>12:00 Hrs of 10/02/2026</b>
<b>b) Bid Submission Start Time &amp; date:</b>	<b>12:00 Hrs of 10/02/2026</b>
<b>c) Bid Submission end time &amp; date:</b>	<b>12:00 Hrs of 18/02/2026</b>
<b>d) Techno-Commercial Bid Opening time:</b>	<b>14:30 Hrs of 18/02/2026</b>

### **4.0 Bidding Procedure:**

- All Tenders shall have to be submitted in prescribed forms attached herewith eventually to be drawn up in the rules of AEGCL.
- Two different envelopes to be used as follows:

**Envelope-1 (Technical Bid):** Bid document signed by the bidder on all pages, Tender fee, Earnest Money, Techno-commercial data of the Bidder, GTP and other mandatory documents must be enclosed.

**Envelope-2 (Price Bid):** As per format of the Price Bid attach.

- All tenders shall have to be submitted under **sealed & signed** covers super-scribing the **Tender Notice No** and **Name of the Work** completely and clearly on the top of the corner.
- All tenders shall have to be submitted/drop in the concerned tender box on or before the last date and time of submission of tenders either by post or in person.
- If Bidders desire to submit their Bid by post, at their own expenses, it should be posted well in advance so as to ensure that their tenders reach the office of the tendering address on or before the specified date and time of submission of tender. AEGCL will not take any responsibility for loss, damage, tempering or delay of tenders sent by post.

- f) Bidder submitting Bid in person should submit their Bid in the tender box during the working hours on or before the last date and time of submission of tender.
- g) Tender will be rejected if submitted beyond the aforesaid time and date.
- h) AEGCL has the right to cancel the tender at any moment, without assigning any reason thereof. Bidder will not be entitled to claim any expenses and AEGCL will not be responsible for any costs or expenses incurred on the preparation and submission of the Bids.

## **5.0 Validity of Bids and Bids Prices:**

- a) Bids shall remain valid for a period of **180 days** after the bid 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. If a bid security shall also be extended for a corresponding period.
- b) Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its bid.

## **6.0 Bid Security:**

- a) All bids must be accompanied by a bid security amounting to **Rs. 20,060.00** (Rupees Twenty Thousand and Sixty) only in the form of **Demand Draft** from any Nationalized Bank payable at Guwahati in favour **“Managing Director, AEGCL, Paltan Bazar, Guwahati-01”, payable at Guwahati.**
- b) Any bid not complying with the terms and conditions then his bid shall be rejected by the Employer as non-responsive.
- c) The earnest money of the successful Bidder shall be returned when the successful Bidder has signed the Contract and furnished the required performance security.
- d) The earnest money of the unsuccessful Bidders shall be returned as promptly as possible when the successful Bidder has signed the Contract.
- e) The earnest money may be forfeited:
  - If a Bidder withdraws its bid during the period of bid validity specified by the Bidder.
  - If the successful Bidder fails to Sign the Contract within the specified period.
- f) The Bid Security of a JV shall be in the name of the JV that submits the bid.

## **7.0 Format and Signing of Bid:**

- a) The Bidder shall prepare one original copy of the Technical Bid and one original copy of the Price Bid comprising the Bid and clearly mark it —ORIGINAL - TECHNICAL BID and ORIGINAL - PRICE BID. In addition, the Bidder shall submit three copies of the bid, in the number specified and clearly mark each of them —COPY. In the event of any discrepancy between the original and the copies, the original shall prevail.
- b) The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified in the Bid Document and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid where entries or amendments have been made shall be signed or initialed by the person signing the bid.
- c) A bid submitted by a JV shall be signed so as to be legally binding on all partners.
- d) Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.

## **8.0 Eligible Bidders:**

- a) A Bidder may be a private entity or a government-owned entity or any combination of such entities 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 (JV). In the case of a JV:
  - All partners shall be jointly and severally liable, and
  - The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the partners of the JV during the bidding process and, in the event the JV is awarded the

Contract, during contract execution.

- b) A Bidder, and all partners constituting the Bidder, shall have Indian nationality. A Bidder shall be deemed to have the nationality of a country if the Bidder is a national or is constituted, incorporated, or registered and operates in conformity with the provisions of the laws of Republic of India. This criterion shall also apply to the determination of the nationality of proposed subcontractors or suppliers for any part of the Contract including related services.
- c) 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.
- d) 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. Bidders shall provide such evidence of their continued eligibility satisfactory to the AEGCL, as the Employer shall reasonably request.

## **9.0 Financial Capability:**

- a) Bidder will require to submit along with the bid the **audited balance sheets, IT return and other legal financial statements** acceptable to AEGCL, for the **last 3 (three) years** to demonstrate the current soundness of the Bidders financial position and its prospective long- term profitability. As a minimum, an Applicant's net worth calculated as the difference between total assets and total liabilities should be positive.
- b) **Average Annual Turnover:** Minimum average annual turnover **30% of the estimated work value** calculated as total certified payments received for contracts in progress or completed, within the last 3 (Three) Years.

## **10.0 Work Experience:**

- a) Experience on similar nature of works under contracts in the role of manufacturers, contractor, subcontractor, or management contractor for at least the last 7 (Seven) years prior to the bid submission deadline.
- b) The Bidder should have successfully completed similar works within last 7 (Seven) Financial years. Documentary evidence such as Work Order, Completion Certificate, etc. should be submitted as per below mentioned criteria:
- **Three (3) similar** completed works costing not less than **Rs.4,01,200.00**
  - **Two (2) similar** completed works costing not less than **Rs. 5,01,500.00**
  - **One (1) similar** completed works costing not less than **Rs. 8,02,400.00**
- c) The Bidder must have experience of executing work of similar nature previously in AEGCL/APDCL or any other government organization or PSU. The bidder must submit experience and completion certificate for scrutiny by AEGCL. Each of such project/ works should consist of completion certificate.

*(Note: Similar nature of work means supply of electrical equipments of 33kV Voltage level and above such as breaker, CT, PT, Transformer etc..)*

## **11.0 Evaluation Criteria:**

- a) Evaluation will be done on the basis of **Bid Clause No. 8.0 : Eligible Bidders, Cl. No. 9.0 : Financial Capability, Cl. No. 10.0 : Work Experience and in accordance with the Annexure I to be duly filled in, signed and submitted by the bidder.**
- b) Price Bid of only **Responsive and Qualified Techno-Commercial Bidders** will be opened.
- c) **Price Bid Envelope of the Non-responsive Techno Commercial Bidders will be returned** to the respective bidders against submission of a written request by the bidder.

## **12.0 Correction of Errors in the Price Bid:**

- a) **Arithmetical Error**, if observed while in Price Bid evaluation, same will only be corrected.

b) Arithmetic Errors in the Price Bid will be rectified on the following basis:

- If there is a discrepancy between the unit rate and the total cost that is obtained by multiplying the unit rate and quantity, the unit rate shall prevail and the total cost will be corrected unless in the opinion of AEGCL there is an obvious misplacement of the decimal point in the unit rate, in which case the total cost as quoted will govern and the unit rate corrected. If there is a discrepancy between the total bid amount and the sum of total costs, the sum of total costs shall prevail and the total bid amount will be corrected.
- The amount stated in the Price Bid will be adjusted by AEGCL in accordance with the above procedure for the correctness of errors and shall be considered as binding upon the bidder. If the bidder does not accept the corrected amount of bid, its bid will be rejected, and the bid security may be forfeited.

c) **Any post bid correction request will NOT BE ENTERTAINED.**

### **13.0 Bid Evaluation Process for Abnormally Low Bids (ALB):**

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

(a) **Identification:** For the Identification of the Abnormally Low Bids, two approaches as applicable shall be adopted :-

(i) **Absolute Approach:** When there are fewer than five substantially responsive bidders and if the bid price is 20% or more below the 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:** -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. 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.

(b) In case of an ALB, the tender evaluation committee of the respective tenders shall undertake the following three stage review process which are as below:

- i. Identify ALB as per the steps mentioned in Clause No. (a). (i) and (a). (ii), whichever is applicable.
- ii. To seek and analyses 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.
- iii. To decide whether to accept or reject the bid.

(c) **Additional Performance Security** In case of acceptance of ALB:

- i. 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.
- ii. 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.
- iii. 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.

### **14.0 Late Bid:**

- a) Any bid submitted *after the due date and time* will be rejected without any prejudice.
- b) AEGCL will not be responsible for any Postal and/or Courier Delay in delivering the bid. The same received after the scheduled closing date and time will be rejected without any prejudice.
- c) Bidding through **EMAIL WILL NOT BE ACCEPTED.**

### **15.0 Clarification on Bid Documents and Contacting AEGCL:**

- a) A prospective Bidder requiring any clarification of the Bidding Document shall contact the AEGCL in writing at the AEGCL's address (O/o the Deputy General Manager, T&T Circle, AEGCL, Dibrugarh-786001) and raise his enquiries prior to 7 (seven) days of closing of the bid. The Employer will respond to any request for clarification, provided that such request is received no later than seven (7) days prior to the deadline for submission of bids. The AEGCL's response shall be in writing with copies to all Bidders who have acquired the Bidding Document including a description of the inquiry but without

identifying its source. Should AEGCL deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so.

- b) 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 for the provision of plant and services. The costs of visiting the site shall be at the Bidder's own expense.
- c) The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents 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.

## **16.0 Amendment of Bidding Document:**

- a) At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Document by issuing addenda.
- b) Any addendum issued shall be part of the Bidding Document and shall be communicated in writing to all who have obtained the Bidding Document from AEGCL.
- c) 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.

## **17.0 Preparation of Bids by the Bidders:**

- a) **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.
- b) **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 language.

## **18.0 Bid Prices and Discounts:**

- a) Bidders shall quote price inclusive of GST and all other applicable taxes. No extra calculation for discounts or other taxes will be done during evaluation.
- b) 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 and subcontracting (if any), delivery, construction, installation and completion of the Work. 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.
- c) Bidders are required to quote the price for the commercial, contractual and technical obligations outlined in the bidding document.
- d) Sales Tax, GST and all other taxes (as applicable) payable on the work should be indicated separately. In case of failure to indicate so AEGCL will consider such taxes are included in the Offered Price.
- e) Since the work being "work contract" which is one and individual and which involves no separate contract for the sale of materials, the contractor shall have not be entitled to get any VAT and or any other taxes, levies reimbursed from the AEGCL for the supply of the materials.
- f) Taxes like work contract, income tax etc. which need to be deducted at source as per the prevailing law of the land, will be deducted at source.
- g) **The Prices shall be FIXED and FIRM:**  
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. A bid submitted with an adjustable price quotation will be treated as non-responsive and rejected.

## 19.0 Mandatory Documents:

- i) Bidders(s) knowledge from actual personal investigation of the resources of the region or District (S) in which he/they offers the work.
- ii) The Bidder shall furnish copy of their **PAN Card**. In case the bidder is a partnership Firm, the **PAN card** must be in the name of firm.
- iii) In case the bidder is a partnership Firm, the **work experience, solvency and turn over** shall be in the name of **partnership Firm** only.
- iv) **GST registration No.**
- v) **Registered Power of attorney, if any.**
- vi) **IT Return for last three Years.**
- vii) **Audited Balance Sheet for last three years.**
- viii) **Bank Solvency Certificate of current financial year.**
- ix) **GTP of the equipment to be supplied.**
- x) **Manufacturer's authorization & warranty & Supplier's warranty.**

## 20.0 SCOPE OF WORK:-

20.1 **Intent of specification:** This section of the specification deals with the technical information & criteria for “**Procurement of one number 250KVA, 33/0.433 kV Outdoor Transformer, at 132/33 kV 220kV GSS Namrup, AEGCL**”. The Contractor's proposal shall be based on the use of materials complying fully with the requirements specified herein.

### 20.2 Scope of Works :-

The various activities under the scope of work shall among other related aspects cover the following:-

- a) Procurement of one number 250KVA, 33/0.433 kV Outdoor Transformer, at 132/33 kV 220kV GSS Namrup, AEGCL.
- b) Loading at manufacturer's works, transportation and delivery at the substation site, including unloading at destination site.
- c) Freight & Transit Insurance, storage at site and site insurance of all materials at site shall be in the scope of the contractor.
- d) Arrangements of any permits required for transportation and movement of supplied materials. However, AEGCL shall assist as far as practicable in the process.
- e) Transit insurance and insurance during storage at site till commissioning shall be in the scope of the contractor.

### 20.3 Supplier to Inform himself fully:-

- The supplier should ensure that he has examined the specifications and schedules as brought out in this section as well as other sections of the Bidding Document 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.
- The Purchaser shall not be responsible for any misunderstanding or incorrect information obtained by the contractor other than information given in writing by the Purchaser.

### 20.4 Service Conditions:-

The plant and materials supplied shall be suitable for operation under the following climatic and other conditions:

Peak ambient day temperature in still air	: 45°C
Minimum night temperatures	: 0°C
Reference ambient day temperature	: 45°C
Maximum Relative Humidity	: 100%
Minimum Relative Humidity	: 10%
Altitude	: Below 1000 M above MSL
Maximum Wind Pressure	: As per IS:802 latest code
Seismic Intensity	: ZONE-V as per IS 1893

### 20.5 Conformity with Indian Electricity Rules & Other Local Regulations:-

- The Supplier 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 regulations relating to such works shall be consulted, if necessary, about the rules and regulations that may be

applicable.

- 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.

## **20.6 Standards:-**

- The equipment covered under this Bidding Document 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.
- In case of any conflict between the standards and this specification, this specification shall govern.
- Equipment conforming to other International or authoritative Standards which ensure equivalent or better performance than that specified above shall be accepted. In that case relevant extracts of the same shall be forwarded with the bid.

## **20.7 Engineering Data:-**

- The furnishing of engineering data by the supplier shall be in accordance with the Bidding Document. The review of these data by the Purchaser will cover only general conformance of the data to the specifications and not a thorough review of all dimensions, quantities and details of the materials, or items indicated or the accuracy of the information submitted. This review by the Purchaser shall not be considered by the supplier as limiting any of his responsibilities and liabilities for mistakes and deviations from the requirements, specified under these specifications.
- All engineering data submitted by the supplier after review by the Purchaser shall or part of the contract document.

## **20.8 Drawings and Documents for approval:-**

- All necessary drawings and documents required for completion of the project is to be submitted by the contractor for approval. The drawings provided with bid (if any) are for indicative purpose only and fresh drawings are to be prepared by the contractor as per actual site condition after survey. The drawings and documents are to be approved by AEGCL before procurement or commencement of work.
- All drawings submitted by the Contractor including those submitted at the time of Bid shall be with sufficient detail to indicate the type, size, arrangement, dimensions, material description, Bill of Materials, weight of each component break- up for packing and shipment, fixing arrangement required, the dimensions required for installation and any other information specifically requested in these specifications.
- Each drawing submitted by the Contractor shall be clearly marked with the name of the Employer, the specification title, the specification number and the name of the Project. All titles, noting, markings and writings on the drawing shall be in English. All the dimensions should be to the scale and in S.I. units.
- **The drawings submitted for approval to the Employer shall be in quadruplicate.** One print of such drawings shall be returned to the Contractor by the Employer marked "approved/approved with corrections". The contractor shall there upon furnish the Employer additional prints as may be required along with one reproducible in original of the drawings after incorporating all corrections.
- The Contractor shall perform the work strictly in accordance with these drawings and no deviation shall be permitted without the written approval of the Employer, if so required.
- All manufacturing, fabrication and erection work under the scope of Contractor prior to the approval of the drawings shall be at the Contractor's risk. The contractor may make any changes in the design which are necessary to conform to the provisions and intent of the contractor and such changes will again be subject to approval by the Employer.
- The approval of the documents and drawings by the Employer shall mean that the Employer is satisfied that:
  - a) The Contractor has completed the part of the Works covered by the subject document (i.e. confirmation of progress of work).
  - b) The Works appear to comply with requirements of Specifications.
- In no case the approval by the Employer of any document does imply compliance with neither all technical requirements nor the absence of errors in such documents. If errors are discovered any time during the validity of the contract, then the Contractor shall be responsible of their consequences.
- For equipment and items in the scope of supply:
  - a) General arrangement drawing with full dimensions.
  - b) Electrical schematic diagram, where applicable.
  - c) Wiring diagram, where applicable.

- All Designs/Drawings/Calculations/Data submitted by the contractor, from time to time shall become the property of the Employer and Employer has the right to use or replicate such designs for future contracts / works without the permission of the Contractor. The Employer has all rights to use/ offer above designs/drawings/data sheets to any other authority without prior Permission of the Contractor.

## **20.9 Final Drawings and Documents:-**

The successful supplier shall require providing following documents and drawings for each bay constructed in printed form:

- Instruction manuals of all equipment in 3 (Three) copies. This instruction manual shall generally consist of*
  - *Operation Manuals*
  - *Maintenance Manuals and*
  - *Spare Parts Bulletins*
- Copies of routine test reports (in triplicate) of relevant equipment.*
- Final guaranteed and other technical particulars of relevant equipment.*

In addition to the above, the contractor shall provide **5 (Five) sets** of all drawings and documents to Purchaser in printed form for his reference and record.

## **20.10 Quality Assurance Documents:-**

- The contractor shall be required to submit all the quality assurance documents as stipulated in the quality plan at the time of Purchaser's inspection of equipment/material.
- The Purchaser or his duly authorized representatives reserves the right to carry out quality audit and quality surveillance of the systems and procedures of the contractors/his vendors quality management and control activities.

## **20.11 Employer's Supervision:-**

- To eliminate delays and avoid disputes and litigation it is agreed between the parties to the Contract that all matters and questions shall be resolved in accordance with the provisions of this document.
- The manufacturing of the product shall be carried out in accordance with the specifications. The scope of the duties of the Employer, pursuant to the contract, will include but not be limited to the following.
  - Interpretation of all the terms and conditions of these Documents and Specifications.
  - Review and interpretation of all the Contractors drawings, engineering data etc.
  - Witness or authorize his representative to witness tests at the manufacture's works or at site, or at any place where work is performed under the contract.
  - Inspect, accept or reject any equipment, material and work under the Contract, in accordance with the Specifications.
  - Issue certificate of acceptance and/or progressive payment and final payment certificate.
  - Review and suggest modification and improvement in completion schedules from time to time,
  - Supervise the Quality Assurance Programme implementation at all stages of the works.

## **20.12 Inspection and Inspection Certificate:-**

- The Employer, his duly authorized representative and/or outside inspection agency acting on behalf of the Employer shall have, at all reasonable times, access to the premises and works of the Contractor and their sub-contractor(s)/sub-vendors and shall have the right, at the reasonable times, to inspect and examine the materials and workmanship of the product during its manufacture.
- All routine and acceptance tests whether at the premises or works of the Contractor or of any Sub Contractor, the Contractor except where otherwise specified shall carry out such tests free of charge. Items such as labours, materials, electricity, fuel, water, stores apparatus and instruments as may be reasonably demanded by the Employer/inspector or his authorized representative to carry out effectively such tests in accordance with the Contract shall be provided by the Contractor free of charge.
- If desired by the Employer, the Contractor shall also carry out type tests as per applicable Standards for which Employer shall bear the expenses except in cases where such tests have to be carried out. The Contractor is required to quote unit rates of type test charges in a separate Schedule (if such schedule is provided in the Bidding Document). However, these type test charges shall not be taken into account in comparing Price Bid.
- The inspection by Employer and issue of Inspection Certificate thereon shall in no way limit the liabilities and responsibilities of the Contractor in respect of the agreed Quality Assurance Programme forming a part of the

Contract.

### **20.13 Tests:-**

- The type, acceptance and routine tests and tests during manufacture to be carried-out on the material and equipment shall mean as follows:
  - a) **Type Tests:** - Type Tests shall mean those tests, which are to be carried out to prove the process of manufacture and general conformity of the material to this Specification. These tests shall be carried out on samples prior to commencement of commercial production against the order. The Bidder shall indicate his schedule for carrying out these tests.
  - b) **Acceptance Tests:** - Acceptance Tests shall mean those tests, which are to be carried out on samples taken from each lot offered for pre-dispatch inspection, for the purposes of acceptance of that lot.
  - c) **Routine Tests:** - Routine Tests shall mean those tests, which are to be carried out on the material to check requirements, which are likely to vary during production.
  - d) **Tests during Manufacture:** - Tests during manufacture shall mean those tests, which are to be carried out during the process of manufacture and end inspection by the Contractor to ensure the desired quality of the end product to be supplied by him.
- The norms and procedure of sampling for these tests will be as per the Quality Assurance Programme to be mutually agreed to by the Contractor and the Employer.
- The standards and norms to which these tests will be carried out are specified in subsequent Sections of this Specification. Where a particular test is a specific requirement of this Specification, the norms and procedure of the test shall be as specified or as mutually agreed to between the Contractor and the Employer in the Quality Assurance Programme.
- For all type and acceptance tests, the acceptance values shall be the values specified in this Specification or guaranteed by the Bidder or applicable Standards, as applicable.

### **20.14 Type Test Reports:-**

- Materials, which have never been tested for critical performance, shall not be accepted. In such cases, a promise or agreement by a bidder to have the equipment tested after award of a contract is not acceptable.
  - All Bids must be accompanied by the Type Test Certificates of materials offered. Such type test certificates shall be acceptable only if:
    - i) Tests are conducted in an independent testing laboratory with NABL accreditation/CPRI,
    - ii) Tests are conducted in manufacture's own laboratory.
- In this case
- (a) The laboratory must have NABL accreditation; and
  - (b) Tests have been witnessed by technically qualified representatives of earlier clients or purchaser.
- Test reports to be acceptable must be related directly to the equipment offered i.e. it is fully identical in design, rating and construction with the equipment for which the type test certificates have been submitted. Test reports for higher class (by capacity/voltage.
- etc.) of equipment are acceptable with commitment to perform the type tests free of any charge on the particular equipment after the award of contract.
- **Type Test Reports older than five (5) years on the date of Technical bid opening shall not be accepted.**

### **20.15 Guaranteed Technical Particulars:-**

- The Guaranteed Technical Particulars of the various items shall be furnished by the Bidders with the Technical Bid in the prescribed Schedules attached in this bidding document. The Bidder shall also furnish any other information's as in their opinion is needed to give full description and details to judge the item(s) offered by them.
- The data furnished in Guaranteed Technical Particulars should be the minimum or maximum value (as per the requirement of the specification) required. A Bidder may guarantee a value more stringent than the specification requirement. However, for testing purpose or from performance point of view, the material shall be considered performed successfully if it achieves the minimum/maximum value required as per the technical specification. No preference whatsoever shall be given to the bidder offering better/more stringent values than those required as per specification except where stated otherwise.

## **20.16 Materials Handling and Storage:-**

- 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.
- 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.
- 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.
- 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 so as to avoid damage of such materials at Site.
- All the materials stored in the open or dusty location must be covered with suitable weather-proof and flameproof covering material wherever applicable.
- The Contractor shall be responsible for making suitable indoor storage facilities, to store all items/materials, which require indoor storage.
- 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.

## **21.0 TECHICAL SPECIFICATION OF 250KVA, 33/0.433KV STATION TRANSFORMER**

### **21.1 TYPE TEST REPORTS**

- (1) Equipment, which have never been type tested, shall not be accepted. In such cases, a promise or agreement by a bidder to have the equipment tested after award of a contract is not acceptable.
- (2) All Bids must be accompanied by the full Type Test Certificates of equipment offered. Such type test certificates shall be acceptable only if,
  - (a) Tests are conducted in an independent and well known testing laboratory, or
  - (b) Tests are conducted in manufacturer's own laboratory.
  - (c) In this case,
    - (i) the laboratory must have ISO 9000 (or its equivalent) series certification; and
    - (ii) tests have been witnessed by technically qualified representatives of earlier clients or purchaser.
- (3) Test reports to be acceptable must be related directly to the equipment offered. The Bidder shall furnish type test reports with the technical bid such as relevant drawings and specification so that test reports can be linked to the offered equipment. Test reports for a similar or higher class of equipment are acceptable with a commitment to perform the type test on the particular equipment after the contract is awarded, free of any charges.
- (4) The above said test reports submitted with the offer shall not be older than five years, prior to the date of opening of bid. *Type Test Reports older than five (5) years on the date of Technical bid opening shall not be accepted.*

### **21.2 GUARANTEED TECHNICAL PARTICULARS**

#### **STANDARD**

**21.2.1** The equipment covered by this specification shall, unless otherwise stated be designed, constructed and tested in accordance with the latest revisions of relevant Indian Standards indicated below or equivalent IEC and shall conform to the regulations of local statutory authorities except to the extent explicitly modified in this specification

**21.2.2** In case of any conflict between the Standards and this specification, this specification shall govern.

**21.2.3** The transformer shall comply with the latest issue of the following Indian standard.

- (i). IS: 2026 Specification of Power Transformers
- (ii). IS1180 (Part-1):2014 Outdoor type Oil Immersed Distribution Transformers upto and including 2500 KVA, 33 kV – Specification.

- (iii). IS: 335 Specification for Transformer Oil.
- (iv). IS: 12444 Specification for Copper Wire Rod
- (v) IS:3347 Specification for Porcelain Transformer Bushing.
- (vi) IS: 2099 Specification for High Voltage Porcelain Bushings.
- (vii) IS: 7421 Specification for Low Voltage Bushings.
- (viii) IS: 9335 Specification for Insulating Kraft Paper.
- (ix) IS: 1576 Specification for Insulating Press Board
- (x) IS: 6600 Guide for Loading of Oil Immersed Transformers.

## 21.3 GENERAL TECHNICAL REQUIREMENTS:-

### 21.3.1 INTRODUCTION:-

- a) The Transformers shall be of outdoor, three phase, 50 Hz, oil immersed, self-cooled and suitable for use in the geographic and meteorological conditions as given in Clause 25.1. The Transformers shall be suitable for mounting on RCC Pedestal.
- b) The transformer shall be suitable for continuous operation with a frequency variation of (+/-) 3% from normal 50 Hz. Combined voltage and frequency variation should not exceed the rated V/f ratio by 10%.

### 21.3.2 TECHNICAL DATA SHEET FOR TRANSFORMERS

No.	DESCRIPTION	PARAMETER
1	Rated capacity, KVA	250 KVA (BIS Level-2 as per Amendment 4)
2	Rated Voltage	
	(a) HV, kV	33
	(b) LV, kV	0.433
3	Type of Winding	Two Winding Transformer
4	Service	Outdoor
5	No of Phases	Three
6	Frequency, Hz	50
7	Type of Cooling	ONAN
8	Vector Group	Dyn11
9	CONNECTION HV/LV	DELTA/STAR
10	TAPPING FOR HV VARIATIONS	As per Amendment-4 & IS 1180 (part-1):2014
11	Max. Temp. Ambient Rise	AS PER IS 1180 (Part -1): 2014
	(a) Oil (Temperature rise measurement by thermometer), degree celsius	40
	(b) Winding (Temperature rise Measurement by resistance method)	45
12	Service	OUTDOOR
13	MATERIAL OF WINDING	COPPER
14	OTHER INFORMATIONS	AS REQUIRED
15	TERMINAL ARRANGEMENT	
	a) HV Side	BUSHING
	LV Side	BUSHING
16	Min. Clearance in Air	
	(a) Ph-Ph (HV/LV), mm	As per clause 21.3.5
	(b) Ph-Earth (HV/LV), mm	
17	Rated Basic Insulation Level (BIL) (in kVn)	170
18	Losses and Impedance Values	
	Losses	The permissible total loss values shall not exceed by 7½ percent of the

		maximum total loss values mentioned in Table 1
	<b>b) Impedance Values</b>	The recommended percent impedance at 75°C for different ratings shall be as Table 1

**Table 1 Maximum Total Losses**

Sl No.	Rating(KVA)	Impedance(%)	<u>Energy Efficiency level 1</u>		<u>Energy Efficiency level 2</u>		<u>Energy Efficiency level 3</u>	
			50% Load	100% Load	50% Load	100% Load	50% Load	100% Load
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	250	4.50	1 050	3 150	980	2 930	920	2 700

### 21.3.3 STANDARD MATERIALS

**Major material used in the transformer shall conform to the following Indian Standards:**

- Cold rolled grain oriented electrical steel – IS 3024
- Amorphous core material – (IS under preparation)
- Copper/Aluminum conductor – IS 191, IS 1897, IS 7404, IS 12444, IS 13730/IS 6162 series as given in Annex A.
- Kraft paper – IS 9335 series as given in Annex A.
- Press board – IS 1576
- Mineral oil – IS 335

NOTE — Use of other insulating liquids namely natural ester, synthetic organic ester IS 16081 subject to agreement between the user and the supplier.

### 21.3.4 TERMINAL ARRANGEMENT

#### For Three Phase Transformers

- The transformers shall be fitted on high voltage and low voltage sides with outdoor type bushings of appropriate voltage and current ratings. The high voltage bushings (3 Nos.) shall conform to IS 2099. The low voltage bushings (4 Nos.) shall conform to IS 7421. Alternatively, the low voltage side may be made suitable for adoption of PVC/XLPE cables of suitable size.
- If required by the user, a suitable cable-end box may be provided on the high voltage end or low voltage side.
- Gaskets shall be made of synthetic rubber or synthetic rubberized cork resistant to hot transformer oil.
- The dimensions of bushings of the following voltage classes shall conform to the following Indian Standards mentioned against them:

<i>Voltage Class</i>	<i>For Porcelain Parts</i>	<i>For Metal Parts</i>
Up to 1.0 kV bushings	IS 3347 (Part 1/Sec 1)	IS 3347 (Part 1/Sec2)
3.6 kV bushings	IS 3347 (Part 2/Sec 1)	IS 3347 (Part 2/Sec 2)
12 kV bushings	IS 3347 (Part 3/Sec 1)	IS 3347 (Part 3/Sec 2)
24 kV bushings	IS 3347 (Part 4/Sec 1)	IS 3347 (Part 4/sec 2)
36 kV bushings	IS 3347 (Part 5/Sec1)	IS 3347 (Part 5/Sec 2)

- Marking and Relative Positions of Terminals: Appropriate characters in accordance with IS 2026 (Part

1) shall be indelibly marked upon or adjacent to terminals.

### 21.3.5 MINIMUM CLEARANCES IN AIR

The minimum phase-to-phase and phase-to-earth external clearances for LV and HV bushings shall be as per Table below.

#### External (Air) Clearances Between Bushings Mounted on Transformers

Nominal System Voltage (1)	Phase-to-Phase Clearance in mm (2)	Phase-to-Earth Clearance in mm (3)
Up to 1.1 kV	<b>75</b>	<b>40</b>
11 kV	<del>255</del>	<b>140</b>
22KV	330	230
33 kV	350	320

**For transformers with air filled cable-end box/ connection chamber, the phase-to-phase and phase-to- earth clearance shall be as per below.**

Nominal System Voltage (1)	Phase-to-Phase Clearance in mm (2)	Phase-to-Earth Clearance in mm (3)
Up to 1.1 kV	25	20
11 kV	130	80
22 kV	240	140
33 kV	350	220

### CONNECTORS (APPLICABLE FOR BARE BUSHING TERMINATIONS ONLY)

Wherever specified, suitable bimetallic connectors (clamp type) shall be provided on both HV and LV side in order to ensure sound and robust connection.

### 21.3.6 MARKING

#### Rating Plate

Each transformer shall be provided with rating plate made of anodized aluminium/stainless steel material securely fixed on the outer body, easily accessible, showing the information given in Fig. 1 The entries on the rating plate shall be indelibly marked for example, by etching, engraving or stamping.

#### Terminal Marking Plate

Each transformer shall be provided with a terminal marking plate in accordance with Fig. 2.

- The rating and terminal marking plates may be combined into one plate at the option of the manufacturer.
- The distribution transformer may also be marked with the Standard Mark.
- The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

### 21.3.7 MOUNTING ARRANGEMENT

- The under-base of all transformers beyond 200 kVA shall be as per Fig. 3 to make them suitable for mounting on rollers.
- Suitable pole mounting arrangement may be alternatively provided for 3 phase transformers upto 500 kVA, subject to agreement between user and supplier.
- Single phase transformers are pole mounted type and shall be provided with two mounting lugs suitable for fixing the transformer to a single pole by means of two bolts of 20 mm diameter.

Both mounting lugs are made with steel of minimum 5 mm thickness.

### 21.3.8 TRANSFORMER TANK

#### Construction

- For non-sealed or sealed type transformer, transformer tank can be of plain tank configuration with/without radiator fins or cooling tubes. The tank can also be made of corrugated panels of adequate thickness, also used for cooling. The transformer tank covers shall be bolted/clamped alternatively welded with tank rim so as to make a leak proof joint. The curb design in case of welded construction shall be such that it is possible to remove the weld and reweld the tank at least two times.
- The transformer tank shall be of adequate mechanical strength to withstand positive and negative pressures built up inside the tank while the transformer is in operation.
- All welding operations shall be carried out by qualified welders.
- The tank design shall be such that the core and windings can be lifted freely.

The diagram shows a rectangular rating plate for a three-phase transformer. The overall dimensions are 105 mm in width and 105 mm in height. The inner frame is 95 mm wide and 95 mm high. There are four mounting holes, each with a diameter of 3.6 mm, located at the corners. The plate contains the following text and fields:

- DISTRIBUTION TRANSFORMER**
- MANUFACTURER'S NAME** (field)
- 3 PHASE TRANSFORMER**
- STANDARD** IS 1180 (PART 1)
- KVA** (field)
- VOLTS AT NO LOAD** (fields for HV and LV)
- BIL** (fields for HV and LV)
- AMPERES** (fields for HV and LV)
- FREQUENCY** Hz 50
- VECTOR GROUP** Dyn 11
- IMPEDANCE VOLT %** (field)
- TAPPINGS** OFF CKT. / ON LOAD
- FOR HV VARIATION** IN (field) STEPS FROM (field) % TO (field) %
- CUSTOMER** (field)
- ORDER NUMBER** (field)
- ENERGY EFFICIENCY LEVEL** (field)
- MAX. TOTAL LOSSES AT 50% RATED LOAD** W (field)
- MAX. TOTAL LOSSES AT 100% RATED LOAD** W (field)
- TYPE OF COOLING** ONAN
- TEMP RISE** (fields for OIL °C and WDG °C)
- MASS OF OIL** kg (field)
- TOTAL MASS** kg (field)
- VOL OF OIL** l (field)
- MONTH & YEAR OF MFG.** (field)
- SERIAL NO.** (field)
- MADE IN INDIA**

All dimensions in millimetres.

FIG. 1 RATING PLATE FOR THREE PHASE TRANSFORMERS

### 21.3.9 Pressure and Vacuum Requirements

- For transformers above 200 kVA plain tank shall be capable of withstanding a pressure of 80 kPa and a vacuum of 500 mm of mercury. Limiting values of the deflections are specified in 23.5.1.
- For three phase transformers up to 2 500 kVA, transformer tanks with corrugations shall be designed for a pressure of 15 kPa measured at the top of the tank with no leakage.
- All bolts/nuts/washers exposed to atmosphere shall be as follows:
  - Size 12 mm or below — stainless steel.
  - Above 12 mm — steel with suitable finish like electro galvanized with passivation or hot dip galvanized.

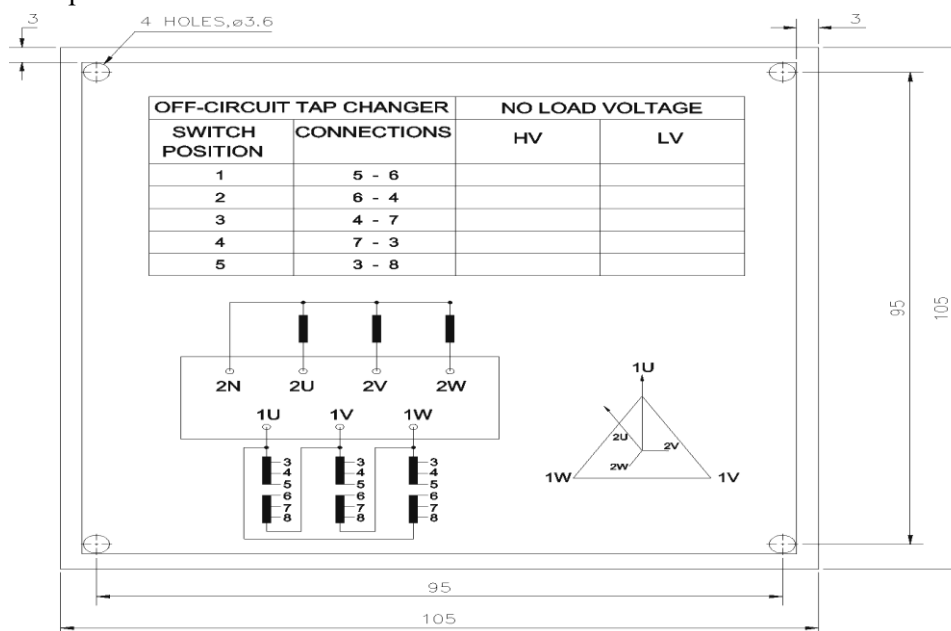
- d. Gaskets wherever used shall conform to Type III as per IS 11149/Type C as per IS 4253 (Part 2).
- e. Inside of tank shall be painted with varnish or oil resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. Table below shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be subject to agreement between the user and the transformer manufacturer.

### **Paint Scheme for Distribution Transformers**

I No.	Paint Type	Area to be Painted	No. of Coats	Total Dry Film Thickness, <i>Min</i> (microns)
(1)	(2)	(3)	(4)	(5)
i)	Thermo setting powder paint	Inside	01	30
		Outside	01	60
ii)	Liquid paint			
	a) Epoxy (primer)	Outside	01	30
	b) Polyurethane (finish coat)	Outside	02	25 each
	c) Hot oil resistant paint/varnish	Inside	01	35 / 10

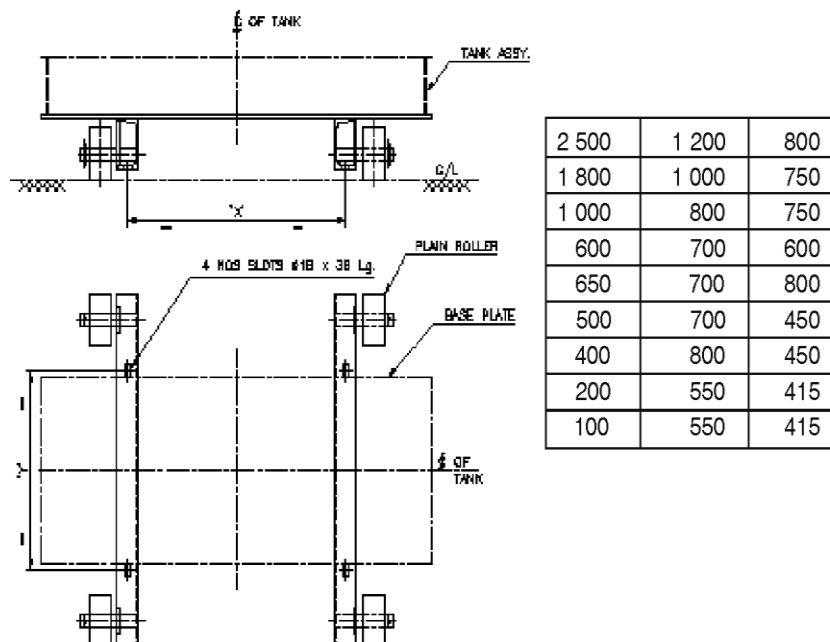
### **21.3.10 CONSERVATOR FOR NON-SEALED TYPE TRANSFORMERS**

- a) Transformers of ratings 63 kVA and above with plain tank construction, the provision of conservator is mandatory. For corrugated tank and sealed type transformers with or without inert gas cushion, conservator is not required.
- b) When a conservator is provided, oil gauge and the plain or dehydrating breathing device shall be fixed to the conservator which shall also be provided with a drain plug and a filling hole ( $1\frac{1}{4}$ " normal size thread) with cover. The capacity of a conservator tank shall be designed keeping in view the total quantity of oil and its contraction and expansion due to temperature variations. In addition, the cover of main tank shall be provided with an air release plug to enable air trapped within to be released, unless the conservator is so located as to eliminate the possibility of air being trapped within the main tank.
- c) The inside diameter of the pipe connecting the conservator to the main tank should be 25 to 50 mm and it should be projected into the conservator so that its end is at least 20 mm above the bottom of the conservator so as to create a sump for collection of impurities. The minimum oil level corresponding to  $-5^{\circ}\text{C}$  should be above the sump level.



All dimensions in mm.

**Fig 2 TERMINAL MARKING PLATE FOR THREE PHASE TRANSFORMERS WITH TAPS**



All dimensions in millimetres.

NOTE — Bidirectional rollers can also be used as per mutual agreement between the user and the supplier.

FIG. 3 MOUNTING DIMENSIONS OF TRANSFORMERS BEYOND 200 kVA.

### 21.3.11 **ABILITY OF TRANSFORMERS TO WITHSTAND EXTERNAL SHORT CIRCUIT**

The performance of transformer under external short- circuit conditions shall be in accordance with IS 2026 (Part 5).

### 21.3.12 **EFFICIENCY AND REGULATION**

When statements of efficiency and regulations are required they shall be based on specified loading at the rated kVA and unity power factor and computed in accordance with Annex B and Annex C respectively.

NOTE — Efficiency and regulations at other power factors as agreed between the user and supplier shall also be computed

### 21.3.13 **TOLERANCES**

The tolerance on electrical performance excluding losses shall be as given in IS 2026 (Part 1).

## 22 **FITTINGS**

### 22.1 **Standard Fittings**

The following standard fittings shall be provided:

- Two earthing terminals with the earthing symbol =| ;
- Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature;

#### NOTES

- Minimum and maximum positions correspond to the operating temperature of –5°C and 90°C respectively (for non-sealed type transformer).
- Minimum position corresponds to the operating temperature of 30°C (for sealed type transformers).
- Air release device (for non-sealed type transformers)
- Rating and terminal marking plates;
- Plain breathing device for non-sealed type transformers which would not permit ingress of rain water and insects up to 200 kVA transformers. Above 200 kVA transformers dehydrating breather shall be provided;
- Drain-cum-sampling valve ( $\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers;
- Thermometer pocket with cap;
- Lifting lugs for the complete transformer as well as for core and winding assembly;

- m) Pressure relief device or explosion vent above 200 kVA;
- p) One filter valve on the upper side of the tank (for transformers above 200 kVA);
- q) Unidirectional flat rollers (for transformers above 200 kVA);
- r) Inspection hole (for transformers above 200 kVA);
- s) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth);

## **22.2 Optional Fittings**

The following shall be available as additional fittings at the option of the user wherever specified:

- a) Dehydrating breather in lieu of plain breathing device for transformers up to 200 kVA;
- b) Filter valve (1¼" nominal size thread) for transformers up to 200 kVA;
- c) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. for transformers up to 200 kVA;
- d) Bird guard;
- e) Terminal connectors;
- f) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA;
- g) Jacking pads (for transformer above 1 600 kVA);
- h) Buchholz relay (for transformers above 200 kVA);
- i) Magnetic oil level gauge (for transformer above 1 600 kVA) with low oil level alarm contact;
- j) Non return valve (for conducting pressure test);
- k) Pressure relief device or explosion vent (up to 200 kVA);

NOTE — IS 3639 describes some of the fittings and accessories.

## **23 TESTS**

### **23.1 General**

All routine, type and special tests as described in **23.2** to **23.4** shall be performed as per relevant parts of IS 2026. Pressure and oil leakage test shall be conducted as per **23.5**.

**23.2 Routine Tests** (to be conducted on all units) The following shall constitute the routine tests:

- a) Measurement of winding resistance [IS 2026 (Part 1)].
- b) Measurement of voltage ratio and check of phase displacement [IS 2026 (Part 1)].
- c) Measurement of short-circuit impedance (principal tapping, when applicable) and load loss at 50 percent and 100 percent load [IS 2026 (Part 1)].
- d) Measurement of no-load loss and current [IS 2026 (Part 1)].
- e) Measurement of insulation resistance [IS 2026 (Part 1)].
- f) Induced over-voltage withstand test [IS 2026 (Part 3)].
- g) Separate-source voltage withstand test [IS 2026 (Part 3)].
- h) Pressure test (see **23.5**).
- j) Oil leakage test (see **23.5**).

**23.3 Type Tests** (to be conducted on one unit) The following shall constitute the type tests:

Lightning impulse test [IS 2026 (Part 3)].

- a) Temperature-rise test [IS 2026 (Part 2)]. NOTE — Maximum measured total loss (No load at rated excitation + load loss at maximum current tap converted to 75 °C reference temperature) at 100 percent loading shall be supplied during temperature rise test.
- b) Short-circuit withstand test [IS 2026 (Part 5)] (up to 200 kVA).  
NOTE — Routine tests before and after short circuit test shall be conducted as per IS 2026 (Part 1).
- c) Pressure test (see **23.5**)

**23.4 Special Tests** (to be conducted on one unit)

The following shall constitute the special tests which shall be carried out by mutual agreement between the user and the supplier.

- a) Determination of sound levels [IS 2026 (Part 10)]
- b) Short-circuit withstand test [IS 2026 (Part 5)] (above 200 kVA)

NOTE — Routine tests before and after short circuit test shall be conducted as per IS 2026 (Part 1).

- c) No load current at 112.5 percent voltage.
- d) Paint adhesion tests. The test is performed as per ASTM D3359 (Standard Test Methods for measuring adhesion by Tape test).
- e) BDV and moisture content of oil in the transformer (IS 335).

NOTE — Tests at (d) and (e) may be carried out on more than one unit subject to agreement between user and supplier.

### **23.5 Pressure and Oil Leakage Test**

#### **23.5.1 For Transformers Above 200 kVA and Up to Including 2 500 kVA**

##### **23.5.1.1 Pressure test (Type test)**

For non-sealed and sealed type transformers, the transformer tank subjected to air pressure of 80 kPa for 30 min and vacuum of 500 mm of mercury for 30 min. The permanent deflection of flat plate, after pressure/vacuum has been released, shall not exceed the values given below.

Length of Plate	Deflection
Up to 750 mm	5.0 mm
751 mm to 1 250 mm	6.5 mm
1 251 mm to 1 750 mm	8.0 mm
Above 1 751 mm	9.0 mm

##### **23.5.1.2 Pressure test (routine test)**

###### **23.5.1.2.1 Plain tanks**

The transformer tank with welded/bolted cover shall be tested at a pressure of 35 kPa above atmosphere pressure maintained inside the tank for 10 min. There should be no leakage at any point.

###### **23.5.1.2.2 Corrugated tanks**

The corrugated transformer tank shall be tested for air pressure of 15 kPa above atmosphere pressure maintained inside the tank for 10 min. There should be no leakage at any point.

###### **23.5.1.3 Oil leakage test (routine test)**

The assembled transformer for non-sealed and sealed type with all fittings including bushing in position shall be tested at a pressure equivalent to twice the normal head measured at the base of the tank for 8 h. There should be no leakage at any point. Tank with corrugations shall be tested for oil leakage test a pressure of 15 kPa measured at the top of the tank for 6 h. There should be no leakage at any point.

## **24.0 DOCUMENTATION**

The successful bidder shall submit drawings for AEGCL approval. The following drawing shall be supplied with the tender: -

- a) Outline drawings of all apparatus showing sufficient details to enable the purchaser to determine whether the design proposed can be installed satisfactorily or not.

### **24.1 Contract Agreement:**

An agreement shall have to be drawn on non-judicial stamp of appropriate value with the Department by the selected Contractor in AEGCL's General Conditions of Supply and Erection 2009 of contract within 15 (fifteen) days from the date of issue of the LOI/Work Order.

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

### **24.2 Liquidated Damage:**

The date of completion of work shall be deemed to be the essence of the contract and shall not be completed no later than the date specified in the contract. In case of failure to complete the work within the stipulated

period AEGCL shall be entitled to:

- a. Recover an amount at the rate of 1% (One percent) of the Contract Price per week or part thereof of delay, subject to maximum of 10% (Ten percent) of the contract price as liquidated damage to AEGCL. However, the payment of liquidated damages shall not in any way relieve the Contractor from any of its obligations to complete the works or from any other obligations and liabilities of the Contractor under the Contract.
- b. To complete the balance work giving notice to the Contractor/Firm and to recover any extra expenditure incurred thereby for having to complete the work at a higher price at the risk and responsibility of the Contractor/Firm.
- c. Contractual failure: - Refer clause No.27.1 of AEGCL's General Conditions of supply and erection 2009.

## **25.0 PERT Chart and/or BAR Chart:**

The successful bidder within 10 (ten) days before the contract is awarded will make out a detailed PERT Chart covering all activities along with detailed program chart on accepted scheme indicating various stages of execution, method of execution and completion of work in different stages keeping the period of completion in view and submit the same to the Engineer for the consideration and approval.

## **26.0 Insurance:**

The bidder shall arrange for any pay/cost of personnel accident insurance, medical treatment etc. in respect of their employees assigned to the works for all time and shall govern by Law of land.

## **27.0 Warranty**

- 27.1 The Supplier/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.
- 27.2 The Supplier/Manufacturer further warrants that the Goods shall be free from defects arising from any act or omission of the Supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination. The supplier will provide warranty for the works executed by them.
- 27.3 If during the Period Warranty any defect is found, the Purchaser shall give Notice to the Supplier/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 Supplier/Manufacturer to inspect such defects.
- 27.4 If having been notified, the Supplier/Manufacturer fails to remedy the defect within a period of 15 (fifteen) days, the Purchaser may, following notice to the Supplier/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 Supplier or may be deducted by the Purchaser from any amount due the Supplier or claimed under the Performance Security.
- 27.5 The term period of warranty shall mean the period of **18 months from the date of completion of work**. The successful bidder should warrant the free replacement of any damaged/malfunctioning equipment and its accessories during the warranty period.
- 27.6 The dispatch clearance of materials will be issued from AEGCL and after ONLINE/OFFLINE inspection from AEGCL.

## **28.0 Safety:**

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. As the contract is Turnkey in nature hence AEGCL will not bear any responsibility towards such claim.

## **29.0 Pollution:**

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.

### 30.0 Payment terms:

<b>30.1.0</b>	<b>Payment terms:</b>
31.1.1	No advance/Mobilization advance shall be made in this contract.
31.1.2	First & Final bill for supply & Erection will be entertained only after 100% completion of the works.
31.1.3	Payment will be made by DGM, Silchar T&T Circle, AEGCL, Silchar. The Bidder / Firm will have to be submitted the following Net Banking details. (a) Banker's Name & Branch (b) Account No (c) Banker's address (d) Banker's IFSC Code (e) Banker's RTGS Code
<b>30.2.0</b>	<b>Performance security deposit:</b>
30.2.1	The successful bidder shall have to deposit through a <b>Bank Guarantee/Demand Draft</b> from a Nationalized or scheduled Bank of RBI in AEGCL's standard proforma 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, immediately within 10 (ten) days from the issue of the letter of intent/detailed orders (as the case may be), duly pledged in favour of <b>AEGCL, Bijulee Bhawan, Paltanbazar, Guwahati-01</b> , and such security deposit shall be valid up to 30 days beyond the warranty period of 18 (Eighteen) months. The Bank Guarantee (BG) should be submitted to the <b>O/O the Deputy General Manager, T&amp;T Circle, AEGCL, Dibrugarh.</b>
30.2.2	Please note that, if the selected Bidder / Firm fail to furnish the requisite performance security as stated above and signs the contract within the stipulated period, 10 percent security money will be deducted from the total Bill value.
30.2.3	If the bidder / 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.
30.2.4	No interest shall be payable on such deposits.

### 31.0 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.

### 32.0 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 to be by an arbitrator appointed by AEGCL. The contractor shall not stop the work during settlement of any dispute. All disputes shall be subjected to the jurisdiction of District Court of Cachar District.

### 33.0 Right to Reject:

AEGCL reserves the right to reject any or all the bids without assigning any reason thereof and the AEGCL further reserves the right to split up the work order in favour of more than one Contractor. The 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 document (bid) 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](http://www.aegcl.co.in) under Acts, Rules and Policies Tab.**

## **Appendix-1 Letter of Technical Bid**

[Bidder's Letter head]

Date: \_\_\_\_\_

Tender No.: \_\_\_\_\_

Invitation for Bid No: \_\_\_\_\_

To: \_\_\_\_\_

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Document, including Addenda No.: \_\_\_\_\_.
- (b) We offer to supply in conformity with the Bidding Document and in accordance with the completion/delivery schedule specified in the bid document, the following Goods and Related Services: \_\_\_\_\_.
- (c) Our Bid shall be valid for a period of \_\_\_\_\_ days from the date fixed for the bid submission deadline in accordance with the Bidding Document, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (d) If our Bid is accepted, we commit to obtain a Performance Security in the amount of \_\_\_\_\_ per cent of the Contract Price for the due performance of the Contract;
- (e) We are not participating, as Bidders, in more than one Bid in this bidding process;
- (f) We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed.
- (g) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible by AEGCL, APDCL or APGCL under the Employer's country laws or official regulations
- (h) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Name \_\_\_\_\_

In the capacity of \_\_\_\_\_

Signed \_\_\_\_\_

Duly authorized to sign the Bid for and on behalf of \_\_\_\_\_

Date \_\_\_\_

## **Price Proposal Submission Sheet**

Date: \_\_\_\_\_

Tender No.: \_\_\_\_\_

Invitation for Bid No: \_\_\_\_\_

To: \_\_\_\_\_

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Document, including Addenda No.: \_\_\_\_\_

(b) We offer to supply in conformity with the Bidding Document and in accordance with the completion/delivery schedule specified Schedule of Supply & Erection, the following Goods and Related Services: \_\_\_\_\_

(c) The total price of our Bid, excluding any discounts offered in item (d) below is: \_\_\_\_\_

(d) The discounts offered and the methodology for their application are: \_\_\_\_\_

(e) The following commissions, gratuities, or fees have been paid or are to be paid with respect to the bidding process or execution of the Contract:

Name of Recipient	Address	Reason	Amount

(If none has been paid or is to be paid, indicate “none.”)

Name \_\_\_\_\_

In the capacity of \_\_\_\_\_

Signed \_\_\_\_\_

Duly authorized to sign the Bid for and on behalf of \_\_\_\_\_

Date \_\_\_\_\_

## **Bidding Forms**

**Name of work:** \_\_\_\_\_

**Bid Identification No:** \_\_\_\_\_

### **General**

- (i) Name of the Firm/Contractor:
- (ii) Full Address:
- (iii) Constitution of the Firm:
- (iv) Whether Partnership or any type:

### **A) Experience**

- (i) No of years the Firm/Contractor has been in operation under its present name.
- (ii) Details of work executed/being executed by the tenderer in the last three years.
- (iii) Testimonials from Clients Company on various works executed for the last three

years. (Details of works executed/under execution in the last three years including another department)

Sl. No.	Name of work & W/O No.	Worked Done Under	Value of Work	Specified date of completion	Present status/completed on

### **B) Financial Position**

- (i) Financial Turnover during the last three years (copies of Audited Annual report, Accounts or a statement duly certified by a chartered accountant and Income Tax return.

Year	Turn over

Any other details that the tenderer may like to furnish to substantiate their financial and technical ability to undertake this work and complete the same within stipulated period of completion.

Name of the Bidder:.....

Signature of the Bidder/Firm .....

Full Name .....

Postal Address .....

Phone/Mobile No. ....

## **ANNEXURE – I**

**Following information is to be furnished in the ‘Technical and Commercial bid’ as first page.** (Please tick mark where necessary.)

1)	Earnest money (EMD)	:Submitted/Not submitted
	a) Amount of EMD	:Rs.
	b) Submitted in the form of Bank Guarantee /Demand Draft	: Yes/No.
2)	Validity of the offer	: ..... days from the date of opening of ‘Technical & Commercial Bid’ & ‘Price
3)	Nature of price offered	
	i) ‘FIRM’ Price	: Yes/No
4)	Terms of payment (Whether agreeable to accept payment as specified in clause- <b>26.0</b> )	: Yes/No
5)	Date of completion of supply (Please specify the date of completion of supply as per specification)	: Yes/No
6)	‘Security and performance guarantee’ (Whether agreeable to accept as specified in Clause no- <b>27.0</b> )	: Yes/No
7)	List of orders executed for similar works furnished	: Yes/No
8)	Performance certificate from the Govt./Govt. undertaking furnished	: Yes/No
9)	Deviation from the specifications	
	a) Technical	: Yes/No
	b) Commercial	: Yes/No
10)	Information in respect of technical capability is furnished	: Yes/No
11)	Information in respect of Financial capability certificate from the Banker is furnished	: Yes/No
13)	PAN card as per Cl. No. <b>19.0 (ii)</b>	: Yes/No
14)	GST registration no. as per Cl. No. <b>19.0 (iv)</b>	: Yes/No
15)	Registered Power of Attorney as per <b>Cl.no. 19.0 (v)</b> enclosed.	: Yes/No

Name of the Bidder: -.....

Signature of the Bidder/Firm .....

Full Name.....

Postal Address .....

Phone/Mobile No. ....

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

S.N	Particulars	Details
1	Name of Manufacturer	
2	Type of Transformer	
3.	Reference Standards	
4	Rating	
5.	Type of Winding	
6.	Rating Voltage : a)HV Winding b)LV Winding	KV
7.	Rating Frequency	Hz
8.	Number of phase	
9.	Rated current :	H V L V
10	Connections : a)HV Winding b)LV Winding	
11.	Connection symbol	
12.	Type of cooling	
13.	Tap changing equipment a)Manufacturer b)Lv –variation(+5% to - 5% allowable) c)Type d)No. of steps(min 4steps)	
14.	Guaranteed positive sequence impedance at 75 Deg. C. with 100 %rating at Principal tap :	
15.	Temperature rise over an ambient of 50deg. C. a)Oil temperature Deg. C. b) Winding (by resistance measurement method) Deg. C.	
16.	Guaranteed losses at rated voltage (excluding cooler loose) on principal tap and at rated frequency.(bidder should offer no load loss & load losses separately) a)No load loss or iron loss. b) Copper loss at full load at 75 Deg. C. c) Total losses	
17.	Core Material	
18.	Withstand time for three phase short circuit at terminals (secs.) NOTE:- The Xmer is protected by means of DO fuses as such the fault clearance is not rapid . The Xmer must be designed with proper supports for	

## **BID**

(To be submitted in the Part-II, 'Price bid' in sealed envelope in quadruplicate)

**Name of the Bidder:**

**NIT No.** AEGCL/DGM/TTC/DBR /TC-02/2026/4247,

**Dated: 09/02/2026**

**Name of the work:** Procurement of one number 250KVA, 33/0.433 kV Outdoor Transformer, at 132/33 kV 220kV GSS Namrup, AEGCL.

Sl. No.	Item description	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
1	250KVA, 33/0.433 kV, THREE PHASES, 50C/S copper wound transformer with all accessories and with first filling of transformer. BIS Level-2 as per Amendment-4 & IS 1180 (part-1):2014	No	1			
2	Transportation Charge of transformer	Job	1			
3	Unloading Charge	Job	1			
Total Amount Rs.						
Add GST @18% Rs.						
Grand Total Amount Rs.						
Amount in words: Rupees						

Name of the Bidder: .....

Signature of the Bidder/Firm .....

Full Name .....

Postal Address.....

Phone/Mobile No. ....

