



**PUNJAB STATE TRANSMISSION CORPORATION LIMITED,**  
**Regd. Office: PSEB Head Office, The Mall, Patiala-147001**  
**Office of Chief Engineer /Transmission System,**  
**3<sup>rd</sup> Floor, Shakti Sadan, The Mall, Patiala-147001**

Telephone: 0175-2303676

e.mail [ce-tl@pstcl.org](mailto:ce-tl@pstcl.org)

FAX 0175-2301536

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TELEPHONES : Dy. CE/ TRANS. SYSTEM (DESIGN) - 2207774 (DIRECT)

TELEGRAM : PUNJDETRANS

E-MAILED ID : se-trd@pstcl.org

**TENDER ENQUIRY NO. STQ- 4006 / 2014-15**

**SPECIFICATION AND GENERAL INSTRUCTIONS FOR THE MANUFACTURE, TESTING, SUPPLY & DELIVERY OF 200 KVA 11/0.433 KV STACK CORE TYPE 4- STAR RATED ALUMINIUM WOUND TRANSFORMERS.**

**DUE DATES AND TIME FOR:**

- i) Downloading of Tender Specification : 14.03.2015 up to 11.00 Hrs.
- ii) Receipt of tenders : 17.03.2015 up to 11.00 Hrs.
- iii) Opening of tenders : 17.03.2015 at 11.30 Hrs.
- iv) Cost of tender documents : Rs 1000/- (Rs One thousand only)

200 KVA 11/0.433 KV TRANSFORMER = 10 Nos.
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PRICE: RS. 1000/- (RUPEES ONE THOUSAND ONLY)

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**PUNJAB STATE TRANSMISSION CORPORATION LTD.  
TENDER NOTICE**

Department Name	Transmission System, PSTCL, Patiala
Tender Specification No.	STQ- 4006 / 2014-15
Tender Issuing Authority	Chief Engineer/TS
Address Detail of Issuing Authority	Chief Engineer/TS, 3 <sup>rd</sup> Floor, Shakti Sadan, PSTCL, Patiala
Place	Patiala
Short Description	11/0.433 KV, 200 KVA (4-Star rated), 3 phase, 50 cycles, out door, oil immersed, naturally cooled, stack core type, Aluminum wound, conventional type distribution transformers complete with fittings as per PSTCL specification & conforming to IS 2026/ 1977 & 1180/ 1979 (with latest amendments) inclusive of ISS: 335/ 1993 (with latest amendments) for Transformer oil.
Quantity	10 Nos.
Tender Publication	In leading National Dailies of India in English/ Punjabi
Eligibility Criteria	The supplier shall have required facility of manufacturing, testing & supply as per tender documents/spec. No. STQ-4006 /2014-15.
Downloading of Tender Documents a) Start Date b) End Date	Date of Publication 14.03.2015 up to 11:00 hrs.
Last date of Bid submission	17.03.2015 up to 11:00 hrs.
Bid opening date	17.03.2015 at 11:30 hrs.
Pre-bid meet date	N.A.
Tender Document Cost	Rs. 1000/-
Payment mode:	Demand Draft
Payment in favour of	Accounts Officer, CPC, PSTCL, Patiala
EMD	As per rates prescribed in tender document
Mode of payment of EMD	Demand Draft or PEMD with CE/TS, PSTCL, Patiala
Payment in favour of	Accounts Officer/CPC, PSTCL, Patiala
Contact Persons name	Chief Engineer /TS, PSTCL, Patiala Dy. CE/ TS (Design), PSTCL, Patiala Addl. SE/T&S-IV, PSTCL, Patiala
Contact Phone Nos.	0175-2301536 (CE/TS) 0175-2207774 (Dy. CE/TS (Design)) 0175-2217703 to 07 Extn. 370 (Addl. SE/T&S-IV)
Contact e-mail I.D	se-trd@pstcl.org

URL for additional Information	<a href="http://www.pstcl.org">www.pstcl.org</a>
Tender Document Attachment	---
Tender Information Detail	<p>1 No hard copy of the specification shall be issued. A set of tender documents containing technical specifications, General instruction and terms &amp; conditions can be downloaded from website <a href="http://www.pstcl.org">www.pstcl.org</a> .The cost of the tender specification shall be submitted by the bidders in form of demand draft in favour of Accounts Officer, CPC, PSTCL, Patiala, , in the office of the Chief Engineer/TS, 3rd Floor, Shakti Sadan, PSTCL, Patiala. Bids of the firms which do not submit the demand draft towards cost of specification as mentioned above shall not be considered. The demand draft towards cost of specification shall be submitted in an envelope clearly super –scribed with the words, "<b>cost of specifications against tender enquiry no. STQ-4006</b>". The cost of bidding document is non-refundable.</p> <p>2 All the tenders must be accompanied by Earnest Money at the rates prescribed in tender document except in the case of those tenderers who are specifically exempted there under.</p> <p>3. Telegraphic quotations shall not be accepted.</p> <p>4. Negotiations, if required, shall not be held except with the lowest tenderer.</p> <p>5. PSTCL reserves the right to increase/decrease the NIT quantity or to reject the whole NIT quantity without assigning any reason.</p> <p>6. The offers should be kept valid for at least 120 days from the date of opening of tenders.</p> <p>7. The competent authority may distribute the quantity to be procured on one or more firms.</p> <p>8. The firms indicating NIL or concessional rate of E.D &amp; CST/VAT in their tenders will have to absorb E.D &amp; CST/VAT up to the full rate applicable at the time of tendering.</p> <p>9. Tenders received after the due date &amp; time, even if posted before the due date of opening, shall not be entertained at all.</p> <p>10. Conditional tenders will not be accepted.</p>

	<p>11. The part-III of the tenders i.e. price bids of blacklisted and debarred firms shall not be opened.</p> <p>12. Prospective bidders are requested to visit the PSTCL website periodically even after down-loading the specification to check for corrigendum issued, if any.</p>
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Dy. CE/TS (Design),  
PSTCL, Patiala

## IMPORTANT INSTRUCTIONS FOR GUIDANCE OF BIDDERS

(These Instructions will cover/ over ride instructions given in Schedule E i.e. General instructions whenever in conflict)

- The detailed breakup of prices as desired in the price schedule (ANNEXURE – F) must invariably be filled in the first instance while submitting the tender. Other information as per Annexure must also be supplied. In the absence of above, the tender is liable to be rejected.
- Quantity mentioned in the NIT could be ordered on more than one supplier.
- The firms indicating NIL or concessional rate of ED in their tenders will have to absorb the ED up to full rate applicable at the time of tendering. The firms who do not agree to this stipulation or indicate ED as extra without indicating the applicable rate shall be loaded with maximum rate of Duty for evaluation purpose.
- The Tender documents submitted should be wholly typed or printed. As a first principle there should be no cutting/over writings or erasing. However, any unavoidable cutting/over writings should be duly signed and authenticated **Tender should be wholly typed or printed.**
- Any deviation in Technical & General conditions must be indicated, otherwise it would be assumed that the material offered is entirely as per enclosed Technical specification & General conditions and acceptable to the Tenderer in to-to.
- The tenderer revising their offer or withdrawing the same within validity period after opening of tender are liable to be rejected / black listed.
- Conditional / Non conforming bid shall not be accepted.
- The tenderers will have to give an undertaking that they will not pay any commission etc or engage any commission agent or liaison agent for dealing with PSTCL in any matter including purchase of specification etc. This undertaking is required to be supplied along with the offer/Tender, failing which their offer/Tender is likely to be ignored.
- (a) Earnest money as per Clause-12 of Schedule-‘E’ may be deposited through a Demand Draft drawn in favour of Accounts Officer/Centralised Payment Cell (T), PSTCL, Patiala.  
(b) PSTCL has decided that permanent Earnest Money deposit of Rs. Ten Lac should be deposited by the tenderers / suppliers with TS organization, PSTCL. Therefore, a certificate to this effect issued by the **Accounts Officer/ CPC(T), PSTCL, Patiala** during three months immediately preceding the due date for tender opening and showing the Serial Number/Account Number allotted in the permanent Earnest Money Deposit Register shall be submitted by the Tenderers in the envelope for Earnest

Money, for seeking exemption thereof.

- Tenderers must carefully study the technical specification and general terms & conditions before preparation of Tender.
- Pricing schedule must be clearly filled by the tenderers. The Performa for price schedule should be duly typed & hand written prices shall not be accepted. Firms are required to give break up of their rates as per the requirement of specification, indicated in Annexure-'F' i.e. ex-works rates including packing and forwarding charges forming part of production cost, freight and insurance, applicable E.D., CST/VAT.
- All the tenderers should submit their tenders with all the annexure duly filled & complete in all respects.
- Any deviation in Technical and General Conditions must be indicated, otherwise, it would be assumed that the material offered is entirely as per enclosed technical specification & general conditions and the same are acceptable to the tenderer in toto.
- Complete technical details, test certificates, catalogue drawings etc. must be supplied along with the tender. No post-tender development/ details shall be entertained.
- Acceptance of standard terms & conditions of PSTCL should be sent along with the tender. Deviation, if any, should be stated clearly in relevant annexure or on a separate sheet, failing which it will be presumed that all general terms & conditions of PSTCL are acceptable.
- Bidders should invariably supply documents for constitution & composition of the firm's as per **Clause 29** of Part A regarding "Constitution, Experience & Financial Standing" enclosed with the tender failing which their tender may be rejected. The bidders shall supply the names & address of the Directors of the firm, their income tax permanent account number, income tax return and turnover of the firm for the last three years and specific allied information as per enclosed annexures.
- Documents to be furnished must bear signatures of a person authorized as per constitution and composition of the firm. Authenticating documents to prove authority of signatory (Legal power of attorney in favour of signatory) must be attached with the Tender.
- Tenderers should submit their offer in unambiguous wording failing which PSTCL's interpretation will be final.
- Validity of offers must be for 120 days from the date of opening of tender.
- All the Annexures to the specification and requisite documents as per requirement of the specification must be duly filled / submitted in the 1st instant else the bid shall be rejected.
- The bidders shall supply a list of two authorized person with their signatures duly attested on the firm's pad so that they may represent on behalf of the firm and

participate in the opening process of the bids and the same should be with the authorized person(s), otherwise he / they will not be allowed to participate in the opening of tender.

- Tenderer should not indicate any discount on rates mentioned in the Annexure of cost analysis. However qty/payment discount can be mentioned in the main tender itself. Tenderers offering discount on quoted price or after the opening of tender will be out rightly rejected.
- Earnest Money as per **clause 12** of Part A of this specification may be deposited through a Demand Draft drawn in favour of Accounts Officer/CPC, PSTCL, Patiala. In case of Permanent Earnest Money Deposit (PEMD) of Rs 10.0 Lac (Rs. Ten Lacs) in the name of Chief Engineer/TS, PSTCL, Patiala copy of a valid certificate to this effect, issued by the Accounts Officer/CPC, PSTCL, Patiala during three months immediately preceding the due date for tender opening and showing the Serial No. /Account No. allotted in the PEMD Register, be supplied with the bid documents.
- **Only variable prices without any ceiling may be quoted.** A Certificate that only variable prices have been quoted in the tender must be given. Tenders with FIRM prices will not be entertained.

The firms which have been debarred, black listed or those firms with which business dealings have been suspended, shall also not be considered for opening of price Bid.

- Offer of the firms who quote quantity less than 50 % of NIT quantity are liable to be rejected.
- The EMD clause of specification may be seen carefully. For the instant tender enquiry as an example, the requirement of EMD is as follows:

Sr. No.	Description	100% EMD (Rs .P)	EMD for qty. 50% (Rs. P)
1	200 KVA 11/0.433 KV STACK CORE TYPE 4- STAR RATED ALUMINIUM WOUND CONVENTIONAL TYPE 4-STAR RATED DISTRIBUTION TRANSFORMER	31400	15700

- **PSTCL allows price variation as per IEEMA formula as amended by PSTCL as per Annexure-G attached without ceiling for Aluminum Wound Transformers.** No cognizance of any deviation from the above-prescribed formula shall be taken into consideration. However, if some of the tenderers do not quote specifically as per above



formula, even then the price variation shall be payable as per PSTCL's prescribed formula. (Prescribed formula as per Annexure-'G' enclosed). Although the price variation formula of IEEMA allows variation on labour component also, no such variation is allowed by PSTCL. Therefore even if a tenderer asks for the same in the tender, it will not be paid under any circumstances and the price variation shall be allowed according to PSTCL's formula attached as Annexure 'G' only.

The new tenderers quoting the tendered material for the first time to PSTCL or whose works have not been got appraised at all or successfully by PSTCL earlier must submit duly filled in Appraisal Performa (as per Annexure-I) along with the tender. The works of those firms, which are new to PSTCL for the item(s) tendered, shall be got appraised before opening Part-III (price bid) of their quotation. For these works appraisals, immediately after Part-I and Part-II of their bids are opened such firms shall be asked by PSTCL to deposit following charges through demand draft drawn in the favour of AO/CPC(T), PSTCL Patiala within one week failing which their tender is liable to be rejected:-

- i. Rs. 50,000/- (Fifty Thousand) for the firms located outside Punjab.
  - ii. Rs. 25,000/- (Twenty Five Thousand) for the firms located within Punjab.
- .
- Firm is required to deposit Rs.5000/- (Five thousand only) as oil Testing Charges per inspection which are to be got tested in PSTCL oil testing lab, in case PO is placed upon the Firm. In case Oil sample fails, same charges will be got deposited by the Firm for repeated Tests.
  - (a) Complete type test report of 11/0.433 KV conventional type 200 KVA Aluminum wound (Star/non star rated) Transformer from a Govt. approved/recognized Test House should be enclosed with the tender.
  - (b) All the successful bidders on whom P.O. is placed are required to get Type Tests/requisite Tests conducted on sealed transformer drawn from the pilot lot as per PSTCL specification from Govt. approved/ recognized Test House and for getting themselves registered with BEE for using 4-star label (if not earlier registered). Only one Transformer will be sealed from the Pilot lot for the said purpose.

Transformers from those firms shall be allowed for dispatches who get themselves registered with BEE for Label authorisation subject to the condition that payments there-against shall be released only after receipt of BEE authorisation certificate to use 4-Star Label.

- (c) The type test charges for impulse voltage test and short circuit test on one unit each for the specified rating offered shall have to be borne by the supplier. However, if the type tests have already been got conducted as per design conforming to the specification of PSTCL/PSPCL, the waiver of conductance of fresh Type Tests can be considered by the competent authority.
- (d) As per the PSTCL specifications Heat Run Test shall be carried out on one transformer from each lot offered for inspection at the firm's works free of cost. Even if the tenderers quote extra charges for this test, the same shall not be paid under any circumstances.

Dy. CE/TS (Design),  
PSTCL, Patiala.

**GENERAL INSTRUCTIONS TO BE OBSERVED BY TENDERERS**  
**SCHEDULE 'E'**

(Referred to in Regulation-II)

1. The following instructions must be carefully observed by all tenderers. Quotations/ tenders not strictly in accordance with these instructions will be liable to be rejected.
  - i) The tender must be complete in all respects. The following points should carefully be studied in order to ensure submission of a complete and comprehensive tender. Failure to comply with any of these instructions or to offer brief explanation for non-compliance is likely to render effective comparison of the tender as a whole impossible and may lead to rejection of an otherwise competitively lowest offer.
  - ii) Telegraphic quotations will not be accepted.
  - iii) Tenders shall be submitted in duplicate and all copies shall be separately tagged and clearly marked as 'Original' and 'Duplicate' as the case may be.
  - iv) The tenders shall be submitted in three parts i.e. Part-I, Part-II & Part-III. The following procedure will be adopted for the opening of tenders.
    - a) **Part-I-Earnest Money:** The first part will, consist of earnest money deposit in the form of demand draft in favour of AO/CPC (T) or valid PEMD certificate for Chief Engineer/TS.
    - b) **Part-II-Technical/Commercial bids:** The second part will consist of technical specification schedule of deliveries and all other terms and conditions except the rates. All commercial terms i.e. excise duty, C.S.T. Punjab Sales Tax, VAT etc. are to be specified in the Part-II i.e. technical and commercial part of the bid. Price bid components of their bid should only contain prices so that there is no controversy regarding interpretation of any condition/stipulation at the time of preparation of merit statement after opening the price bid. Firstly the envelopes containing the Demand Drafts towards Tender Document Cost and the EMD/PEMD certificate will be opened in the presence of the bidder's representatives who choose to be present at the prescribed time, date and address. If the Tender Document Cost and the EMD/PEMD is found to be as per the requirement of the specifications, only then the tender i.e. Part-II shall be opened. The bids without Tender Document Cost and/or earnest money shall be out rightly rejected.
    - c) **Part-III: Price Bids:** **The third part will consist of the quoted prices for each items as well as other related terms like freight, insurance, ED, CST/VAT and other incidental relevant to the price. No correspondence/clarifications shall be entertained after the opening of Part-III.**

Quotation/Tenders should be enclosed in double covers both addressed to the Dy. CE/TS (Design), PSTCL, 1<sup>st</sup> floor, Shakti Sadan, Patiala. Both (inner & outer) covers shall be sealed and **super scribed with Tender Notice together with the date on which the tender is due and the items of material covered.**

After opening Part-II of the bids (technical/commercial), the bids will be technically & commercially evaluated by PSTCL. The third part of the bids (Price bid) shall be opened in case of only those firms whose part-II of the bids after evaluation is found to be conforming to the specifications. The date and time for opening Part-III of the bids will be intimated to the qualifying firms. The price bids (Part-III) will be opened in the presence of the representative of the qualifying bidders who choose to attend.

2. The officer inviting tenders, contracting/purchasing agency/PSTCL (here-in-after referred to as Purchaser) reserve the right to modify the schedule of requirement, technical particulars and the specifications at any time and to place the order as a whole or in parts and to reject any or all the tenders received without assigning reasons. He will not be responsible for and will not pay for expenses or losses that may be incurred by the tenderer in the preparation of the tenders.
3. Quotations/Tenders shall be received in the office of the Dy. CE/TS Design PSTCL, 1<sup>st</sup> floor, Shakti Sadan, Patiala up to 11.00 Hrs. on the due date given in the tender notice and shall be opened at 11:30 Hrs. on the same day in the presence of Tenderer or their authorised representative who may like to be present. In case the due date of opening tenders happens to be a holiday tenders shall be received and opened at the same time on the next working day.

#### 4. PRICES:

- i) The unit rates should be quoted **Variable (without ceiling)** F.O.R. Destination at any Railway Station in Punjab/ PSTCL Railway siding wherever existing or delivery at PSTCL's Stores, through road transportation, which will be treated at par with F.O.R. destination. The breakup of the F.O.R. Destination price should be given as under: -
  - a) The price of material inclusive of packing & forwarding forming part of production cost.
  - b) Packing cost not forming part of production cost, handling cartage etc., freight charges and transit risk insurance covered in F.O.R. destination price.
- ii) All taxes and duties leviable on the price of finished goods per sub-**clause (i)** (a) shall be paid extra and the same should be shown separately as prevalent on the date of opening of tenders, to be paid at the rate as may be actually prevalent at the time of supply otherwise these elements shall be deemed to be included in the quoted prices and will not

be extra. No taxes and duties will be payable on the element of cost quoted under sub **clause (i)(b)**.

- (iii) In addition to the break up of total price i.e. Ex-works cost, ED, CST, F&I and packing the bidder should also give split up of Ex-works price. The break up to prices shall be indicated in respective Performa attached with spec. The filling up of Performa shall be mandatory for tenderers. The split up of Ex-works prices shall indicate cost of raw material, labour component and overhead expenses. Raw material can further be divided into 3-4 parts depending on type of material. The Performa for Price schedule should be duly typed & Hand written prices shall not be accepted. These stipulations shall be highlighted in tender spec. & Special note in this regard shall also be appended in Price schedule Performa. Initially the cost can be worked out by either comparison with existing rates/market price or any other feasible means and thereafter these prices should be regularly updated in accordance with relevant indices, just to have the rough estimate of market prices.
- iv) In case of rates ex-works/ex-godown and for imported material, freight charges, transit risk insurance, handling and clearance charges, F.O.B. and C.I.F. Commission of clearing agents at ports should also be indicated.
- v) (a) Tenderers should quote 'VARIABLE' prices only (without ceiling) and the price bids of those firms who quote FIRM rates will not be opened. Prescribed formula for plus variations on the base price component elements as prevailing on the first working day of the calendar month, one month prior to the date of opening of tender, should form the basis for quoting variable rates. However, price adjustment shall be made on corresponding rates of variable elements prevailing on the first working day of one month before dispatch or date of contractual delivery whichever is earlier, where-ever the prices of raw material are controlled by the Government, the basis shall be government Notifications from time to time and in the remaining case, the certificate given by Chartered Accountants.
- (b) The quoted prices should be variable as per price variation clause of Aluminium wound distribution transformers complete with all accessories/ component (all rating up to 10 MVA and voltage up to 33 KV) supplied against domestic contracts as circulated vide **IEEMA circular No. 37/DIV/TRF/05 dated 6.02.09** with base rates as circulated vide IEEMA's circular issued one month prior to the date of opening of tender. No variation on account of labour rates shall however be allowed. The increase/ decrease in prices on account of rise or fall in the cost & raw materials above or below such costs ruling on the date of tender in accordance with the IEEMA price variation formula shall be applicable without ceiling. In case of delayed deliveries the purchaser reserves the right to make payments for price variation on

the basis of price computed according to contracted delivery date or the actual delivery date whichever is advantageous to the purchaser. Relevant IEEMA formula for price variation as amended by PSTCL is as under (Details at Annex-G):

$$P = \frac{P_o}{100} \left[ 23 + 18 \frac{AL}{ALo} + 26 \frac{Es}{Eso} + 17 \frac{FE}{FEo} + 4 \frac{IM}{IMo} + 12 \frac{TO}{TOo} \right]$$

- v) The rate quoted F.O.R. Destination or ex-works should be given in both figures and words and any overwriting, erasing, cutting etc. should be legibly signed or avoided.
- vi) The rates quoted FOR Destination or Ex-works should be given in both figures & words and should be duly typed. Any over writing, erasing, cutting etc. should also be in typed form. Corrections, as a first principle, should be avoided & if are unavoidable they should be legibly signed & authenticated.
- vii) The bidders shall not be allowed to indicate over all discount on the quoted price for which split up has been given. However, quantity/payment discount can be given by the tenderer in the main tender (i.e. part relating to general terms & conditions). Any firm offering discount of the quoted price or after the opening of tender will be out rightly rejected.

viii) **MODVAT/CENVAT:**

The rates should be quoted after taking into account the MODVAT/CENVAT benefit accruing to the bidder, which will be retrained by him. However, the extent of MODVAT/CENVAT benefit available which has been taken into account while quoting the prices must be indicated. Any increase or decrease in this benefits due to change in policy of Govt. shall be passed on the purchaser or borne by it.

ix) **COMPLETENESS OF TENDER:**

The bids must be complete in all respects. The bidder in his own interest should submit complete tender, as incomplete bids may prove disadvantageous to the bidder and they are liable to be rejected.

**5. VALIDITY:**

The offer should be kept valid unconditionally for at least 120 days from the date of opening and any withdrawal or modification of the offer shall not be permitted.

**6. TERMS OF PAYMENT:**

“100% payment of the contract value pro-rata for each consignment of operationally complete equipment dispatched after approval of Inspecting Authority/Test Certificate etc.

along with 100% Sales Tax, Excise Duty and other statutory levies as per contract shall be paid within 30 days against receipted challan subject to furnishing a Bank Guarantee of 5% of the amount valid for a period of three months after receipt of material/equipment against that consignment.

In case BG is not submitted in time as per PO, 5% payment in lieu thereof shall be withheld from the presented bill. The BG for 5% amount (or the 5% amount withheld in lieu of 5% BG) shall be released on satisfactory adjustment of Goods Receipt Note to be issued by consignee within the validity period of the said BG.

## **7. DELIVERY SCHEDULE:**

- 7.1 The offer should clearly indicate monthly/ quarterly schedule of deliveries, date of Commencement and completion of supply against that indicated in the Notice Inviting Tender/ Specification which should normally cover period for entire job of manufacture, testing, inspection and supply after acceptance and shall be reckoned from the date of dispatch in case of Rail transport and receipted Challan / goods receipt in case of road transportation by goods Carriers. Purchase order shall be placed strictly on the above under standing. Ex-stock and quicker deliveries may be sometimes preferred keeping in view the requirement of works.
- 7.2 The firm shall give FIRM delivery schedule while quoting. If the firm fails to supply the material within committed delivery schedule then it will likely to be not considered for subsequent orders. The purchaser reserves the right to divide the tendered quantity to have material as per specification. In case the order is placed on more than one firm, the delivery may be changed on pro-rata basis.

The quantity tendered, is required to be supplied to the PSTCL within a period of 4 (four) months. The supplies shall commence within TWO months from the date of issue of PO with minimum 5 no T/Fs and the balance quantity shall be supplied in the next two months.

PSTCL reserves the right to distribute the quantities to be procured on more than one firm. In that case maximum period of completion of supplies in 4 months shall be suitably reduced keeping in view the quantity ordered and capacity of the firm/requirement of PSTCL.

## **8. PENALTY/DAMAGES FOR DELAY IN DELIVERY:**

If the supplier fails to deliver the material/equipment within the stipulated delivery period of purchase order/contract, the same is liable to be rejected and if accepted, the supplier shall be liable to pay penalty @ ½%( half of one percent) of the cost of undelivered supply/incomplete equipment per week of delay or part thereof not exceeding maximum

limit of 10% of the cost of complete unit of undelivered equipment/material so delayed . There will be slack of one month that will not entail any penalty and will not involve any additional financial implication. Delay beyond slack period will attract penalty for the period of delay including slack period. However, there will be no penalty in respect of purchase of proprietary items.

#### **9. EXTENSION IN DELIVERY PERIOD:**

Any genuine delay in approval of technical details, drawings, samples, issuance of amendment of Purchase order, conducting inspection and approval of Inspection. Test Report/Test Certificates for allowing dispatches etc. will count towards extension of the delivery period by corresponding period other than admissible under Force Majeure conditions, if any, substantiated by the supplier and duly accepted by the Purchaser.

No extension in delivery shall be granted in case of delay in payment. However, for delayed payments beyond stipulated period as per terms of payment clause compensation shall be credited @ 0.5% of the payment so delayed per month or part thereof to be adjusted against penalties levied or to be levied subject to a maximum of penalty leviable due to delay in deliveries under the contract.

#### **10. NEGLIGENCE AND DEFAULT:**

- i) In case of negligence on the part of supplier/contractor to execute the order/contract with due diligence and expedition and to comply with any reasonable orders given in writing by the Purchaser in connection with the Purchase Order/Contract or any contravention in the provisions of the Purchase order/contract, the Purchaser may give 21 days notice in writing to the supplier/contractor to make good the failure or neglect or contravention and if the supplier/contractor fails to comply with the notice within time considered to be reasonable by the purchaser, the purchaser may black list or suspend business dealings with the supplier/contractor for a specific period apart from forfeiture of security etc. The action taken under this clause will be notified to all the purchasing agencies & other Boards by the concerned purchasing authority of PSTCL.
- ii) Further in case of such default by the supplier/contractor, the purchaser may also suspend business dealing with the supplier/contractor apart from claiming reasonable compensation/damages forfeiture of security etc.

#### **11. FORCE MAJEURE**

During the pendency of the Contract / Purchase Order, if the performance in whole / part by either party or any obligation there under; is prevented / delayed by causes arising out of any war, hostility, civil commotion, acts of the public enemy, Sabotage, fire, floods, explosions, epidemics or non-availability of Government controlled raw-material under order/Instructions of Central/State Government regulations, strikes, lockouts, embargo,



acts of Civil/Military authorities or any other causes beyond their reasonable control, neither of the two parties shall be made liable for loss or damages due to delay or failure to perform the contract during the currency of Force Majeure conditions, provided that the happening is notified in writing ( with documentary proof) within 30 days from the date of the occurrence.

The supplies shall be resumed under the contract as soon as practicable after the happening (event) ceases to exist.

## 12. EARNEST MONEY:

- i) In case of open and limited tenders, the tenderers shall be required to submit Earnest Money at the following rates in the form of Cash Receipt / Demand Draft, in favour of AO/CPC(T) , PSTCL Patiala alongwith the tenders:-
  - a) Tender vlaue upto Rs. = NIL  
50,000/- and Spot Tender
  - b) Tenders valuing above Rs. = 2% of tendered value rounded off to a multiple(other than Spot Tenders) of Rs. 10/- on the higher side subject to a minimum Rs .5,000/- and maximum of Rs. Ten lacs.
- ii) The following shall be exempted from depositing Earnest Money:
  - a) - Deleted -
  - b) Suppliers having permanent earnest money deposit of Rs. Ten lacs with TS/Orgn. A certificate to this effect issued by the Accounts Officer/ CPC(T), PSTCL, Patiala during three months immediately preceding the due date for tender opening and showing the Serial Number/Account Number allotted in the Permanent Earnest Money Deposit Register shall be submitted by the Tenderers in the envelope for Earnest Money.
  - c) Sole Manufacturers/Suppliers or Proprietary items.
- iii) - Deleted -
- iv)
  - a) In case of tenders not accompanied by full amount of Earnest Money for the items tendered but not less than 25% of the amount due, the order/contract, shall be awarded only for part of material/equipment services limited to a value corresponding to the actual amount of Earnest Money submitted with the tenders provided the placing of such part order is otherwise feasible and is in the interest of the PSTCL otherwise such tender shall be ignored.
  - b) The amount due, as referred in clause-12 (iv) (a) shall be calculated @ 2% of the tender value and shall not be taken as Rs. Ten Lacs. i.e. the maximum amount payable as Earnest Money. Therefore 25% of the Earnest money shall thus be

worked out on the basis of the entire amount so calculated, which shall, of course be subject to maximum of Rs. 10 Lacs and minimum of Rs. 5000/-.

- v) Earnest Money shall be forfeited in case of withdrawal / modification of an offer within the validity period as required in NIT / Tender Specification after opening of tenders.
- vi) In case of successful Tenderers Earnest Money shall be converted as Security deposit and shortfall, if any shall be got deposited for faithful execution of Purchase Order/Contract.
- vii) In case of tenders not accepted, the earnest money shall be refunded within 30 days of the award of Order/Contract to the successful tenderers.

### **13. INTIMATION TO CHIEF ACCOUNTS OFFICER AND CONSIGNEES:**

The Supplier will have to intimate the probable date of dispatch followed by telegraphic advance intimation regarding the actual date of R.R. to Chief Account Officer/ Deputy Chief Account Officer (T), Centralized Payment Cell, PSTCL, Patiala, to enable him to arrange payment, failing which demurrage, wharf age etc. will be to supplier's account. A copy of such intimation should be sent to the consignees and concerned Chief Engineer also for reference immediately.

### **14. SALES TAX**

- a) (i). Punjab General Sales Tax: The material on order is required for use in generation, transmission and distribution of electrical energy to the public. As such the Punjab Sales Tax is not applicable under clause 5(2)(a) (iv) of the Act.
- (ii) Value Added Tax: The VAT as applicable shall be paid against documentary proof of submission of following certificates:-
  - Certified that the transaction on which tax has been claimed has been/will be included in the return submitted/to be submitted to the Sales Tax Authorities for the assessment of the Tax and the amount claimed from the PSTCL has been/shall be paid to the Sales Tax Authorities.
  - Certified that the goods on which tax has been charged have not been exempted under the rules made there-under and the charges on account of the sales tax on these goods are correct under the provisions of the relevant act or rules made there-under.
  - Certified that we shall indemnify the PSTCL in case it is found at a later stage that wrong or incorrect payment had been made on account of tax paid by us.
  - Certified that we are registered dealer & our Regn. no. is \_\_\_\_\_

- b) Central Sales Tax: The PSTCL has been registered as a dealer under the Central Sales Tax Act.
- i) When the Central Sales Tax is to be paid by the PSTCL, a declaration certificate in form 'C' will be issued by the Chief Accounts Officer/Deputy Chief Accounts Officer (T) Centralized Payment Cell, PSTCL, Patiala on receipt of material.
- ii) When the tax is to be paid by the Supplier, a declaration certificate in form 'C' will be issued by the Chief Accounts Officer/Deputy Chief Account Officer (T), Central Payment Cell, PSTCL, Patiala, subject to submission of the following certificates: -
- Certified that the transaction on which tax has been claimed has been/will be included in the return submitted/to be submitted/ to the Sales Tax Authorities for the assessment of the Sales Tax and the amount claimed from the PSTCL has been/ shall be paid to the Sales Tax Authorities.
  - Certified that the goods, on which Sales Tax has been charged have not been exempted under Central Sales Tax Act or the Rules made there under and the charges on account of the sale tax on these goods are correct under the provision of the relevant Act or rules made there under.
  - Certified that we shall indemnify the PSTCL in case it is found at a later stage, that wrong or incorrect payment had been made on account of Sales Tax paid by us.
  - Certified that we are registered dealer under the Central/State Sales Tax Act and our Registration No. is \_\_\_\_\_
  - Certified that payment has been made under protest. The bills for the Sales Tax and insurance charges, if any, should be submitted separately.

NOTE: The firms indicating Nil or concessional rate of CST/VAT will have to absorb the CST/VAT up to full rate applicable at the time of tendering.

#### **15. EXCISE DUTY:**

- i. Excise Duty, if applicable, will be paid at rate(s) prevailing during the contracted delivery period on the basis of actual. The following certificates shall have to be furnished along with invoice –cum- gate pass duly signed by the authorised agent/signatory. The first invoice should accompany the specimen signatures of the authorized signatory duly attested by the Managing Director of the factory with a copy of orders regarding his appointment as authorized signatory.
- Certified that the transaction on which the central Excise Duty is claimed has been/shall be included in the return submitted / to be submitted to the Central Excise Authorities and the amount claimed from the PSTCL has been / shall be paid to the Central Excise Authorities.

- Certified that the goods on which excise duty has been charged have not been exempted under Central excise duty and that the central excise duty charged on these goods is not more than what is payable under the provisions of relevant act or rule made there under.
  - Certified that we shall indemnify the PSTCL in case it is found , at a later stage that wrong or incorrect payment had been received on account of the excise duty amount paid will be refunded.
- ii. In case the Excise Duty is applicable and is required to be paid extra as referred to Para-(i) above, the tenderer should clearly indicate the present rate (in percentage) applicable to their company.
  - iii. The maximum rate (in percentage) up-to, which the Excise Duty may become leviable/ payable under the prevailing Rules & Regulations applicable to their company, should also be clearly indicated in their tender.
  - iv. In case the Excise Duty is applicable/payable, necessary certificate of Excise Duty claimed / Excise Gate Pass duly authenticated by the authorized representative of Central Excise Department, shall however be furnished by the supplier along with each consignment. The supplier should, therefore, clearly indicate in their tender that whether such Excise Duty Gate Passes/Certificates shall be furnished by them or not.

NOTE: The firms indicating nil or concessional rate of Excise Duty in their tenders will have to absorb Excise Duty up to the full rate applicable at the time of tendering.

#### **16. INSURANCE:**

- i) The rates are required to be quoted on F.O.R. destination basis and it is the responsibility of the supplier to deliver the goods in sound condition F.O.R. destination and for that purpose the Supplier may at his option insure the material against all risks at his own cost during transit for full delivered value of the material up to destination. All works in connection with making and settling of claims, if any, with Railway Authorities and or Insurance Company shall be carried out by the Supplier/ Contractor for which no extra payment shall be made by the PSTCL. However, necessary assistance required in connection with making and settling of such claims, if any, shall be provided by the consignees.
- ii) All damages and or shortages during transit as covered by the insurance shall be made good immediately on receipt of such information from the consignees without waiting of settlement of claim. However, in case of apparent damages and/or shortages, the consignees shall obtain the loss/damage certificate from the Railway authority and send the same to the Contractors within a period of thirty days from the date of receipt of

material. A certificate shall be submitted by the Supplier/ Contractors with each bill to the effect that the material has been duly insured.

- iii) The consignees shall report losses and damages to the firm within 30 days of arrival of the equipment at the site. It will, however, be supplier's responsibility to prefer timely claims on the insurance underwriters and to arrange replacement thereof to the consignees.
- iv) The suppliers shall be wholly responsible for the loss, shortages, and damages etc. during transit. Such shortages and damages etc. will have to be replaced / repaired by Supplier / Contractor free of cost immediately without waiting for maturing of the Supplier's / Contractor's claims with the Road Transport/Railway Authorities.
- v) In case replacement/repair of defective material is not carried out within six months of intimation of damages, supplier shall have to pay interest at the rate of 12% per annum on the advance payments made by the PSTCL from the date of its payment upto the date of the re-commissioning of the equipment after replacement/repair or to the date the default is made good.

**17. WARRANTY:**

The supplier / contractor shall be responsible to replace free of cost with no transportation and insurance expenses to the purchaser up to the destination of transformer(s) mentioned above, the whole or any part of the transformer(s) which gets damaged within 60 months from the date of commissioning of the transformer(s) by the purchaser or 66 months from the date of dispatch, whichever is earlier. The consignee /purchaser i.e. concerned officer and/or concerned store's officers shall give written notice of such failure/damage to the supplier/contractor. Such replacement shall be effected by the supplier/contractor within a reasonable time not exceeding 3 months of the intimation of failure/damage. This period of three months includes lifting of the T/Fs from store, its repair at supplier/contractor's works and return of the same after repair to the store. In case the damaged transformer is not lifted and returned after repair by the supplier/contractor within a period of 3 months, full cost of transformer(s) shall be recovered from the supplier/contractor. Supplier/contractor's responsibility arising out of supply/repair of transformer or its use whether on warranties or otherwise shall not in any case exceed the costs of transformer, and upon the expiry of warranty period stipulated above, all such liability shall terminate. The cost of transformer shall be as per purchase order for new transformers, for repaired transformers the cost shall be taken as 70% of the cost of new transformer as per latest P.O.

The above provisions shall also equally apply to the transformer(s) so replaced/repaired by the supplier/contractor under this clause, in case the same again gets damaged within remaining part of the original warranty period or six months whichever is more.

In case the replacement of damaged transformer is not carried out within 3 months of intimation of failure/damage the supplier/contractor shall have to pay interest @ 12 % p.a. of the value of each complete transformer, beginning from the date of its failure/damage up to the date of its receipt in the purchaser's stores after replacement/repair. Further an amount equivalent to the cost of transformer(s) in case of new transformer(s) and 70% cost of new transformer(s) in case of repaired T/Fs under repair contract, shall be retained by the PSTCL from any amount of the firm pending against the same or any other Purchase order / repair contract. The amount so retained shall be refunded to the firm only after return of the transformer(s) after repair / replacement, but the amount of interest @ 12 % recoverable from the firm i.e. from the date interest becomes due till the date up to which full payment is with-held by the PSTCL would not be refunded. If no payment of the firm is pending with the PSTCL against any other PO / Repair contract or the same is less than the cost of transformer(s) damaged within warranty period, such amount would be deducted from any security, EMD or PEMD lying with the PSTCL and adjusted in the manner explained above. In case the total amount of EMD / PEMD / Security of all POs / Repair contracts is less than the value of transformer(s) damaged within warranty period, action shall be taken by PSTCL as admissible under law e.g. filling of recovery suit and lodging of FIR etc. Action as per negligence & default clause of the P.O./repair contract shall also be initiated. Moreover the performance of the firm regarding repair/replacement of warranty period damaged transformer(s) shall be given due importance while placing future orders on such firms.

The outside Punjab firms can get their transformers (damaged within warranty period) repaired from some Punjab based firms, provided such Punjab based firm is already repairing transformers for PSTCL or supplying new transformers. Any other Punjab based firm can also be allowed to repair such transformers if it is found to be suitable by PSTCL. However, PSTCL shall have no direct dealing with such firms except for giving permission to the Parent firm and all contractual obligations shall rest with Parent firm.

**18. CHANGES:**

No variation or modification or waiver of any of the terms and provisions shall be deemed valid unless mutually agreed upon in writing by both the Purchaser and the Supplier.

**19. OCTROI CHARGES:**

Octroi charges shall be paid extra on actual basis if applicable.

**20. DESPATCH INSTRUCTIONS:**

The material will be required to be dispatched as per the dispatch instructions issued by

the PSTCL. However, every effort shall be made to consign the material to only one store against each item of P.O. as far as possible.

#### **21. RAW MATERIAL:**

The raw material to be used in the manufacture of the goods/ equipment to be supplied against the Purchase Order/Contract shall be of the best quality of its kind obtainable in the market. The Supplier/Contractor shall be solely responsible for the procurement of raw material required for the purpose.

#### **22. SAMPLES:**

Whenever asked for, samples must be supplied by the Contractor/Suppliers free of cost at the Purchaser's office. Ordinarily samples will not be returned to the Tenderer/Supplier. However, expensive samples, the return of which is desired by the Supplier/Contractor, will be returned to him at his risk and cost (See **Clause-6** of Technical specification).

#### **23. INSPECTION AND TEST**

- a) The PSTCL shall inspect, examine and test equipment/ material through its official(s) and / or through an outside agency nominated by PSTCL at the Manufacturer's/ Supplier's work, during or after the manufacture of goods prior to dispatch, on receipt of a clear notice of minimum two weeks in advance, to be reckoned from the date of receipt by Purchaser. The supplier/ contractor shall provide all facilities as may be required to carry out the tests in accordance with approved standards, free of cost.
- b) Stage inspection shall be carried out by the inspecting officers of the PSTCL or its nominated agency during the course of manufacture. The core shall be processed by slitting only which shall be carried out at the supplier's works or can be got carried out on job order basis from other sources. The core coils offered for stage inspection shall have the original sealing of CRGO manufacturer intact. Loose coils without the original seal of manufacturer shall not be accepted. At the time of stage inspection supplier shall produce the relevant documents to indicate the particulars of Prime core to confirm that the core is actually imported directly.
- c) Random testing of material on its receipt in the Stores irrespective of the fact whether or not it was inspected before dispatch shall be carried out by PSTCL and in case of any failure the entire lot shall be rejected at the risk and cost of the supplier.

#### **24. TEST CERTIFICATE AND INSTRUCTION BOOK:**

The Supplier / Contractor shall be required to furnish to the Purchaser's Office / consignee, wherever necessary, the following document along with the consignment.

- |  |                    |
|--|--------------------|
| <b>i. Printed Pamphlets / Catalogues</b>   | <b>Two Copies</b>  |
| <b>ii. Instruction books</b>   | <b>Two Copies.</b> |
| <b>iii. Drawings</b>   | <b>Two Copies</b>  |
| <b>iv. Any other relevant information to be incorporated at the time of placing the P.O.</b> |                    |

In case the goods have not been inspected / tested at the manufacturer's works by a representative of the PSTCL, the Supplier / Contractor shall furnish the Acceptance/ Routine Test Certificate along with consignment for facility of the consignees.

#### **25. CANCELLATION:**

The Purchaser reserves the right to cancel the purchase order as a whole or in part at any time or in the event of default on the part of the Supplier prior to the receipt of information regarding taking in hand of the manufacture of material against the Purchase order / dispatch of material to the consignee.

#### **26. JURISDICTION:**

All legal proceedings in connection with this Purchase Order/Contract shall be subject to the territorial Jurisdiction of the local civil courts at Patiala only.

#### **27. ARBITRATION:**

- (a) If at any time any question dispute or difference, what so-ever shall arise, between the purchaser/ PSTCL and the contractor/supplier, upon or in relation to or in connection with purchase order/contract, either party may forthwith give to the other notice in writing of the existence of such question dispute or difference and the same shall be referred for sole arbitration of a nominee of the purchaser/PSTCL, who shall give a reasoned/speaking awards. The award of the sole arbitrator shall be final and binding on the parties under the provisions of the Indian Arbitration Act-1940 (amended 1996) and of the rules, there under. Any statutory amendment, modification or re-enactment thereof for the time being in force, shall be deemed to apply and be incorporated in the contract/purchase order. The sole Arbitrator shall be any officer of the PSTCL whose name is approved by the Chairman of the PSTCL. It will not be objectionable if the Sole Arbitrator is an officer of the PSTCL and he has expressed his views on all or any of the matter in question of dispute or difference.
- (b) Upon every or any such reference, the cost of and incidental to the reference and award respectively shall be in the discretion of the sole arbitrator so appointed who may determine the amount there of or direct the same to be fixed as between solicitor and client or as between party and shall direct by whom & to whom and in what manner the same is to be borne and paid.



- (c) The work under the contract shall, if reasonably possible continue/during the arbitration proceedings and no payment due or payable by the purchaser/ PSTCL shall be with held on account of such proceedings.

## **28. ORDER PREFERENCE**

The PSTCL would allow an order preference to such tenderers whose works are situated within the State of Punjab as per the procedure laid down as under: -

- a) The rate of Punjab firms would be de-escalated by 15% for all the Units. Their position in the comparative statement shall be shown accordingly for the purpose of comparative statement.
- b) The zone of consideration for placing of purchase order/contract would thereafter be demarcated taking into account the quantity of material required as per NIT and the quantities offered by the different tenderers, subject to the condition that for Punjab based firms upto 20% of the total quantity will be reserved provided they fall in consideration zone after application of price differential. However, where the Punjab firms qualify amongst the lowest bidders on their own quoted rates, they shall form part of the original quoted list for purpose of placing orders.
- c) The purchase on the Punjab firm claiming order preference and falling within this zone would be placed on the lowest rate of a firm not claiming order preference within the zone of consideration or on the concerned Punjab firm's own quoted rate which-ever may be lower.
- d) In the event of zone of consideration ending at the de-escalated rate tendered by a firm claiming order preference, the rate to be allowed to such firms shall be the next quoted rate by the firm not claiming order preference or the concerned firm's own quoted rate, which-ever may be lower.
- e) The Punjab based firms claiming order preference shall be required to furnish an undertaking in prescribed form (Annexure-L) on a Non-judicial stamp papers of appropriate value to the effect that they shall execute the order if placed on them under 'Order Preference' as per the tender specification. Such undertaking should be submitted by the Punjab based tendering firms latest by the close of the day of opening of tenders. In case, no such undertaking is furnished by the Punjab based firms who are otherwise eligible for claiming 'Order Preference' as per the tender specification, their tender shall not be considered for placement of any order under Order Preference. In the event of refusal by the Punjab based firms to execute the purchase order/contract at their quoted rates or offers made under Order Preference as per 'c' and 'd' above as the case may be, after having furnished the above under taking, their earnest money shall be forfeited apart from

initiating further administrative action, such as suspending business dealings, blacklisting etc.

## **29. CONSTITUTION, EXPERIENCE AND FINANCIAL STANDING:**

The tenderers should invariably supply the following information with the tenders: -

- a) Constitution And Composition Of The Firms:
  - **If a Joint Stock Company, copy of its Memorandum and articles of Association and other particulars.**
  - **If a partnership, a copy of the partnership deed, particulars of partners.**
  - **If a proprietary concern, the standing of the proprietor and if registered with the Registrar of Companies/Firms, their registration No.**
- b) Experience & Standing In The Market.
- c) Particulars Of Purchase Order/Contracts Executed With The PSTCL & Other Boards / Government Departments.
- d) Financial Position:
  - Balance Sheet for the last three years, including Trading, Manufacturing, Profit and Loss Account.
  - Bank references.

## **30. INFORMATION REGARDING LIST OF BANKERS THE PURCHASER DEALS WITH:**

- a) The Punjab State Transmission Corporation Ltd. deals with the following Bank at Patiala:
  - i) State Bank of Patiala, The Mall, Patiala.
  - ii) Punjab National Bank, The Mall, Patiala.
  - iii) Central Bank Of India, The Mall, Patiala.
  - iv) Bank of India, The Mall, Patiala.
  - v) United Commercial Bank, Old Kotwali Chowk, Patiala.
  - vi) Bank of Broda, Patiala.
  - vii) Punjab and Sind Bank, Patiala
  - viii) Oriental Bank of Commerce, Patiala
- b) The Railway Receipt/Goods Receipt and invoices etc. should be sent to the authorities to be specified in the Purchase Order.
- c) Any demurrage occurring as a result of sending Railway/goods Receipt through a Bank other than the one with which the accounts of the Purchaser are operated will be to the account of the Supplier/contractor.
- d) No goods will be accepted by the consignees unless accompanied by priced challans or invoices.

## **31. CONTRACT AGREEMENT:**

The detailed order issued in accordance with agreed terms & conditions accepted/ acknowledged by the firm shall itself form valid contract along with subsequent

amendment, if any, and shall be construed and operated as such in terms for of Indian Contract Act-1872 as amended up to date.

It will be obligatory on the part of the successful Bidder to execute within 30 days of the receipt of the detailed order, a legal Contract agreement on non-judicial stamp paper of appropriate value (Annexure –N). The detailed PO so issued shall be termed Purchase Order-cum-Contract Agreement. The Contract shall be made in duplicate and each party will retain one copy.

### **32. FAKE INSPECTION CALLS:**

If the firms do not get the material inspected when the inspecting officer visits their works after receipt of inspection call on one pretext or the other or the material fails during inspection, it will have to bear TA/DA for the journey performed by such an Inspecting officer, which shall be Rs.15,000/-(Outside Punjab) and Rs.5000/-(Within Punjab) per visit of each officer. Besides the recovery against each such fake call, a letter of warning shall be issued and it shall be counted towards firm's performance for all intents and purposes.

### **33. ELIGIBILITY CRITERIA**

The annual financial turnover of the firm shall be more than Rs. One Crore in any financial year in the last three Financial years. The statement of financial turn over duly authenticated by the chartered accountant will only be accepted.

### **34. SECURITY DEPOSIT:**

- i) The successful tenderers shall be required to submit security deposit for faithful execution of the purchase order/contract at the rate of two percent (2%) of ordered value rounded off to a multiple of Rs. 10/- on the higher side.
- ii) Ordinarily, in the case of successful tenderers, the Earnest Money received with the tender shall be converted into security deposit. If the amount of earnest money received with tender falls short, the contractor/supplier shall be required to deposit the additional amount.
- iii) The tenderers, having permanent deposit of Rs. Ten Lac with 'TS Organization' and hence exempted from depositing earnest money with tender, shall also be required to submit security deposit @ 2% of the ordered value in the form of cash/Demand Draft/Bank Guarantee within 30 days from the award of order/contract.
- iv) The following shall be exempted from depositing security against order / contract awarded to them:-
  - a) – Deleted-
  - b) The Manufacturers / Suppliers of proprietary items.
- v) On faithful execution of purchase order/contract in all respects, including warranty period, the security deposit of the contractor/supplier shall be released by the purchaser.

- vi) In the event of default on the part of the contractor/supplier in the faithful execution of purchase order/contract, his security deposit shall be forfeited. The forfeiture of security deposit shall however, be without prejudice to any other rights arising or accruing to the PSTCL under relevant provisions of the purchase order/contract like penalty / damages for delay in delivery including suspension of business dealings with PSTCL for a specific period.

Dy. CE/TS-(Design)  
PSTCL, Patiala

## TECHNICAL SPECIFICATION

### 1. SCOPE:

This specification covers the design, manufacture, testing supply and delivery of conventional type distribution transformers required for outdoor sub stations in earthed neutral, electric distribution system with Nominal Voltage of 11 KV. Any other parts not specifically mentioned in this specification but otherwise required for proper functioning of the equipment should be included by the tenderer in his offer.

### 2. STANDARDS:

The transformer shall conform in all respects to ISS: 1180 /Part-I and IS: 2026 as amended from time to time except where specified otherwise. The fittings and accessories shall also comply generally with the requirement of the latest edition of the respective IS.

### 3. SERVICE CONDITIONS/CLIMATIC CONDITIONS:

a) Maximum ambient air temperature	50° C
b) Maximum daily average ambient air temperature.	45°C
c) Maximum yearly weighted average ambient temp.	40°C
d) Minimum ambient air temperature	(-)5° C
e) Altitude above MSL not exceeding	1000 Mtrs.
f) Average No. of rainy days per annum	60
g) Average annual rainfall	50 Cms.
h) Maximum Wind Pressure	195 Kgs./Sq.M.
i) Winding temp. rise (Max.)	40°C
j) Hot Spot gradient	20°C

### 4. TYPE AND RATING:

The transformers shall have stack core type construction and oil immersed naturally cooled and shall be suitable for outdoor service as step down transformers. The rating and electrical characteristics of the transformers shall be as follows:-

Continuous capacity	:	200 KVA
Rated HT Voltage	:	11 KV
Rated LT Voltage	:	433-250 Volts
Frequency	:	50 Hz
No. of Phases	:	3
Connection (HT)	:	Delta
Connection(LT)	:	Star
Vector Group	:	DY-11
Type of Cooling.	:	ON
BEE Star Label	:	4- Star

**5. TEMPERATURE RISE:**

Each transformer shall be capable of operating continuously at its normal rating without exceeding following temperature rises with the above service conditions given in clause-3.

- i) 35° C in oil by thermometer.
- ii) 40° C in winding by resistance.
- iii) Hot Spot temperature not to exceed 95° C when calculated over an annual weighted average ambient temperature of 40°C as per IS:2026 (Part-II Clause 4.9.4).

The limit of temperature rise mentioned above will have to be satisfied by the manufacturer by carrying the Heat Run test by feeding losses calculated at 100° C corresponding to the rated current or total losses increased by 10% which ever is higher.

**6. LOSSES AND IMPEDANCE VALUES:**

- 6.1** Transformers should be 4-star labeled as per BEE scheme. The maximum allowable total losses (includes no load and load losses) at 100% loading at rated voltage, frequency and at 75°C shall not exceed 2115 Watt & correspondingly maximum allowable total losses at 50% loading shall not exceed 780 Watt.

The losses are maximum allowable and there would not be any plus tolerance. No weightage in prices for offers with lower losses shall be given for these sizes of transformers. The bidder shall guarantee individually no load losses & Load losses as per their GTP without any positive tolerance.

- 6.2** IMPEDANCE: The percentage impedance at 75°C shall be 4.5% subject to tolerance as per ISS: 2026.
- 6.3** (a) FLUX DENSITY: Flux density at normal voltage shall not be more than 1.60 Tesla.
- (b) OVER FLUX : Over flux in the transformer core shall be limited to 12.5% to ensure that in the event of over voltage to the extent of 12.5%, the core does not get saturated.
- (c) LOAD CURRENT: No load current at 100% voltage and 50Hz shall not be more than 2% of the full load current and shall be subject to tolerance as per ISS. No load current at V/F = 112.5% of normal V/F shall not exceed 4%. The supplier shall furnish necessary design data in support of this stipulation.

**7. PROTECTION AGAINST TRANSIENTS:**

In order to ensure that the transformers will withstand lightening/disturbances, the impulse withstand strength of transformers windings shall not be less than 75 KV peak (1.2/50 micro second positive wave). The high voltage bushings of all transformers shall be provided with single gap arcing horns with air gap so adjusted that flash over will occur at the tips of the arcing horns.

**8. INSULATION RESISTANCE OF WINDINGS:**

The minimum insulation resistance values in Mega Ohms between winding and earth when the transformer is filled with oil should be:

Insulation Resistance in Mega Ohms between winding to earth:

	20° C	30°C	40°C	50°C	60°C
11000 Volts(HV)	800	400	200	100	50
433 Volts(LV)	400	200	100	50	25

The insulation resistance values will be measured with a 2500 V, Motorised Meggar, preferably of Evershed or Vignole Make or of any other good quality Indian make. Calibration certificate authenticating that the meggar has been tested and calibrated during last one year be produced at the time of inspection.

**9. TEST VOLTAGE:** Transformers shall be capable of withstanding the power frequency and impulse test voltage prescribed below:-

Nominal system <u>voltage</u>	High system <u>voltage</u>	Impulse test <u>voltage</u>	Power frequency <u>voltage</u>
11KV(rms)	12KV(rms)	75KV(peak)	28KV(rms)

**10. OVER LOAD CAPACITY:**

The safe overload capacity of the transformer and duration of over load for satisfactory operation at site under maximum temperature conditions shall be clearly stated in the tender. The temperature limits under the specified over load capacity should also be stated.

**11. PARALLEL OPERATIONS:** The transformers shall be capable of operating satisfactorily in parallel with one another under all conditions of load whether balanced or not, and under varying power factor.**12. TANK CONSTRUCTION:**

The transformer tank and cover shall be oil tight & shall be fabricated from good quality grade low carbon steel suitable for welding (IS: 1977/ IS: 2062). The tank and cover shall be

of fabricated construction. All seams shall be welded and where practicable they shall be double welded. The tank shall be designed and constructed for vacuum/ filling of oil & shall be capable of with standing without leakage or distortion continuous internal gas pressure as specified. The transformer body top flange over which transformer cover is fixed, should be of uniform thickness/ smooth surface. MS plate of different thickness shall not be allowed. Welded joints of the MS flat/ plate forming the flange should be properly grinded to obtain smooth flat surface, as any improper grinding of the welding surface of the flange can lead to leakage of transformer oil. All bolts, nuts and studs in used with tank fittings shall be galvanized. Stud provide for fixing HT bushes should be welded/ fixed symmetrically to the transformers body. The main tank of the transformers shall be made of good quality steel having a minimum thickness of sides of the tank 4.0 mm and a minimum thickness of 5.0 mm for top and bottom plates. The tanks shall be suitably stiffened at two places along the height to make them sturdy. The stiffeners shall be provided on all the four sides of the tank.. The tank shall be capable of withstanding a pressure upto 0.8 Kg./Cm<sup>2</sup> and (-) 0.7 Kg /Cm<sup>2</sup> for 30 minutes and 10 minutes respectively as prescribed in clause 29.2.1 of this specification. The word 'Punjab State Transmission Corporation Limited property' shall be engraved on the top cover plate and side of the tank body. The following information (in addition to be provided in rating and diagram plate) shall also be punched on two opposite sides of the body of T/F.

- a) Property of PSTCL
- b) P.O. No. & date.
- c) Date & year of manufacture.
- d) Make.

Satisfactory lifting lugs shall be properly secured to the top of the tank or to the tank sides. The design of the tank and lugs shall be such as to permit the complete transformers filled with oil being lifted by means of the lugs, without risk of any damage.

### **13. CONSERVATOR:**

- 13.1** Provisions of conservator is obligatory. The dimension of conservator should be given on G.A. drawing.
- 13.2** The conservator shall be provided with a drain valve and a filling hole with cover. In addition, the cover of main tank shall be provided with an air release plug to enable trapped air to be released unless the conservator is so located as to eliminate the possibility of air being trapped within the main tank.
- 13.3** The inside diameter of the pipe connecting the conservator to the main tank shall be within 20 to 50mm and it should project into the conservator in such a way that its end is approximately 20mm 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. Breather pipe should be connected at top of the conservator tank with two bends at right angles.

**14. RADIATORS:** These shall be made of ERW Elliptical tubes with minimum side thickness of 18 SWG. These elliptical tubes should be of best quality. These elliptical tubes should be used in vertical formation without any bending and properly welded on both ends to common headers. These radiators should be individually tested for leakage and pressure tests etc, before welding with the main tank. Size of the radiator shall be such that it covers at least 50% of bottom yoke, full core limbs and complete top yoke. The number/X-section/length/fixing arrangement of radiator tubes shall be indicated in the G.A. drawing.

**15. TERMINALS AND BUSHINGS:**

**a)** The high and low voltage terminals shall be outdoor porcelain bushings type for bare aluminum connection. The bushing rod shall be of brass and shall conform to ISS-3347 (Part-III). LT rods shall be manufactured through drawing and HT rods shall be duly forged and in no case casting shall be accepted. Each terminal, including the neutral shall be distinctly marked and coloured for phase voltage on both the primary and secondary sides in accordance with the diagram of connections supplied with the transformers. The system of marking shall be in accordance with the requirements of IS:1180-1964 amended to date.

**b)** The HV bushings shall be as per IS: 2099-1964 with latest version and IS: 3347. The LV bushings shall be as per IS:7721-1974 ( with latest amendment(s) if any).

**c)** All porcelain used in the bushing shall be homogeneous free from other flaws affecting its mechanical strength or dielectric quality. These should be well vitrified, tough and impervious to moisture. A minimum phase-to-phase external clearance of 75 mm for LV bushings and 255 mm for HV bushings shall be obtained with bushings mounted on the transformers.

**d)** The external terminal clearances shall be maintained after fixing Bi-metallic clamps/thimbles.

Where HT/LT bushings are fitted on the side of the tank, the same shall be fitted on a conical/rectangular pocket in the tank body and not on the pipe/flange.

- 16. SEALING GASKETS:** All sealing washers/gasket shall be made of oil and heat resistant nitrile neoprene rubber/synthetic rubber bonded cork type RC-70C(type-C) Gaskets. Gaskets made of natural rubbers or cork sheet are not permissible.
- 17. COOLING:** All the transformers shall be capable of giving a continuous output without exceeding the specified temperature rise.
- 18. TRANSFORMER OIL:** The transformer oil used shall comply with the requirements of the specification as per Annexure-C enclosed in addition to the provisions in the IS: 335-1993 (latest). Oil sample will also be taken out from fresh stock of T/F oil to be tested as per latest IS: 335, as detailed in clause 29.4.
- 19. FITTINGS:** Each transformer shall be (in addition to any other fittings recommended by the tenderer) provided with fittings as per Annexure-'E'.
- 20. RATING AND TERMINAL MARKING PLATES:** There shall be rating plates on the transformers containing the information specified in clause 15.2 of IS:2026-1977(Part-I). The following information must be punched on the plate and embossed on two opposite sides of the body of transformer.
- i) Purchase Order No. and date.
  - ii) Date of Inspection
  - iii) Property of "Punjab State Transmission Corporation Limited ".
  - iv) Make
  - v) Maximum Guaranteed Total Losses at 50% Loading & at 100% Loading.

4-Star rating Label in accordance with colour design, logo etc, shall be provided on the Transformer as per the design/recommendations of Bureau of Efficiency (BEE). For using BEE Labels, registration with BEE is to be ensured by the bidder by completing all formalities.

**21. CORE:**

The core shall be stack type. The core lamination shall be held rigidly by a steel framework, which shall clamp them together to prevent any vibration. The top & bottom yoke clamping channels shall be tied together with at least four nos. tie rods of min 12mm dia, duly insulated. Only medium weight channels, as per ISS 808 are to be used. Each core lamination of each yoke as well as each limb shall be one piece and no joint shall be allowed in the same. The core shall be provided with lifting lugs suitable for lifting the complete core and coil assembly of the transformer without transmitting the

stresses to the laminations. The transformer shall be suitable for over fluxing due to combined effect of system voltage and frequency up to 12.5% without injurious heating.

The laminations shall be made of Directly Imported best quality non-ageing silicon steel cut from annealed steel plates. These laminations shall be as thin as possible consistent with mechanically strong constructions. Each lamination shall be coated with a hot oil proof insulating material on both sides. In case the manufacturer's standard method is different from this, it should be clearly described. The laminations should be free from rust, colour spots. The core shall be built up with lamination of New, Prime, directly imported not below M-4 grade non-ageing, low loss, high permeability, cold rolled grain oriented (CRGO) silicon steel. The core material should be imported directly from reputed manufacturer such as Nippon, Kawasaki, British Steel, Mitsubishi, A.K. Steel/ARMCO USA, Ugine, Allegheny, ORB Elect. Thyssen Krupp Electrical steel, JFE Steel Corpn. Japan, POSCO Korea, Thyssen Krupp Electrical Steel (India) Pvt. Ltd. Nashik & Stalprodukt S.A. Poland and NLMK & Viz-Stal. The core coils shall have the original sealing of CRGO manufacturer(s) intact and the supplier shall also produce the relevant documents indicating the particulars authenticating that the core coils of Prime CRGO M-4 or better Grade steel have been actually imported directly at the time of stage inspection (as stipulated in clause 25-b of Schedule E) or Manufacturer can purchase directly imported prime core of approved makes as per specifications from other transformers manufacturers supplying transformers to the PSTCL with prior approval of this office. However, proper accounting of the core material in respect of both the seller and purchaser firms shall be ensured at the time of inspection, or transformer manufacturers can purchase directly imported prime core steel laminations of approved manufacturers through the following sources.

- i. Through the authorized distributors of approved manufacturers located in foreign countries.
- ii Through MMTC Ltd. Delhi (A Govt. of India Enterprises).
- iii POSCO, Korea make prime core through POSCO- India Steel Processing centre (P) Ltd. Pune in the slitted coils subject to the condition that only single slit up to 5%(MAX) out of the main coil of standard width shall be allowed or POSCO Korea make Prime core through POSCO-India Delhi Processing Centre Pvt. Ltd. Bawal, Rewari (Haryana) stock depot and POSCO-India Delhi Processing Centre Pvt. Ltd Mohail stock depot.
- iv Nippon, Kawasaki, JFE make through their authorized dealer in India M/s Mohindra Inter trade Delhi and from their works / stock yard at Kahne (Maharashtra).

- v Stalprodukt S.A. Poland through its authorised dealer in India M/S Parvarsh Impex Pvt. Ltd Mumbai.

The core material shall be processed by slitting only. Welded joint/ slitted coils shall not be accepted. Only one grade and one thickness of core shall be accepted and no mixing of different grade/thickness of lamination shall be allowed. Specific grade of the Prime core used/ to be used in the manufacture of transformer for PSTCL should be specifically mentioned in the tender along with source of procurement. **Only directly imported Prime Core shall be accepted.** PSTCL reserves the right to accept/reject CRGO of a particular manufacturer(s) at any stage without quoting any reason and may ask for the original documents relating to import/purchase of core to check the genuineness of the core used for manufacture of PSTCL transformers for which instructions/guidelines shall be issued after issuance of P.Os if required.

For the bolts used for clamping, the core shall be so insulated that there is no possibility of contact between edges and the core bolts. The bolts shall be tested at 2500 volts to earth. To prevent any possibility of movement of core assembly in transit, following provisions shall be made: -

- i) 4 No. core guides shall be provided at the bottom of the tank. Alternately, bottom foot channels of core and core channels shall be extended to serve this purpose
- ii) The core shall be securely fastened to sides of tank with minimum 4 fixing bolts.

## 22. WINDING AND INSULATIONS:

The conductor used for winding shall consist of high conductivity, non-oxidising solid drawn EC Grade aluminium. The primary windings shall be connected in delta and the secondary winding in star (Vector symbol Dy-II), so as to produce a positive displacement of 30° from the primary to the secondary vector of the same phase. The neutral of secondary winding shall be brought out to a separate insulated terminal. HV windings shall consist of maximum 4 coils per limb. All delta leads from HT coils as well as HT line leads should be taken out through DPC copper wires of sufficient X-sectional area to impart desired Mechanical strength.. The current density in these leads should however not exceeds 0.8 A/mm<sup>2</sup>. All the above leads should be taken out through standard bakelite Synthetic-Resin Bonded Paper(SRBP) tubes which should conform to relevant ISS/BSS.

The coils shall be circular in shape and their construction shall be such that there is no possibility of distortion under any likely conditions of service. The high and low voltage windings shall be concentric, with the low tension windings nearest the transformers core and high tension windings outside. The two windings shall be so placed that they remain

electro magnetically balanced under all conditions of service. The axial length of the coils must be kept down to a minimum so as to strengthen the winding against axial stresses under short circuit conditions.

In oil immersed winding, an adequate provision shall be made for the circulation of oil, so that a very low temperature gradient between aluminum and oil is assured and any danger of excessive local heating is eliminated.

The coils shall be wound to form a continuous coil or a number of discs and the individual discs separated to provide a distinct oil space between them. The inner coil shall be adequately insulated from the core. The insulating cylinders shall have high electrical and mechanical strength. No strip conductor wound on edge shall have a width exceeding six times its thickness.

All HV and LV coils ends shall be provided with crimped lugs. Starting and finishing leads to HT coils should be feruled, crimped and covered with insulating sleeve. These leads should also be clamped tightly with the body of winding with the help of cotton tape during manufacture of these coils. The star point on the LV side shall preferably be properly sleeved and crimped. However, the manufacturer may make the star point by fixing a neutral bus bar of aluminium with the help of bolts, nuts and spring washers etc. All fixations/joints should be such that there is no scope for loose contact, local heating, breakage of conductor, loosening due to vibrations. All the delta leads should be clamped tightly on to the special frame/bracket making pie connections. This frame/bracket could be made of bakelite flats having minimum size of 50x6 mm. The leads leading to the HV bushings terminals should then be clamped to the horizontal support base of 'pie' frame so that vibration during short circuit are not passed on to windings.

Copper strip/foil used for earthing the core should be tinned. The tinned foil should be properly connected to the channel with bolts and nuts after removing the paint from the channel underneath the copper foil. Current density both in LT and HT windings shall not exceed 1.50 Amp./mm<sup>2</sup>. The conductor size for HT & LT shall accordingly be chosen from the relevant IS specification and shall be of standard size as per ISS only.

All transformers shall be designed and constructed to withstand without damage, thermal & dynamic effects of an external short circuit. The manufacturer/supplier shall furnish the relevant design data & calculations in support of having fulfilled this requirement as stipulated under clause-9 of IS: 2026-1977(Part-I).

Double paper covering shall be used for winding insulation both for HV & LV winding. Two layers of electrical grade insulation kraft paper of 2 mil (min) thickness shall be used as inter layer insulation of HV & LV winding. Axial ducts for free flow of oil shall be provided with the help of axial wedges numbering at least 10 Nos. for 200 KVA T/Fs. Dovetailed spacers shall be used between coils of HV winding. Angle shaped or plain end

rings made from pre-compressed pressboard barriers shall be provided in between HV windings. Guides on all the four sides shall be provided to prevent shifting of the active part and thereby accidentally touching the tank.

Electrical grade insulating Kraft paper used shall be of Triveni/ Ballarpur /Raman make. Pressboard made from natural wood pulp, electrical grade type D conforming to ISS: 1576/ 1992 shall be used and will be of Senapathy Whitley/Raman or better and Gaskets of Talbros/ Nucork/Vincork.

### 23. CLEARANCES:

#### a. Following minimum internal clearances shall be maintained:

- |       |  |   |        |
|-------|--|---|--------|
| i.    | Between HV & LV  | : | 10 mm  |
| ii.   | Between HV winding & tank wall:-                         |   |        |
|       | • Non bushing side                                       | : | 30 mm  |
|       | • Bushing side   | : | 40 mm  |
| iii.  | Between sections of HV winding:                          | : | 08 mm  |
| iv.   | B Between HV windings With Bakelite/Press Board Barriers | : | 10 mm  |
| v.    | Between HV winding & Yoke (at ends) with end rings       | : | 25 mm  |
| vi.   | Between LV winding & Yoke(at ends)                       | : | 10 mm  |
| vii.  | Between Yoke & inside of tank top cover                  | : | 100 mm |
| viii. | Between Yoke & tank bottom                               | : | 40 mm  |
| ix.   | Between LV winding & Core                                | : | 03 mm  |

#### b. Following minimum external clearances shall be maintained:

<b>Voltage</b>	<b>Medium</b>	<b>Clearance Phase to Phase</b>	<b>Clearance Phase to Earth</b>
11000 V	Air	255 mm	205 mm
433 V	Air	75 mm	55 mm

### 24. LOCK NUTS:

Bolts and nuts shall be provided with lock washers or lock nuts. Split pins shall be used for the purpose of lock nuts.

**25. SPARES:**

NIL

**26. SILICAGEL BREATHER:**

The Silicagel breather device shall be as per design approved by **Dy. CE/TS (Design)**, PSTCL, Patiala and shall have capacity to contain 400 gm of silicagel.

**27. PAINTING AND FINISH:**

Before painting the steel surface shall be prepared by sand /shot blasting or chemical cleaning including phosphating as per ISS-3618-1966 (Reaffirmed 2002). The exterior of the transformer tank and other ferrous fittings shall be thoroughly cleaned, given two primer coats and two finishing coats of durable oil and weather resisting paint or enamel. The colour of the finishing coats shall be dark admiralty grey conforming to No. 632 of IS:1961" Colours for ready mixed paints."(Second revision). The interior of the tank alongwith other M.S. fittings shall be cleaned and suitably painted with antioxidant paint of high quality i.e. zinc chromate capable of withstanding 120° C temperature. All MS Screws, nuts fasteners, washers shall be electro-galvanized /galvanised. However, Nuts/bolts/washers inside the tank that come into contact with T/F. oil shall be coated with Zinc phosphate. Heat resistant paint (hot oil proof) can also be used for inside surface/varnish and for external surfaces one coat of thermosetting paint or one coat of Epoxy primer followed by two coats of polyurethane base paints. These paints can be either air drying or stoving.

**28. RAW MATERIAL:**

The raw material used in the manufacture of transformer shall be brand new and of the best quality available in the market. The information regarding source of procurement, testing of transformer oil etc. should be furnished as per Annexure-D enclosed herewith.

**29. TESTS AND INSPECTION:**

All tests shall be carried out in accordance with clause 16 of IS: 2026(Part-I) amended to date or any other applicable standard for transformers.

**29.1 ROUTINE TESTS:** All transformers shall be subject to the following routine tests at the manufacturer's works in accordance with IS: 2026 and 1180(Part-I): -

- a) Measurement of winding resistance.
- b) Ratio, polarity and phase relationship
- c) Measurement of impedance voltage/short circuit impedance.
- d) Measurement of Total losses at rated voltage & frequency at 50% & 100% loading.
- e) Load Losses, No Load Losses & No Load current.

- f) Insulation resistance
- g) Induced over voltage withstand
- h) Separate source voltage withstand
- i) Peel off test for Paint.
- j) Oil leakage test with pressure of 0.8 Kg/CM<sup>2</sup> above atmospheric pressure for 10 minutes.

This oil leakage test shall be carried out on 10% of transformers in each lot. The firm shall ensure to get this test conducted strictly as per relevant ISS. The losses shall be measured by three-watt-meter method & three-volt meter/Ammeters shall be used to measure voltage/current.

**29.2 OTHER TESTS:-** Any other test(s) becoming necessary with the amendment in relevant ISS or otherwise agreed to between the supplier and purchaser shall also be carried out.

**29.3 TYPE TESTS:** The following type tests shall be conducted on the transformers in addition to the routine tests from (a) to (j) as indicated in para 29.1 above.

**29.3.1. (i) AIR PRESSURE TEST:** The tank shall be fixed with a dummy cover with all fittings including bushings in position and shall be subjected to the following pressure created inside the tank.

- a) 0.8 Kg./cm<sup>2</sup> above the atmospheric pressure for 30 minutes.
- b) A vacuum corresponding to (-) 0.7 Kg/Cm<sup>2</sup> for 10 minutes. Permanent deflection of flat plate, after pressure has been released, shall not exceed the value given below:-

Length of plate	Deflection
upto 750 mm	5 mm
751 to 1250 mm	6 mm

ii) **UNBALANCED CURRENT TEST:** The value of unbalanced current by the ammeter as shown in the test arrangement in the figure (attached) shall not be more than 2% of the full load current.

iii) **TEMPERATURE RISE TEST:** shall be carried out on one unit from each lot offered for inspection. The tenderers shall submit calculations for temperature rise along with the tender.



iv) MAGNETIC BALANCE TEST: shall be conducted by connecting the B phase (central) of LV to rated voltage and measurement of LV side (Un, Vn, Wn) voltages,. Value shall be within a tolerance of (+/-) 2% (middle full & sides half).

**29.3.2** (i) IMPULSE VOLTAGE TEST: The test on all the three limbs of HT side as per clause-12 of ISS: 2026-1977 shall be got conducted in the presence of PSTCL's representative from some recognized /Govt. Test House.. The dispatches shall only be allowed after successful conductance of this test, on one transformer.

(ii) SHORT CIRCUIT TEST: The test shall be carried out in accordance with the details specified in IS: 2026-1977 and to be got conducted in the presence of PSTCL's representative from some recognized / Govt. Test House. Measurement of total losses at 50% loading and 100% loading shall form part of tests conducted before & after the short circuit test and recorded in the report. The dispatches shall be allowed only after successful conductance of this test on one transformer.

(iii) Charges for routine tests and type tests including impulse voltage withstand test and short circuit test will be included in the quoted prices. No extra charges will be payable for these tests.

(iv) No supplies will be allowed to be dispatched without inspection by the purchaser/its representative and without carrying out the impulse and short circuit tests satisfactorily.

Note: - If samples fail in any of the type tests viz. short circuit tests or impulse voltage tests, the whole lot shall be considered rejected . The firm shall put up fresh lot for inspection and get the type tests carried out again at its own cost.

**29.4** FLUX DENSITY TEST : The supplier shall arrange to conduct the flux density test on one of the cores of transformers in each lot so as to ensure that the flux density does not exceed the maximum specified limit of 1.60 tesla at normal voltage and frequency.

**29.5** OIL TEST: At least two samples of oil shall be drawn from each and every lot of transformers offered for inspection to ensure that the transformer oil used complies with the requirements of the specification as per Annexure-C. (Attached). Two samples of transformer oil will also be drawn from the lot of fresh transformer oil drums/storage tanks received by the firm to check conformity to ISS: 335 with latest amendment. However, transformer oil shall be considered conforming to ISS: 335 (with latest amendment), if the value of specific resistance at 27°C is  $900 \times 10^{12}$  ohm-cms (Min.)

The dispatches of such lot shall only be allowed after receipt of satisfactory oil test results from PSTCL oil testing lab. Ludhiana. The following acceptance tests will be carried out at transformer manufacturer's works (if testing facilities are available

at Manufacturer's Works) :-

- a) BDV of oil (fresh & from T/F tank)
- b) Measurement of resistivity of oil
- c) Measurement of acidity of oil.
- d) Measurement of tan delta of oil.

**29.6** TRANSFORMER OIL: The transformer oil shall be purchased by the contractor directly from the transformer oil manufacturers whose product have been given ISI certificate mark. The firm shall ensure to get the tests conducted strictly as per relevant ISS. Net quantity of oil (upto 30°C mark) excluding the oil soaked in core-coil assembly shall be given in G.T.P. Approximate quantity of oil soaked in core-coil assembly may however be given separately.

**29.7** PHYSICAL CHECK OF VARIOUS DIMENSIONS (INTERNAL AND EXTERNAL) WEIGHT CLEARANCE ETC.

One number transformer from each lot shall be opened for checking of core weight, size and weight of HT & LT conductor, quantity of oil and various clearances etc.

**29.8.** INSPECTION: The inspection shall be carried out by PSTCL's representative or any outside inspection agency to be nominated by the PSTCL. All tests and inspection shall be made at the place of manufacture unless otherwise specifically agreed upon by the manufacturer and purchaser at the time of purchase. The manufacturer shall provide all reasonable facilities to the inspectors representing the purchaser, without charges to satisfy that the material is being manufactured in accordance with this specification.

The PSTCL shall inspect, examine and test equipment/material through its official(s) and /or through an outside agency nominated by PSTCL at the Manufacture's/supplier's work during or after the manufacture of goods prior to despatch on receipt of a clear notice of minimum two weeks in advance to be reckoned from the date of receipt by Purchaser. The supplier/contractor shall provide all facilities as may be required to carryout the tests in accordance with approved standards free of cost.

It shall be the responsibility of the manufacturer to provide during inspection, all testing instruments duly calibrated from a Govt. Test House/Govt. approved test house within last 12 months. Before using an instrument, the PSTCL's representative shall ensure that the seal of the test house is intact and at none of the calibrated points the instrument has error more than the prescribed limits of error.

Manufacturers shall maintain a complete record of the Routine tests carried out on the transformers and shall produce the same whenever desired by the purchaser.

**29.9.** The purchaser has the right to have the tests carried out at his own cost by an independent agency whenever there is any dispute regarding the quality of supply. If the transformer, fails in the test, the cost shall be borne by the supplier and if passes, the cost shall be borne by the PSTCL.

**29.10.** PSTCL also reserves the right to get transformers tested out of any lot after receiving the same in the store. In case the T/Fs fails in tests, the entire lot shall be rejected at risk & cost of the supplier.

**29.11 MEASUREMENT OF TOTAL LOSSES AT 50% AND 100% LOADING**

After pre-dispatch inspection of material at firm's work, dispatch instructions will be issued for the respective Stores as per requirement of PSTCL. Sample(s) will be drawn from the lot(s) received in Store (s) and will be subjected to the following test(s) :-

One transformer will be selected out of 10 Nos. or part thereof for measurement of total losses at 50% & 100% loading at rated current. The test results will be applicable to the respective lot of 10 Nos. or part thereof from which sample was drawn.

**Note:-**

PSTCL at its discretion can check any no. of T/Fs up to 100% received in PSTCL stores for total losses at 50% and 100% loading. Transformers which have measured total losses at 50% & 100% loading in excess to the maximum losses will not be accepted & supplier will have to replace the same at his risk & cost.

**30 PAST PERFORMANCE:-**

Past performance of the firms upon whom orders have been placed by this office for this material shall be taken into account while deciding the case. The firms, with unsatisfactory performance are likely to be ignored, even if otherwise found technically acceptable & coming within the zone of consideration.

**31. PACKING:**

The transformers shall be delivered suitably packed. Although the method of packing is left to the discretion of manufacturer but it should be robust enough for rough handling that is occasioned during transportation by Road. All accessories shall be dispatched in boxes or cases. They shall be of tin, securely bound with wire and shall have all descriptive marking stamped thereon. The transportation arrangements of the transformers from the place of manufacture to the destination are also required to be

such that the transformers are properly transported to the PSTCL stores. It will be preferable to depute one suitable technical hand to get the transformers checked in Stores before the same are taken on books and attend to those transformers which are found leaking or which may have developed some other defect during transportation.

**32. MANUFACTURE:**

Place of manufacturer, testing & inspection of material must be stated by the tenderers clearly.

**33. DRAWINGS:**

Complete set of transformer drawing should be submitted along with the tender. Four blue prints of the general outline and assembly drawing for the transformer shall be submitted to this office within two weeks of placement of order. The drawing should give dimensions, weight, accessories, plan, front and side elevation. The dimensions, weights mentioned in the above drawing should be same as guaranteed by you in your tender offer.

NOTE:- No negative tolerance will be allowed on dimensions.

**34. GUARANTEED TECHNICAL PARTICULARS:**

The guaranteed technical particulars of the transformer as per Annexure-B shall be furnished with the tender. Any other particulars considered necessary by the supplier may also be given in addition to those listed in Annexure-B.

Dy. CE/TS (Design),  
PSTCL, Patiala

## ANNEXURE 'A'

**SCHEDULE OF REQUIREMENT AND DELIVERY**

<b>TENDER NOTICE</b>	<b>DESCRIPTION</b>	<b>NIT QTY (Nos.)</b>	<b>QTY.OFFERED (Nos.)</b>
<b>STQ-4006/2014-15</b>	200 KVA, 11/0.433 KV, 3 phase 50 cycles out door, oil immersed naturally cooled stack core type Aluminium wound conventional type 4-Star rated distribution transformers complete with fittings as per our specification & conforming to IS 2026 / 1977 & 1180/ 1979 (with latest amendments) and oil conforming to ISS: 335/1993(with latest amendment) & PSTCL Specification	<b>10 Nos.</b>	

**NOTE:** Tenderers are required **to quote for not less than 50% of NIT quantity** failing which the tender of the firm shall not be processed for opening of price bid i.e. Part-III. No change in offered quantity after opening of tender shall be entertained.

**DELIVERY SCHEDULE:**

**Commencement** : Within Two month from the date of receipt of P.O. with minimum 5 No. T/Fs and the balance quantity shall be supplied in the next two months.

**Completion** : Within two month thereafter.

**Note** : i) Early supply may be taken keeping in view the requirement of works.  
ii) Delivery may be taken as per requirement of works

However, the purchaser reserves the right to divide the tendered quantity to have material as per requirement. In case the order is placed on more than one firm, the delivery period shall be changed on pro-rata basis.

## ANNEXURE 'B'

**SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS FOR 4-STAR RATED  
200 KVA ALUMINIUM WOUND DISTRIBUTION TRANSFORMERS.**

1. Normal continuous output under site conditions in KVA.
2. Continuous output as a percentage of Indian Standard Specifications rating.
3. Over-load capacity for 2 hours under site conditions after running continuously at full load.
4. With annual weighted ambient temp. of 40°C, maximum temperature rise of:
  - a) Oil by thermometer in °C
  - b) Winding by resistance in °C
  - c) Maximum hot spot temperature in °C (by calculation).
5. **CORE PARTICULARS.**
  - a) Thickness of laminations:
  - b) Name of CRGO manufacturer.
  - c) Curve supplied by the manufacturers of the core plate, material (Loss/Kg.)
  - d) Core dia in mm:
  - e) Core weight in Kg.
  - f) Core frame size.
  - g) No.of steps:
  - h) Type and Grade of Core material
  - i) Maximum flux density at:
    - a) Normal voltage ( in tasla).
    - b) 12.5% over voltage ( in tasla).
6. **WINDING PARTICULARS**
  - a) Aluminium weight of HT coils (in Kg.)
    - i) Bare.
    - ii) Covered.
  - b) Aluminium weight of LT coils ( in Kg.)
    - i) Bare
    - ii) Covered.
  - c) Size of conductor( in sq. mm as well as in mm also) as per ISS
    - i) HT
    - ii) LT
  - d) Total number of turns per phase:
    - i) HT
    - ii) LT
  - e) Current density in Amp./Sq.mm (Max.)
    - i) HT
    - ii) LT
7.
  - i) No load current at 100% voltage and 50 Hz in Amps.
  - ii) No load current at 112.5% of normal voltage & frequency.
8.
  - a) No Load Loss Guaranteed (Max)  
Load Losses Guaranteed (Max) at 75°C
  - b) **Total losses guaranteed at 75°C (Max.)**
    - i) at 50% loading
    - ii) at 100% loading
9. **Winding Resistance at 75°C(ohm/phase)**
  - a) HV:
  - b) LV:

10. **Efficiency at 75°C at unity P.F. and 0.8 P.F.**  
**at unity P.F. at 0.8 P.F**
- i) Full load  
 ii) 3/4 load  
 iii) 1/2 load  
 iv) 1/4 load
11. Load at which maximum efficiency occurs:  
 12. Reactance at full load:  
 13. Impedance at full load at 75°C  
 14. Regulations:  
 a) Full load at unity power factor:  
 b) Full load 0.8 power factor lagging.
15. **Minimum internal clearance**
- |   |   |
|---|---|
| a) Between HV & LV                          | = |
| b) Between HV winding & tank wall           | = |
| i) Non-bushing side                         | = |
| ii) Bushing side                            | = |
| c) Between section of HV winding            | = |
| d) Between HV winding                       | = |
| e) Between HV winding & yoke (at ends)      | = |
| f) Between LV winding & yoke (at ends)      | = |
| g) Between yoke & inside of tank top cover. | = |
| h) Between yoke & tank bottom               | = |
| i) Between LV winding & Core                | = |
16. **Internal Insulation:**  
 a) Turn insulation High voltage:  
 b) Turn insulation low voltage:  
 c) Insulation core to low voltage:  
 d) Interlayer insulation of HV & LV Coils:  
 e) Type of insulation used for HV & LV windings.  
 (Angle shaped/plain end rings made from pre-compressed board shall be used between the end coils and the core).
17. Dry flash over voltage at 50 cycles of HT & LT Bushings in KV  
 18. Wet flashover voltage at 50 cycles of HT Bushings.  
 19. Impulse flash over voltage with 1.2/50 positive wave of HT bushings in KV.  
 a) One minute dry withstand power frequency voltage in KV.  
 b) One minute withstand power frequency voltage.  
 c) Puncture voltage of HT bushings at Power frequency in KV.
20. **Impulse withstand voltage of T/fs.windings.**  
 a) with 1.2/50 positive wave KV:  
 b) With 1.2/50 Negative wave KV:
21. Spark over length of HT bushings(i.e. string length MM).  
 22. HT pressure test(separate sources ) of HT windings 50 cycles for one minute.  
 23. Quantity of oil in transformers.  
 24. Weight of complete T/fs.with oil:  
 25. Tank thickness sides:  
 26. Tank thickness of top and bottom:  
 27. Weight of tanks fittings and accessories:  
 28. Approx. dimensions (LXBXH)in mm:  
 i)over all  
 ii)Inside of tank  
 29. Max. depth of HT coils (in cms):

30. Radial width of oil duct between LT & HT
  31. Standard reference of bushings:
  32. Type of transformer, shell or core:
  33. Standard reference of transformers:
  34. Vector group of connections:
  35. Current Density of HT Delta wire:
- NOTE:- The above information must accompany the tender.

**Note :-** Above approved GTPs shall be applicable up to Type Tests/ First Lot. For subsequent supplies, all parameters as per First Lot shall be maintained. But in no case any parameter less than GTPs shall be accepted in First Lot. In case type tests are waived off, then all technical parameters & dimensions shall be as per type tested Transformers and no negative/positive variation shall be accepted.



## 'ANNEXURE 'C'

**SCHEDULE OF GUARANTEED CHARACTERISTICS OF NEW TRANSFORMER OIL IN DRUMS/TANKERS AND IN TRANSFORMERS.****A OIL IN DRUMS/TANKERS:**

<b>S.No.</b>	<b>Characteristics</b>	<b>Requirements</b>
1.	Appearance	Oil shall be clear & transparent & free from suspended matter or sediments.
2.	Density at 29.5°C(Max.)	= 0.89 g/cm <sup>2</sup>
3.	Kinematic viscosity at 27°C(Min.)	= 27 CST
4.	Interfacial tension at 27°C(min)	= 0.04 N/M
5.	Flash Point(Min.)	= 140°C
6.	Pour point(Max)	= -6°C.
7.	Neutralisation value	
	a) Total acidity (Max.)	= 0.03 mg.KOH/gm.
	b) Inorganic acidity	= Nil
8.	Corrosive sulphur.	= Non-corrosive
9.	Electric strength (Break down voltage)Min.	
	a) New untreated oil	= 30 KV(rms)
	If the above value is not obtained the oil shall be treated.	
	b) After treatment.	= 60 KV (rms.)
10.	Dielectric dissipation factor(Tan-delta)at 90°C	= 0.002(Max.)
11.	SK value(Max.)	= 8%
12.	Water content(Max.)	= 50 ppm.
13.	Specific resistance (resistivity)	
	a) At 90°C(Min.)	= 35 x 10 <sup>12</sup> ohm-cm
	b) At 27°C(Min.)	= 900 x 10 <sup>12</sup> ohm-cm
14.	Oxidation stability:	
	a) Neutralisation value after oxidation(max.)	= 0.40mg KOH/gm.
	b) Total sludge after oxidation (Max.)	= 0.10% by weight
15.	Ageing characteristics after accelerated ageing (open breaker method with copper catalystr.)	
	a) Specific resistance(Resistivity)	
	i) At 27°C Min.	= 2.5 x 10 <sup>12</sup> ohm-cm
	ii) At 90°C Min.	= 0.2 x 10 <sup>12</sup> ohm-cm
	b) Dielectric dissipation factor(tan delta)at 90°C	= 0.2 Max.
	c) Total acidity(Max)	= 0.05 mg KOH/gm.
	d) Totals sludge value percent by weight	= 0.05 Max.
16.	Presence of oxidation inhibitor	= Absent

**B) CHARACTERISTICS OF OIL IN THE TRANSFORMERS**

The important characteristics of the transformer oil after it is filled in the transformer (with in 3 months of filling ) shall be as follows:-

<b>S.No.</b>	<b>Characteristics</b>	<b>Permissible limit satisfactory for use.</b>
1.	Electric Strength(Breakdown voltage KV) (Prior to energisation).	= 50 KV minimum
2.	Water content(PPM)	= 25 PPM (Max.)
3.	Specific Resistance(Resistivity )ohm-cm at 90°C.	= 2 X 10 <sup>12</sup> ohm-cm(Min.)
4.	Dielectric dissipation factor tan delta)at 90°C	= 0.01 (Max.)
5.	Neutralisation value(Total acidity)	= 0.055 mg.KOH/gm(Max.)
6.	Sediment and/or precipitable sludge.	= Absent
7.	Flash point	= 140°C (Min.)
8.	Interfacial tension at 27°C.	= 0.030 N/m(Min.)

## ANNEXURE 'D'

**SOURCE OF MATERIAL, TESTING & INSPECTION ETC.**

<b><u>S.No.</u></b>	<b><u>Item</u></b>	<b><u>Source of material</u></b>	<b><u>Place of manufacture.</u></b>	<b><u>Place of testing and Inspection</u></b>
1.	Copper			
2.	Aluminium			
3.	Core laminations.			
4.	Transformer oil.			
5.	ERW Tubes.			
6.	Steel sheets.			
7.	Bushings.			
8.	a) Porcelain HV b) Epoxy LV			
9.	Insulating Cylinders			
10.	Insulating Paper.			
11.	Corrugated Cylinders.			

**ANNEXURE 'E'****FITTINGS AND ACCESSORIES**

- (i) 3 no. 11KV porcelain bushings with brass studs fitted with single gap arching horns along with bi-metallic connectors/thimbles.
- (ii) 4 no. 0.433 KV porcelain bushings with brass studs (neutral to be made available on LV side) /thimbles.
- (iii) Drain cum sampling valve made of steel welded to tank as per drawing.
- (iv) Conservator tank provided with drain plug and a filling hole with cap.
- (v) One set of lifting lugs.
- (vi) Rating & diagram plate of brass containing details as provided in IS: 2026 and also "Property of Punjab State Transmission Corporation Ltd" shall be engraved in bold letters.
- (vii) Two earthing terminals, one on either side of the base.
- (viii) Air release arrangement.
- (ix) ERW elliptical tube radiators of minimum thickness of 18 SWG.
- (x) Oil level gauge indicating three positions of oil marked as under: -
 

Minimum	(-) 05°C
	30°C
Maximum	95°C
- (xi) Thermometer pocket to be suitably plugged with a threaded cap.
- (xii) Base channel.
- (xiii) Silicagel breathing device of approved design/dimensions.
- (xiv) One 4 inch dial type thermometer.
- (xv) For uni-directional rollers.
- (xvi) Explosion vent
- (xvii) Filter valve with plug ¾ inches BSP.

**NOTES:**

- i) The bushing rods, bushings cap washers & bushings nuts etc. should be made of brass.
- ii) The threading on the nuts & bushings rods should be of one uniform specification.
- iii) All MS fittings & fastners etc. may preferably be electro-galvanised.
- iv) The special tools for operating the valves shall be supplied with the transformer.
- v) To ensure that transformer is not opened by PSTCL's field staff during warranty period, six no. suitable clamps shall be welded with top cover & tank body as well as drain valve flange after the transformer has been inspected and sealed by PSTCL's inspecting Officer.

However, the arrangement shall be got approved by the supplier from PSTCL before commencement of supplies.

vi) The Transformers after the testing be sealed by providing four dedicated holes running across the Transformer cover through flange of the tank and not through the bolts provided on the four corners of the Transformer.

#### TEST REQUIREMENTS FOR CONNECTORS

	HT	LT
1. Rates normal current rating	50 Amps.	200 Amps.
2. Short time current rating (Amps.for 1 Sec)	3000	3000
3. Tensile Strength	110 Kg.	110 Kg.
4. <b>Resistance test:</b> The resistance of 1.25 meter of conductor including the connector shall not exceed the resistance of 1.25 meter of identical conductor without connector by more than 10%.		
5. <b>Temperature rise test:</b> The steady state temperature rise of connector above the reference ambient temperature of 40°C when carrying rated current, shall not exceed 45°C.		

#### TYPE TESTS

- a) Tensile test
- b) Resistance test
- c) Temperature rise test
- d) Short time
- e) Dimensional check.

#### ACCEPTANCE TESTS

- a) Tensile test
- b) Resistance test
- c) Temperature rise test.
- d) Dimensional check

#### ROUTINE TESTS

- a) Visual examination
- b) Dimensional check.

#### NOTES:

1. Permissible tolerance shall be + 5% on the dimensions indicated.
2. The minimum clearance between phase to phase shall be 25mm and phase to earth 20 mm when the connectors are fixed in position on the terminal block of MOCB on the HT side.
3. All the above tests shall be carried out in accordance with IS:5561, latest version.
4. Supplier of the transformer/connector shall provide necessary testing facilities at his works for the acceptance tests.

**ANNEXURE-F****PRICE SCHEDULE**

T.E NO. : STQ- 4006/2014-15  
 NAME OF ITEM : 200 KVA Aluminium Wound 4- Star rated Distribution Transformer  
 NATURE OF PRICE : VARIABLE  
 BASE DATE : One month prior to the date of opening of Tender (01.02.2015)

1.	Ex-works per unit price inclusive of packing forwarding (forming part of production)	
2.	Excise duty & cess @ _____%	
3.	Central Sales Tax @ _____%	
	VAT @ _____%	
4.	Freight & Insurance charges	
5.	Entry Tax @ _____%	
6.	Any other local duty/ levy or Taxes	
7.	Total all-inclusive FOR Destination Rate per unit anywhere in Punjab. (1+2+3+4+5+6)	

**ANNEXURE-G****PRICE VARIATION FORMULA FOR TRANSFORMERS WITH ALUMINIUM WINDINGS.**

The price quoted/confirmed is based on the cost of raw materials/components as on the date of quotation and the same is deemed to be related to prices of raw material index number for Aluminium Wound Transformers as specified below. In case of any variation in the these rates and index number, the prices shall be subject to adjustment up or down without ceiling limit in accordance with the following formulas:-

$$P = \frac{P_o}{100} \left[ 23 + 18 \frac{AL}{ALo} + 26 \frac{Es}{Eso} + 17 \frac{FE}{FEo} + 4 \frac{IM}{IMo} + 12 \frac{TO}{TOo} \right]$$

Where in

P= Price payable as adjusted in accordance with the above formula.

Po = Price quoted/confirmed.

ALo= Price of EC Grade Aluminium rods (properzi rods)

This price is as applicable on the 1<sup>st</sup> working day of the month, **one** month prior to the date of tendering

ESo= C&F price CRGO Grade Electrical steel sheets.

This price is as applicable on the 1<sup>st</sup> working day of the month, **one** month prior to the date of tendering

FEo= Whole sale price index number for "Ferrous Metals (Base 2004-05=100)"

This index number is as applicable for the month, **three** months prior to the date of tendering

IMo = Price of insulating materials.

This price is as applicable on the 1<sup>st</sup> working day of the month, **one** month prior to the date of tendering

TOo= Price of Transformer Oil

This price is as applicable on the 1<sup>st</sup> working day of the month, **one** month prior to the date of tendering

For example, if date of tendering falls in May 2011, the applicable price, Aluminum rods (ALo) , of transformer Oil (TOo), CRGO Steel Sheets (ESo)and insulating material (IMo)should be as on 1<sup>st</sup> April, 2011 and wholesale price index number for 'Ferrous Metals (FEo) should be for the month of February 2011..

The above prices and indices are as published by IEEMA vide circular reference number IEEMA(PVC)/STAR-DIST-AL/2012 prevailing as on 1<sup>st</sup> working day of the month i.e. one month prior to the date of tendering.

AL= Price of EC Grade Aluminum rods(properzi rods)

The price is as applicable for the month, **one** month prior to the date of delivery.

ES= C&F price of CRGO Grade Electrical Steel Sheets

This price is as applicable on the 1st working day for the month, **one** month prior to the date of delivery.

FE = Wholesale price index number for ' Ferrous Metals ( base 2004-05=100)

This index number is as applicable for the month, **three** months prior to the date of delivery.

IM = Price of insulating materials

This price is as applicable on the 1st working day of the month, **one** month prior to the date of delivery.

TO= Price of Transformer Oil.

This price is as applicable on the 1st working day of the month, **one** month prior to the date of delivery.

For example, if date of delivery in terms of clause falls in Dec, 2011, the applicable price of Aluminum rods(AL) Transformer Oil (TO), CRGO Steel sheets (ES) and Insulating material (IM) should be as on 1st November 2011 and Whole sale price index number for 'ferrous metals (FE) should month of September 2011.

The "date of delivery" shall be the date on which the transformer is notified as being ready for inspection/dispatch (in the absence of such notification, the date of manufacturer's dispatch note shall be considered as the date of delivery) or the contracted delivery date (including any agreed extension there to), which ever shall be the earlier.

In case of delayed deliveries, the purchaser reserves the right to make payments for price variation on the basis of the prices computed according to the contractual delivery date or the actual delivery date whichever is advantageous to the purchaser.

The claim of variation in price on account of change in the indices of material shall be furnished by the supplier along with all documents in support of their claims.

**NOTE:** No cognizance of E.D. components published separately (in IEEMA CIRCULARS) shall be taken by PSTCL for working out price variation claims.

**ANNEXURE-H****WORKS APPRAISAL PERFORMA**

Performa for eliciting information for appraisal of Firm's capability to manufacture item (s)/ equipment as per requirements of PSTCL specification.

**1. PARTICULARS**

Name of the Tendering firm/Company Concerned:

Year of Establishment:

Pan No.:-

Day on which weekly holiday is observed:

Sr. No.	Item	Registered office	Works
i)	Complete Address		
ii)	Telephone Nos.		
iii)	Fax No.		
iv)	E-mail Address		

**2. PARTICULARS OF TWO RESPONSIBLE OFFICERS WITH DESIGNATION**

(MANAGING DIRECTOR/PARTNER/CHIEF ENGINEER/WORKS ENGINEER ETC.)

Sr. No.	Particulars	I	II
i)	Name		
ii)	Father Name		
iii)	Designation		
iv)	Address		
v)	Telephone Nos.		
vi)	PAN No.		

**3. CONSTITUTION.** (Mark, which ever is applicable)

i)	Public Limited	Yes / No
ii)	Private Limited	Yes / No
iii)	Partnership	Yes / No
iv)	Proprietorship	Yes / No
v)	Small Scale Registered or Not	Yes / No
vi)	Copy of Memorandum & Articles of Association enclosed	Yes / No
vii)	Partnership Deed enclosed	Yes / No
viii)	Small Scale Registration Certificate enclosed	Yes / No



**4. FINANCIAL POSITION.**

i)	Land Area	
ii)	Building (Approx. Covered Area)	
iii)	Investment made by Proprietors / Partners	
iv)	Resource raising capacity	
	a) Credit facility available	
	b) Name and address of reference bank	
	c) Others	
v)	Annual Financial Turnover (duly audited for the last three years):	i)
		ii)
vi)	Latest Income Tax clearance certificates / copy of return	

**5. MAN POWER:** Design group, Production group & Quality Control group.

		Design	Production	Quality Control	Other Jobs	Total
i)	Graduate Engineer(s)					
ii)	Diploma Holder(s)					
iii)	Skilled Workers					
iv)	Un-skilled workers					
v)	Any other category					

**6. Details of facilities available/ source for:**

i)	Core Slitting	
ii)	Core Annealing	
iii)	Tank Fabrication	
iv)	Handling of Heavy material	
v)	Oil Dehydration Set	
vi)	Coil Winding	

**7. Source of raw material**

i)	Radiators	
ii)	Conductor	
iii)	Oil	
iv)	Insulating Materials	
v)	Bushings	
vi)	Arrangement for direct import of Core.	

**8. QUALITY CONTROL SYSTEM:**

i)	During manufacturing	
ii)	During core cutting	
iii)	During coil fabrication	
iv)	During assembling	
v)	During finishing product	

**9. TESTING FACILITIES AVAILABLE:**

Sr. No.	Name of Test	Yes	No
A)	<b>TYPE TESTS:</b>		
(i)	Air Pressure Test	Yes	No
(ii)	Unbalanced Current Test	Yes	No
(iii)	Temperature Rise Test	Yes	No
(iv)	Magnetic Balance Test	Yes	No
B)	<b>ROUTINE /ACCEPTANCE TESTS:</b>		
(i)	Measurement of winding resistance.	Yes	No
(ii)	Ratio, Polarity & Phase relationship.	Yes	No
(iii)	Measurement of impedance voltage / short circuit Impedance.	Yes	No
(iv)	Load losses.	Yes	No
(v)	No load losses & no load current.	Yes	No
(vi)	Insulation resistance.	Yes	No
(vii)	Induced over voltage withstand.	Yes	No
(viii)	Separate source for high voltage test	Yes	No
(ix)	Peel off test for Paint.	Yes	No
(x)	Oil leakage test with pressure of 0.8 kg/sq mm above atmospheric pressure.	Yes	No
(xi)	Core insulation test.	Yes	No
(xii)	Flux density test.	Yes	No
(xiii)	<b>Oil test :-</b>	Yes	No
	a) BDV of oil (fresh & from T/F tank)	Yes	No
	b) Resistivity of oil.	Yes	No
	c) Tan delta of oil.	Yes	No
	d) Acidity of oil.	Yes	No

**10. DETAILS OF TRANSFORMERS MANUFACTURED IN LAST THREE YEARS.**

Year	<25 KVA	≥25 KVA & upto ≤100 KVA	≥100 KVA & Upto ≤300 KVA	≥300 KVA
2011-12				
2012-13				
2013-14				

**NOTE:** Transformers repaired not to be included.

**11. IMPULSE & SHORT CIRCUIT TESTS;**

25 KVA		63 KVA		100 KVA		200 KVA		300 KVA		500 KVA		*Higher rating	
Yes	no.	Yes	no.	Yes	no.	Yes	no.	Yes	no.	Yes	no.	Yes	no.

\* to specify rating(s)

**12. MANUFACTURING CAPACITY IN KVA PER MONTH:****13. DETAILS OF ORDERS EXECUTED/UNDER EXECUTION DURING THE LAST THREE YEARS:**

Copies of performance certificates issued by the utilities or any other proof of successful supplies such as copies of receipt challans etc. should be enclosed with the tender. Only copies of P.O.s/ list of P.O.s may not be treated as authentic proof.

	Rating	25 KVA	63 KVA	100 KVA	200 KVA	300 KVA
i	With PSTCL/PSPCL.					
ii	Other State Electricity Boards/Govt. undertakings					
ii	Other important customers.					

**14. GENERAL INFORMATION**

1.	Whether the transformers are on Punjab Govt./DGS&D/Central Govt. approved Rate Contracts	Yes	No
2.	Whether conforms to ISS or any other internationally recognised Standards, if so, give reference.	Yes	No
3.	Whether the firm is authorised to use ISI Mark or ISO or any other Govt. Quality Mark (Copies of latest Test Certificates issued by Govt. Laboratories/Any Recognised Test House be attached.)	Yes	No

## ANNEXURE 'I'

**MANUFACTURING CAPACITY OF TENDERER**

1. Name of the firm:
2. Monthly manufacturing capacity:
  - (a) If only 6.3 KVA Distribution T/Fs are manufactured:
  - (b) If only 10 KVA Distribution T/Fs are manufactured:
  - (c) If only 16 KVA Distribution T/Fs are manufactured:
  - (d) If only 25 KVA Distribution T/Fs are manufactured:
  - (e) If only 63 KVA Distribution T/Fs are manufactured:
  - (f) If only 100 KVA Distribution T/Fs are manufactured:
  - (g) If only 200 KVA Distribution T/Fs are manufactured:
  - (h) If only 300 KVA Distribution T/Fs are manufactured:
  - (i) If only 500 KVA Distribution T/Fs are manufactured:

If any other ratings (specify rating) Distribution T/Fs are manufactured:  
Average monthly manufacturing capacity of assorted rating:
3. Monthly manufacturing capacity of power T/Fs (if any) in addition to Sr. No. 2 above :
4. Monthly repairing capacity (Assorted rating) in addition to Sr. No. 2 & 3 above. :
5. Turn over during last three years (copies of **Balance Sheets duly audited** must be enclosed)
  - (a) 2011-2012 Rs.
  - (b) 2012-2013 Rs.
  - (c) 2013-2014 Rs.
6. No. of T/Fs (assorted ratings) manufactured during last three years:
  - (a) 2011-2012
  - (b) 2012-2013 .
  - (c) 2013-2014
7. No. of T/Fs (assorted ratings) repaired during last three years:
  - (a) 2011-2012
  - (b) 2012-2013 .
  - (c) 2013-2014
8. No. of pending orders placed by PSTCL/PSPCL and other S.E.Bs/other organisations :
9. Quantity still to be supplied (on date) against orders mentioned at Sr.No. 8 above :
10. Fabrication facility for tank, core and Coil :
11. Over capacity :

**ANNEXURE-J****SCHEDULE OF DEVIATIONS**

Tenderer shall carefully state below any and all points in this proposal which are not in accordance with PSTCL's Technical Specification and the General Instructions:-

**Technical & Commercial Deviations:**

Sr. No.	Para no.	Technical Deviation, if any.
1. 2. 3. contd...		
Sr. No.	Para no.	General Deviation, if any.
1. 2. 3. contd...		

**Note:**

The tenderer is to clearly indicate any deviation in technical & general terms and conditions in this Annexure only. In case, the Technical Specification as well as General conditions of Tender Specifications are acceptable in toto, the word 'NIL' shall invariably be put in the above Columns. In case, nothing is mentioned here then it shall be presumed that there is no deviation in the offer and terms and conditions of the specifications are acceptable to the bidder in toto.

## ANNEXIURE-K

**GENERAL COMMERCIAL PARTICULARS**

(Following information must be supplied by the tenderers)

1.	<b>Excise Duty</b>			
	i) Rate considered in quoted prices			
	ii) Modvat benefit considered or not			
	iii) In case Nil / Concessional rate of ED is applicable then maximum rate of ED applicable at the time of tendering will be absorbed by us.			
2.	<b>CST / VAT</b>			
	i) Rate considered in quoted prices			
	ii) In case Nil / Concessional rate of CST/ VAT is applicable then maximum rate of CST/ VAT applicable at the time of tendering will be absorbed by us.			
3.	<b>Entry Tax</b>			
4.	Any other local duty/levy of Taxes			
5.	Validity of offer		120 Days	
6.	a) Nature of Price		VARIABLE	
	b) Base Date		One month prior to the date of opening of Tender ( <b>Base date 01.02.2015</b> )	
7.	Turnover (Rs. in Cr.)	2011-12	12-13	13-14
8.	PAN of the Firm			
	PANs of all Directors/ Partners			
9.	a) Name/ Designation of Contact person			
	b) Phone, Mob. No, Fax No.			
10.	Any other information to be mentioned by the bidders			

**ANNEXURE-L****UNDERTAKING FORM**

(To be entered on a Non-Judicial Stamp Paper)

We\_\_\_\_\_state that our works are situated in the State of Punjab and we claim "Order Preference" as stipulated in the PSTCL tender specification No.\_\_\_\_\_due on\_\_\_\_\_against which we have submitted our tender No.\_\_\_\_\_dated\_\_\_\_\_. We undertake to execute the order/contract if placed/awarded on to us even by counter offer at the rates worked out by Punjab State Transmission Corporation Ltd in accordance with its Purchase Regulations. It is further understood that in the event of refusal by us or failure on part to execute the order/contract (full or part) placed/awarded on to us under "Order Preference" on any account what-so-ever, the Punjab State Transmission Corporation Limited shall have the right to forfeit the earnest money deposited by us and we shall have no claim for the refund thereof. The Punjab State Transmission Corporation Ltd shall also have the right to suspend business dealing with us and to black-list our firm, without prejudice to other rights accruing to the PSTCL under the Purchase Order/contract, if placed/awarded on to us.

Signature of Constituted Attorney

**ANNEXURE-M****PERFORMA FOR BANK GUARANTEE**

(TO BE EXECUTED ON NON-JUDICIAL STAMP PAPER OF THE APPROPRIATE VALUE

\_\_\_\_\_ BANK GUARANTEE NO. \_\_\_\_\_

\_\_\_\_\_ DATED \_\_\_\_\_.

1. The bank of \_\_\_\_\_ hereby agrees un-equivocally and unconditionally to pay, within 48 hours, on demand in writing from the Chief Engineer, Punjab State Transmission Corporation Ltd., or any officer authorized by him in this behalf, of any amount up to and not exceeding Rs. \_\_\_\_\_ (in words Rupees \_\_\_\_\_) to the Punjab State Transmission Corporation Ltd., on behalf of M/s. \_\_\_\_\_ who have entered into a contract or have unconditionally accepted for the Purchase Order No. \_\_\_\_\_ dated \_\_\_\_\_ for the supply of material \_\_\_\_\_ for order value of Rs. \_\_\_\_\_.
2. This guarantee shall be and binding on this bank up to and including \_\_\_\_\_ and shall not be terminable by notice or on account of any change in the constitution of the Bank or the firm of contractor/suppliers or by any other reasons what-so-ever and our liability hereunder shall not be impaired or discharged by any extension of time or variation of alternation made, given, conceded or agreed with or without our knowledge or consent by or between the parties to the said contract/purchase order.
  1. Our liability under this Guarantee is restricted to Rs. \_\_\_\_\_ (in word Rs. \_\_\_\_\_). Our guarantee shall remain in until \_\_\_\_\_.
  2. We hereby agree that any claim or dispute arising under this deed shall fall with the jurisdiction of competent courts at Patiala only.  
We hereby further declared that this Deed has been executed by our lawfully constituted attorney legally competent to sign and execute such deeds.

Signature \_\_\_\_\_

For Pro

Bank \_\_\_\_\_



**ANNEXURE-N****CONTRACT AGREEMENT FORM**

(TO BE ENTERED ON NON-JUDICIAL STAMP PAPER WORTH Rs. 15 ONLY)

This contract agreement made this \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_ between the Punjab State Transmission Corporation Ltd., herein after called 'Purchaser' and M/s. \_\_\_\_\_ having their Regd. office at \_\_\_\_\_ herein after called Contractor, for the supply and delivery/construction of in accordance with Purchaser's Enquiry No. \_\_\_\_\_ dated. \_\_\_\_\_ and Contractor's Proposal No. \_\_\_\_\_ dated. \_\_\_\_\_.

This is in confirmation of the advance acceptance notified in the Purchaser's letter No. \_\_\_\_\_ wherein, the Purchaser has accepted the proposal of the contractor for supply and delivery/construction of \_\_\_\_\_ as per purchase/work order No. \_\_\_\_\_ dated. \_\_\_\_\_.

In view of the foregoing, the Purchaser and the Contractor have agreed to the scope of work and the terms and conditions of the order settled between them.

The NIT / tender specification, the Contractor's proposal and related correspondence and the P.O. acknowledge/accepted by the Contractor form part of this agreement.

This agreement contains \_\_\_\_\_ pages. In witness where of the parties here to have affixed their signatures on the day, month and the year written as above.

CONTRACTOR

PURCHASER

**ANNEXURE-O**

**UNDERTAKING FOR NON PAYMENT OF COMMISSION ETC.**

We will not pay commission etc. or engage any commission agent or liaison agent for dealing with the PSTCL in any matter including purchase of specification etc.

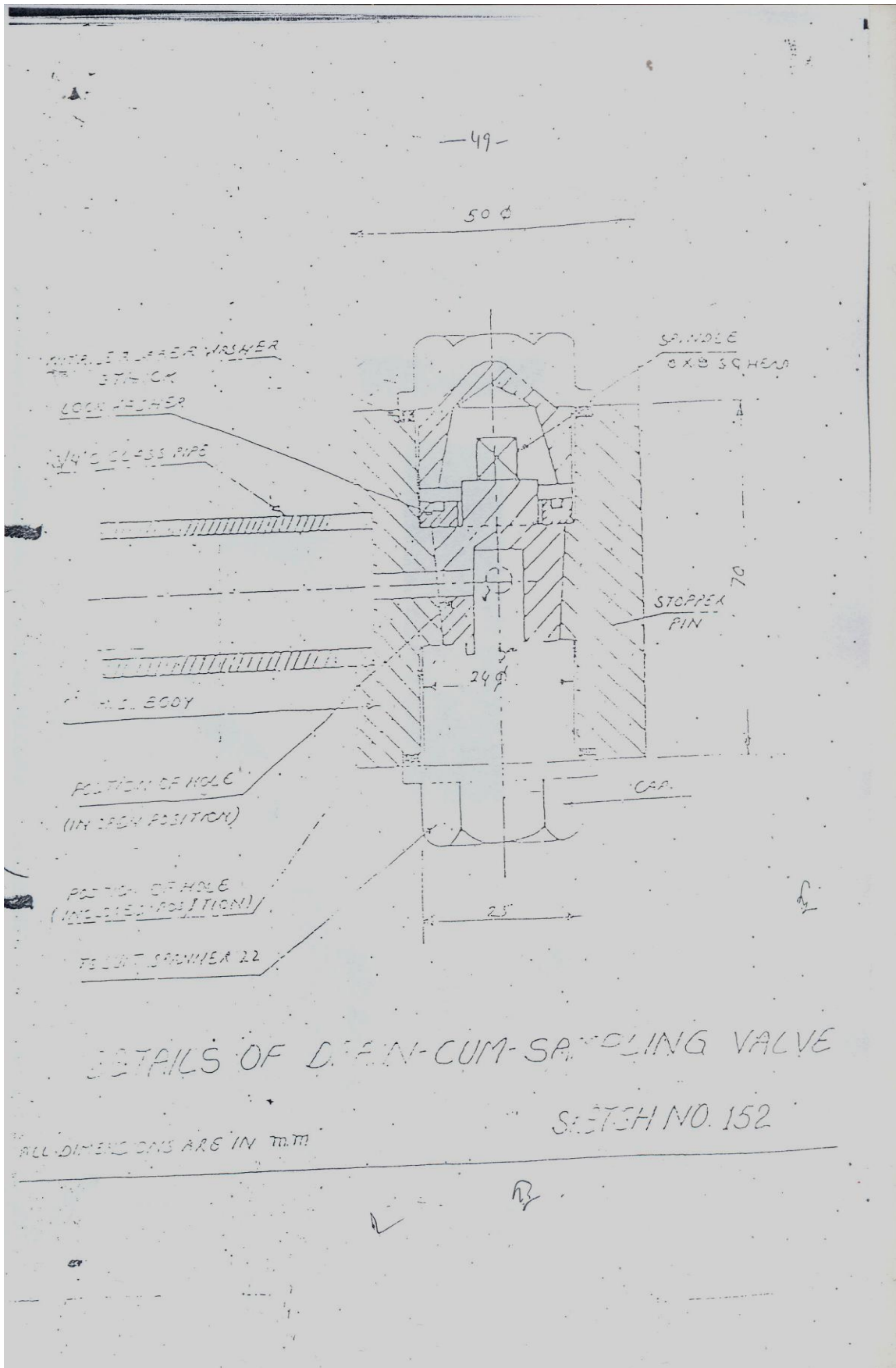
Signature of Bidder

Name

Designation

Dated:

Seal of Firm/Company



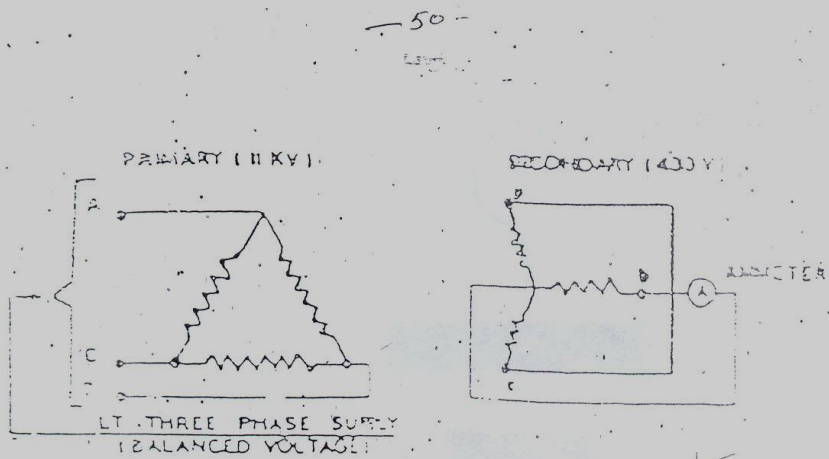


FIG. 4 : CONNECTION DIAGRAM FOR MEASUREMENT OF UNBALANCED CURRENT IN DISTRIBUTION TRANSFORMER

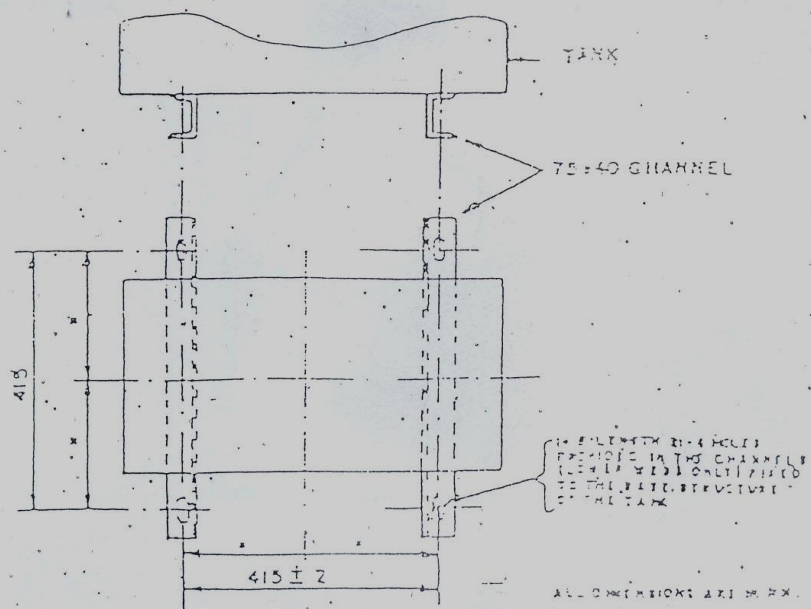
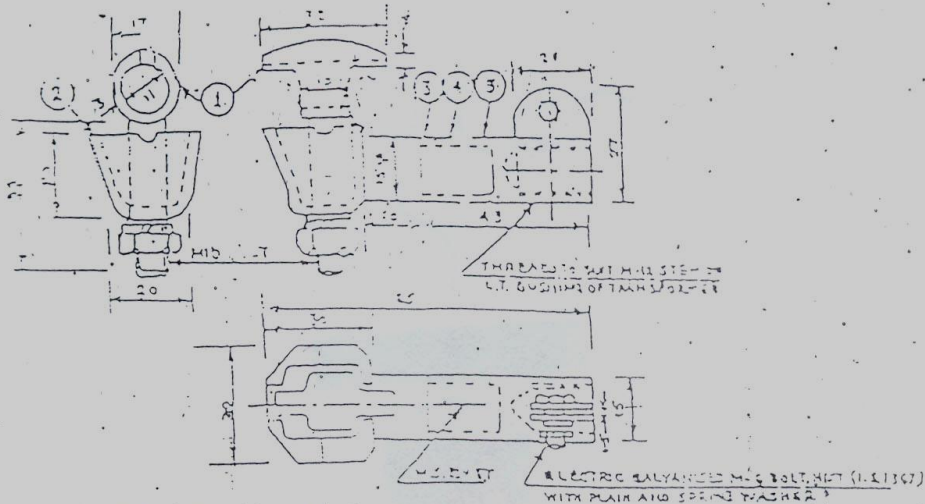


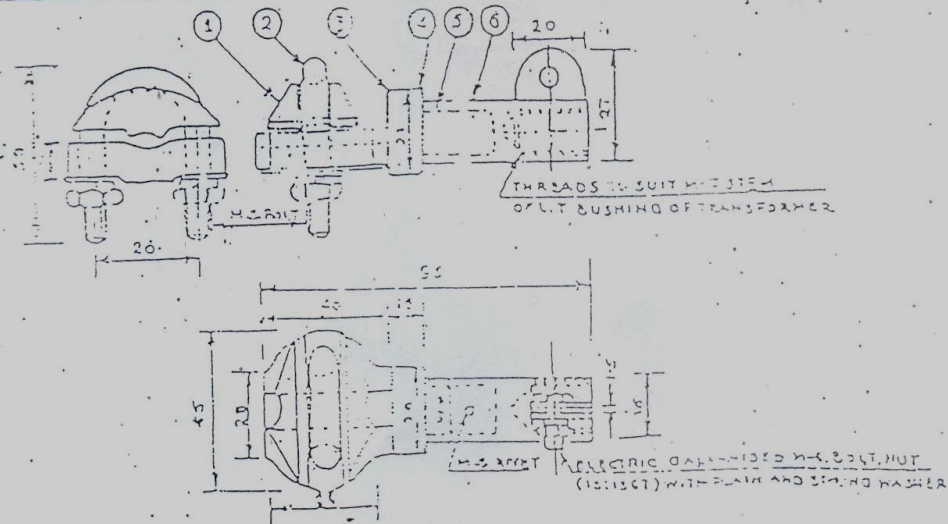
FIG. 5 - MOUNTING ARRANGEMENT

BIMETALLIC CONNECTOR (HT) FOR 11KV DISTRIBUTION TRANSFORMER



1. Aluminium alloy 'A-11' connector grip with electric galvanized M10 bolt, nut with plain and spring washers to grip the conductor in horizontal and vertical directions.
2. Al. alloy 'A-11' (IS:117-1975) body.
3. Epoxy Seal to guard against atmospheric effects.
4. High pressure fit joint between Al. alloy and bronze components of the connector.
5. High strength, corrosion resistant bronze body.
6. The connector shall be tight fitting type on terminals without use of any pin etc.

BIMETALLIC CONNECTOR (LT) FOR 11KV DISTRIBUTION TRANSFORMER



1. Al. alloy 'A-11' connector clamp.
2. Electric galvanized 'M' Bolt M5 size with Plain and Spring washers.
3. Al. alloy 'A-11' (IS:117-1975) body of the connector.
4. Epoxy seal to guard against atmospheric effects.
5. High pressure fit joint between Al. alloy and bronze components of the connector.
6. High strength, corrosion resistant bronze body.
7. The connector shall be tight fitting type on terminals without use of any pin etc.