

**PASCHIMANCHAL VIDYUT VITRAN  
NIGAM LTD.,**

**पश्चिमांचल विद्युत वितरण निगम लि.,  
VICTORIA PARK, MEERUT.**

**विक्टोरिया पार्क, मेरठ।**



**SPECIFICATION NO. PVVNL-MT/MM/14/26-27**

**Supply of 11/.4 KV 100 KVA Distribution Transformers (Level-1 as per amended BIS) with LT Bushing side Busbar Arrangement, External H.T. Fuse Unit and Oil Immersed LT Internal Circuit Breaker for each transformer**

**कार्यालय**

**प्रबन्ध निदेशक,**

**पश्चिमांचल विद्युत वितरण निगम लि.,**

**विक्टोरिया पार्क, मेरठ**

GSTIN:09AAECP5610N1Z4

PAN:AAECP5610

**फोन : 9193330039**

**9193330080**

**Date of Opening: 25.06.2026**

**Price: Rs. 29,500.00 only.**

**[Including GST]**

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The relevant documents pertaining to this tender may be downloaded from our website i.e. [www.pvvnl.org](http://www.pvvnl.org) available separately under the heading "Tenders & Notices".

### **SPECIFIC TENDER DOCUMENTS**

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## **SCHEDULE OF QUANTITIES, DESIRED DELIVERY & EARNEST MONEY**

Sl. No.	Item	Quantity to be supplied under Discom	Quantity in Nos.	Earnest Money (Including GST)	Delivery Period
1	11/4 KV 100 KVA Distribution Transformers (Level-1 as per amended BIS) with LT Bushing side Busbar Arrangement, External H.T. Fuse Unit and Oil Immersed LT Internal Circuit Breaker for each transformer.	PVVNL	2925	1,94,41,200.00	25% quantity to be supplied with 45 days from the date of LOI & rest 75% quantity at the interval of 30 days or as per the requirement of UPPCL.
		MVVNL	500		
		DVVNL	2880		
		PuVVNL	2000		
		KESCO	0		
	Total Quantity	8305			

- 1.1 The Part-I of tender bid shall contain the tender Fee & Earnest Money.
- 1.2 **The tenderers are required to offer minimum 5% of tendered quantity & this clause shall supersede any other clause regarding minimum quantity to be quoted, if mentioned anywhere else.**
- 1.3 **Material shall be delivered in various Store Center of concerned Discom.**
- 1.4 The tenderers are required to furnish the earnest money for proportionate value of tendered quantity.
- 1.5 In compliance of UPPCL, Lucknow, OM NO. 1011 dated 13.06.2022; quantities can vary  $\pm 20\%$  on either side. It will be mandatory to supply +20% additional quantities by the supplier firm, if required by the Discom.
- 1.6 Earlier delivery however shall be acceptable. The above schedule shall be guaranteed and subject to penalty for late supplies as per clause No. 27 of form B.
- 1.6 If any information provided by the bidder is found to be concealed, suppressed or incorrect at the later date or during finalization of the bid, their offer shall be liable to be rejected. The EMD submitted by the bidder shall be forfeited by PVVNL by its encashment.
- 1.7 The exemption from Tender Fee and EMD shall be applicable as per Clause No.-18(4) of “**SPECIAL CONDITIONS FOR TENDER**”.
- 1.8 Where the bid documents is downloaded from website, potential bidder MUST inform the PVVNL official, their contact details and e-mail to send any updates on the IOB.
- 1.9 The commencement of delivery shall be subjected to revision depending upon the requirement of material and ground balances with store at the time of delivery.
- 1.10 The validity of Bank Guarantee against EMD Shall not be less than 270 days from the date of tender opening plus claim period of 6 (Six) months thereafter.

**PRICES:**

Before filing the schedule of prices in Schedule 'P' the tenderers are required to refer to terms and conditions given hereinafter:

1. 01      The tenderers must quote **VARIABLE** unit ex-works rate, which shall be applicable as per IEEMA formula with **Base Date 01.05.2026** packing, forwarding freight upto destination store center including transit insurance effective upto 30 days thereafter and GST separately. Total unit FOR destination including GST & freight etc. must also be given.
- 1.02.      The tenderers shall quote prices exclusive of GST in case the same are quoted inclusive of GST the element of GST included should be specified clearly.
- 1.03      No variation on account of variation in transport charges or raw material from Supplier/Works/Depots to supplier works or price of other materials required in the manufacture, or taxes (GST) on intermediate products or railway freight or packing and forwarding charges or wages exhalation and other incidents if any, shall be entertained. Tenderers stipulating variation on any of the above ground or any such sort of stipulation may be summarily rejected.

## **INSTRUCTIONS TO TENDERERS**

### **1.1 PREPARATION OF TENDER:**

- 1.1.1 Before submission of the tender, the tenderers are required to make themselves fully conversant with the important note, instructions to tenderers, special conditions for tender, Technical Specifications, Drawings, General requirement of Specifications including schedules and General Conditions of contract of form 'B' as may be applicable so that no ambiguity arises at a later date in this respect. If any clarification in respect of the tender specification is necessary the Tenderers are welcomed to obtain the same from the Purchaser before opening of the tender.
- 1.1.2 Any inconsistency or ambiguity in the offers made by tenderer shall be interpreted to the maximum advantage of PVVNL and disadvantage to the tenderer. The tenderer shall have no right to question the interpretation to the purchaser in all such cases and the same shall be binding on the tenderer.
- 1.1.3 The tender should be prepared and submitted strictly in accordance with the instructions contained in these specifications. The tender shall be complete in all respect. Tender must be submitted in the manner specified on the attached prescribed schedule and / or copies thereof. To complete the proposal, the tenderer must fill in the tender form, declaration, all schedules & data sheet, annexed with the specification, item by item in accordance with the instructions and notes supplementary thereto. The interpolations, insertions, cutting & corrections made in the tender offers should be duly initialed by the tenderer.
- 1.1.4 Tenderer shall supply the data required in sheets annexed with the specification by typing at appropriate places against each item to facilitate preparation of comparative statements. These sheets must be properly signed by authorized representative of the tenderer/manufacturer testifying the data submitted. All schedules must be duly filled in and shall be enclosed/ uploaded. In case the tenderer does not supply any of the required information at the time of tender, necessary loading may be made while evaluating the prices of his offer without giving him any further opportunity to supply or clarify the same. The tenderers are notified that in case the required information's are not furnished in the specified proforma/schedules attached with the specification, the purchaser shall not be responsible for any error in the evaluations of their tender on this account. Further, the failure to comply with this requirement may result in the rejection of the tender at the discretion of the purchaser. **THE DOCUMENTS IN THE TENDER SUBMITTED BY THE TENDERER SHALL BE SERIALLY MARKED WITH THE PAGE nos.**
- 1.1.5 Purchaser may revise or amend these specifications and drawing etc. prior to date notified for opening of tenders. Such revision/amendment, if any will be uploaded on e-procurement portal.
- 1.1.6 Any portion of the terms and conditions as laid down in these specifications which are not clear to the tenderer should be got clarified from the purchaser before submission of the tender so that no ambiguity / confusion arises at a later date in this respect.
- 1.1.7 A set of technical, descriptive and illustrative along with drawing must be uploaded with tender by the tenderer so that clear understanding of equipment offered is obtained.
- 1.1.8 Tender shall be accepted only through E-tendering process by E-tendering portal [www.etender.up.nic.in](http://www.etender.up.nic.in). Tenderer, if so desire, may authorize one representative for attending tender opening on his behalf. In such instance, the representative shall be required to submit the authorization certificate with his signature duly attested by the person signing tender or on behalf to the tenderer. This certificate shall be submitted to the authority opening the tender. In absence of such certificate, no representative shall be allowed to participate in tender opening.

## 1.2 **PRE-QUALIFYING CONDITIONS:**

- 1.2.1 Tenderer shall meet the pre-qualifying conditions as mentioned in “PQR (PRE QUALIFYING REQUIRMENTS)” of tender documents.
- 1.2.2 The purchaser at his discretion may consider to award trial order of small quantity to those bidders who have proven design and meet the requirements of clause for trial supplier as mentioned in “PRE-QUALIFYING REQUIRMENTS”. In case of award the firm shall be offered rates as approved by the department for other regular suppliers.

## 1.3 **SUBMISSION OF TENDER:**

- 1.3.1 The tenderer shall submit his tender through online in three separate parts.
- (i) **TENDER BID PART- I & II (Online):** This part shall contain the tender fee, earnest money and a confirmation of validity of offer of 180 days. This part shall also contain technical & commercial particulars and other terms & conditions except prices.
  - (ii) **TENDER BID PART- III (Online):** This part shall contain prices.
  - (iii) In case tenders are not submitted in separate parts as above, the same may not be considered.
  - (iv) The tenders of those firm who do not submit the required tender fee and earnest money shall not be considered.

### 1.3.2 **TENDER BID PART- I & II** (Tender Fee, Earnest money, Validity, Technical & Other terms):

- 1.3.2.1 Tenderer is required to deposit tender fee as specified in the tender notice. The tender fee will have to be deposited on-line through RTGS/NEFT in **Account No. 3493639431 of SE, Head Quarter, PVVNL Meerut in Jail Chungi Branch Meerut of Central Bank of India having IFSC Code No. CBIN0282337**. The Scanned copy of Pay in slip/UTR No., as a proof of depositing tender cost has to be uploaded on the e-procurement portal of PVVNL [www.etender.up.nic.in](http://www.etender.up.nic.in).

Tenderer is required to deposit earnest money as specified in the tender notice for full tendered quantity. In case any tenderer wishes to quote lesser quantity. The amount of earnest money may be reduced proportionately. In case any tenderer deposits earnest money of a lesser amount, his offer shall be considered for the proportionate quantity only unless specified otherwise in the instructions. There shall be no exemption from earnest money, even if the tender is registered with DGS & D, store purchase section of U.P. or U.P. small-scale industries. The earnest money shall be accepted in any of the following forms only.

- (a) The EMD will have to be deposited on-line through RTGS/NEFT in **Account No. 3493639431 of SE, Head Quarter, PVVNL Meerut in Jail Chungi Branch Meerut of Central Bank of India having IFSC Code No. CBIN0282337**. The Scanned copy of Pay in slip/UTR No., as a proof of depositing EMD, has to be uploaded on the e-procurement portal of PVVNL [www.etender.up.nic.in](http://www.etender.up.nic.in).

**OR**

- (b) Bank Guarantee from a schedule Bank in India, executed on a non-judicial stamp, paper of requisite value as per U.P. Stamps Act STRICTLY on the specified proforma appended with form ‘B’ (only applicable when amount of earnest money exceeds Rs. 500/-). The validity of the Bank guarantee would not be less than 270 days from the date of tender opening plus claim period of 6 months thereafter. Any deviation or addition/deletion from the text of the specified proforma of a Bank Guarantee/inadequate value of stamp paper shall render the Bank Guarantee invalid for the purpose of opening of tender Bid Part – III.

- 1.3.2.2 Offers without proper earnest money and a undertaking on prescribed format given in Schedules, confirming the validity for 180 days shall not be considered under any circumstances. The earnest money shall be refunded after, award is finalized. The earnest money of successful tenderer shall however be retained till such time he deposits security.

- 1.3.2.3 The following provisions have been made **for micro and small scale industries (MSE's) and startups**, vide OM No. 8930/PVVNL-MT/MM/21-22 dated 16.02.2022 of Chief Engineer (MM) PVVNL Meerut in compliance of MD UPPCL Lucknow OM No. 634 dated 09.04.2021 and OM 1499 dated 13.09.2021-

पविविनिलि की उत्पादों एवं सेवाओं हेतु आमंत्रित निविदाओं में प्रतिभाग करने वाले सूक्ष्म एवं लघु उद्यमों (MSE's) को निम्नलिखित लाभ प्रदान किये जाते हैं-

**(1). प्राइस मैचिंग का विकल्प:-**

- 1.1 यदि टेण्डर में एल-1 आफर देने वाली फर्म उत्तर प्रदेश में स्थित सूक्ष्म एवं लघु उद्यम से इतर है (अर्थात् मध्यम या बृहद फर्म है) और किसी सूक्ष्म एवं लघु उद्यम के द्वारा एल-1 आफर के मूल्य के 15 प्रतिशत की सीमा तक अधिक मूल्य अंकित किया गया है तो ऐसी दशा में उक्त सूक्ष्म एवं लघु उद्यम(या एक से अधिक ऐसे उद्यमों की दशा में 15 प्रतिशत बैंड में स्थित सभी सूक्ष्म एवं लघु उद्यमों) को यह अधिकार होगा कि वे अपने मूल्य को एल-1 स्तर पर लाकर कुल निविदा मूल्य के 25 प्रतिशत तक की सीमा तक आपूर्ति कर सकते हैं। ऐसी स्थिति में विभाग या उपक्रम द्वारा अनुमति दी जायेगी तथा आपूर्ति भी सुनिश्चित की जायेगी। एक से अधिक सूक्ष्म एवं लघु उद्यमों की दशा में उनसे ली जाने वाली आपूर्ति को उनके द्वारा निविदित मात्रा के आनुपातिक रूप में बांटा जायेगा।
- 1.2 टेण्डर के उपरांत सूक्ष्म एवं लघु इकाइयों के पक्ष में निर्णय लेते समय गुणवत्ता के मानकों में किसी प्रकार की छूट संबंधित इकाइयों को नहीं दी जायेगी और आशय का उल्लेख टेण्डर में स्पष्ट रूप से अंकित भी किया जायेगा।

**(2). विभागीय क्रय में सूक्ष्म एवं लघु उद्योगों से क्रय किये जाने हेतु आरक्षण:-**

उ०प्र० पावर कारपोरेशन लि० एवं सहयोगी वितरण निगम आदेश निर्गत होने की तिथि से अपने अधीन प्रस्तावित कुल वार्षिक क्रय (उत्पाद एवं सेवाओं को सम्मिलित करते हुए) का न्यूनतम 25 प्रतिशत लक्ष्य उत्तर प्रदेश में स्थित सूक्ष्म और लघु उद्यम के उत्पादों या सेवाओं से क्रय द्वारा आपूर्ति करने के उद्देश्य से निर्धारित करेंगे। शर्त यह है कि यदि 25 प्रतिशत क्रय के लिये उत्तर प्रदेश में स्थित सूक्ष्म एवं लघु इकाई उपलब्ध नहीं है अथवा 25 प्रतिशत के लक्ष्य में कमी आती है तो देश में स्थित किसी भी सूक्ष्म एवं लघु इकाई से 25 प्रतिशत की पूर्ति की जायेगी।

**(3). सूक्ष्म एवं लघु उद्योगों से क्रय किये गये उत्पादों एवं सेवाओं की आपूर्ति में निम्नलिखित को भी गिना जायेगा:-**

- 3.1 बृहद उद्यमों को दिए गए क्रयदेशों के सापेक्ष उनके द्वारा सूक्ष्म एवं लघु उद्यमों को निर्गत उप निविदाओं के माध्यम से की गयी आपूर्ति।
- 3.2 उत्तर प्रदेश लघु उद्योग निगम द्वारा गठित सूक्ष्म एवं लघु उद्यम संघों की उप निविदाओं के माध्यम से की गयी आपूर्ति।

**(4). संव्यवहार लागत में कमी:-**

व्यवसाय चलाने की संव्यवहार लागत में कमी लाने के उद्देश्य से सूक्ष्म और लघु उद्यम (MSE's) तथा स्टार्टअप्स को निम्नलिखित सुविधाएं दी जायेगी:-

- 4.1 निविदा सेट निःशुल्क उपलब्ध कराया जाएगा।
- 4.2 ईएमडी से छूट प्रदान की जाती है।

**NOTE:-**

1. If the bidder firm comes under the criteria of exemption from Tender fee and EMD as per terms-condition of tender, being MSE's or startup firm, and seeking the exemption from Tender fee and EMD, they have to submit an under taking giving the reason for exemption mentioning the category of the firm i.e. small/micro/startup with relevant certificate issued by the competent government authority.
2. Certificate for Micro & Small enterprises issued by MSME shall be on the basis of latest audited balance sheet failing which the claim for exemption in tender fee and EMD shall not be considered & offer of the bidder shall be rejected for further evaluation.

1.3.2.4 Beside earnest money & validity offer, this bid shall also contain all Technical, Commercial and other terms and conditions. The following documents duly filled in, must also accompany the tender bid Part- I:

- |    |                         |   |   |
|----|-------------------------|---|---|
| 1  | Schedule A              | : | Tender Form.  |
| 2  | Schedule B              | : | Documents regarding pre-qualification details of the tenderer.                        |
| 3  | Schedule C              | : | Declaration.  |
| 4  | <del>Schedule D</del>   | : | <del>Proforma for joint undertaking by collaborator/Associate and the tenderer.</del> |
| 5  | Schedule E              | : | General particulars.  |
| 6  | Schedule F              | : | List of drawing/literature enclosed with the tender.                                  |
| 7  | Schedule G              | : | Schedule of deviation from Technical specification.                                   |
| 8  | Schedule H              | : | Schedule of deviation from Instructions to tenderer.                                  |
| 9  | Schedule I :            | : | Schedule of deviation from General requirement of specifications.                     |
| 10 | Schedule J              | : | Schedule of deviation from General conditions of contract form-B.                     |
| 11 | Schedule K              | : | Schedule of quoted guaranteed delivery.   |
| 12 | Schedule L              | : | Certificate of reasonability of rates   |
| 13 | Schedule M              | : | Statement giving details of proprietorship / partnership of                           |
| 14 | Schedule N              | : | Certificate of financial capability   |
| 15 | Schedule P <sub>1</sub> | : | Schedule of quantities and prices for main equipment.                                 |
| 16 | Schedule P <sub>2</sub> | : | Financial incidence of deviations from technical Specification.                       |
| 17 | Schedule S              | : | Schedule of Guaranteed Technical Particulars  |

**Note-** No price is to be indicated in any form in any of the above schedules for any item in tender bid Part- I whatsoever.

**1.3.3 TENDER BID PART- III (PRICES)-** The following documents, duly filled in, must be submitted in Part- III bid:

Schedule P1 : Schedule of quantities and prices of main equipment.

Schedule P2 : Financial incidence of technical deviations if any.

**1.3.4 PROCEDURE FOR OPENING AND PROCESSING OF TENDERS:** Part- I & II: 'Tender fee, Earnest Money', Validity & Technical / Commercial pre- qualifying conditions of the offer shall be opened through online on the due date as specified / notified Part-I of the tenders accompanied with the required tender fee, earnest money & validity shall be scrutinized and processed in this office to ensure whether the same are conforming to the technical requirements of the specifications. Queries as raised by the purchaser on the technical matters as may be necessary shall be referred to the tenderers to give them a chance to clarify only technical details furnished or any wanting information, in order to ensure whether the tenderer can supply the equipment strictly in accordance with the technical specification. Such queries when raised from this office should be replied within the time stipulated from the date of dispatch of such letters from this office falling which, tenders shall be finalized on the basis of the information as may be available. It shall be, therefore in the best interest of the tenderers to give complete and comprehensive technical particulars / description and details of the equipment offered by them confirming to the technical requirement.

After scrutiny of technical and commercial terms and conditions, the price part of only those tenderers whose offers have been found technically and commercially acceptable and who fulfill pre-qualifying clause, shall be opened through online on e-procurement portal.

The purchaser reserves the right to open the Part III of any tenderer for any reason. Opening of the part III does not mean the tenderer qualifies for the order



1.3.5 Any action on the part of the tenderers to revise the price / prices and / or change the structure of price (s) at his own instance after the opening of the tender may result in rejection of the tender and / or debarring the tenderer from participation in purchase by the PVVNL for one year in the first instance. In such cases earnest money submitted in Part – I can also be forfeited.

1.3.6 Tenderer shall ensure to put initials on each and every page of the tender. Last page of each document forming part of the tender shall bear full signature under official seal fully disclosing the name, designation and relationship with the firm of the signatory. In case of partnership concern, the tender may be signed by all the partners of the firm or one of them holding power of attorney (copy to be furnished along with the offer). In case of corporation / company, tender may be signed either by the president or secretary of such authority to be furnished along with the offer).

Besides this, the tenderer shall ensure to furnish the following information.

- (i) Name, designation, profession with postal address of all the partners / directors and other persons authorized to conduct business in respect of this tender.
- (j) Postal addresses of the firm's works, regd, and head offices, sales office and local office etc.
- (k) Names and postal address of their authorized local representative / liason officers.

Scanned copy of **A power of attorney on Rs. 100 stamp paper** duly authorized by a Notary Public indicating that the person(s) signing the bid have the authority to sign the bid and thus that the bid is binding upon us during the full period of its validity shall be uploaded on the E-procurement portal [www.etender.up.nic.in](http://www.etender.up.nic.in). The original power of attorney will then be sent to this office within 7 days.

1.4 **VALIDITY** : The tenders shall be valid for a period of 180 calendar days from the date of opening tenders with lesser validity are liable to be rejected.

1.5 **PRICE & PRICE STRUCTURE** : The tenderers are required to quote **firm or variable** prices without ceiling limit on either sides as per schedule “NATURE OF PRICES”.

Wherever the tenderer has been asked to quote unit **firm prices** but he quotes **variable prices**, his offer shall not be considered.

Wherever the tenderer has been asked to quote unit **variable (ex-works) prices** only, without any ceiling limit on either side, but he quotes either **FIRM** price or **VARIABLE PRICES WITH CELLING**, no advantage shall be given to the tenderer.

1.5.1 **The equipment shall be supplied/installed at different Store Center of all Discoms of UPPCL.** hence the tenderer must quote unit F.O.R. destination price of all the items (along with ex- work prices) for dispatch to any railway station in Western U.P. The unit F.O.R. destination price shall comprise of the following components.

- (a) Ex- works prices.
- (b) Packing, forwarding, freight and insurance charges against all risks including insurance charges for 30 days storage after receipt of equipment at destination stores / substation against all risks.

The tenderers must quote unit prices exclusive GST of these components individually.

1.5.2 **TAXES & DUTIES** : In the Schedule P-1 (Price Bid), the price quoted for Ex- works and Packing, forwarding, freight and insurance charges should be exclusive of GST. GST should be quoted separately in the Schedule P-1 (Price Bid).

**1.5.3 PRICE VARIATION :**

If tenderers have been asked to quote only “FIRM prices” then this “PRICE VARIATION” clause No. 1.5.3 shall be treated deleted.

If the tenderers has been asked to quote the **variable price** as per clause 1.01 mentioned in “NATURE OF PRICES”, the tenderer has to follow the following instructions.

- 1.5.3.1 The tenderers are required to quote Variable prices only without ceiling limit on either side, as per IEEMA / IPC / CACMAI etc. or relevant formula and base indices as given in **Annexure 'A'** unless specific otherwise under "Instruction to tenderers", the price variation admissible as per the latest price variation formula as applicable for the equipment (of the tendered capacity and rating).

The ruling date (base date) of basic prices of raw materials published in IEEMA / IPC / CACMAI etc. circulars as applicable shall be the **base date** as mentioned in **price schedule 'P1' (price bid)**. If ruling date (base date) is not mentioned in price schedule then it shall be the date as on first working day of the calendar month prior to the date of tendering. The date of tendering shall be taken as the notified date of opening of the tender.

- 1.5.3.1 The price variation shall be allowed on Ex-works prices only for the contracted delivery period/mutually agreed amended delivery schedule. In case extension is granted at the request of the firm, then lowest of PV calculated of following, dates shall be applicable:-
- PV as per offer date for inspection.
  - PV as per date of delivery schedule for agreement.
  - PV as per date of revised delivery schedule.
- 1.5.3.2 The component of packing & forwarding, freight & insurance unloading at the store center or place mentioned in the DI and transit cum 30 days storage insurance charges shall remain firm in all respect throughout the currency of the contract.
- 1.5.3.3 Tenderer shall quote FIRM prices only for the spare parts, type tests, service charges for erection and commissioning of the equipment.
- 1.5.3.4 Bank charges, if any, for documents to be negotiated through bank, shall be borne by the tenderer.

**1.6 EVALUATION OF TENDER:**

- 1.6.1 In comparing tenders and in making awards, the purchaser may consider such factors as, compliance with specifications, relative quality and adaptability of suppliers of services, experience, record of integrity in dealing, ability to furnish repairs and maintenance services, the time delivery, capability top perform and available facilities such as adequate shops, plant equipment, technical organization etc.
- 1.6.2 In case prices of some items are given in lumpsum where unit prices are required purchaser reserves the right to evaluate unit prices on the basis of the quoted lumpsums prices.
- 1.6.3 In case, where a tenderer does not quote F.O.R. destination price asked for, their quoted unit prices shall be loaded by appropriate additional factors on ex- works prices as below:
- |  |                                 |                         |
|--|---------------------------------|-------------------------|
| (a)  | Packing charges                 | @ 0.75%                 |
| (b)  | Forwarding charges              | @ 0.25%                 |
| (c)  | Freight for Ist 500 kms.        | @2%                     |
| (d)  | Freight for every next 250 kms. | @0.5% or part there of. |
| (For this purpose, distance shall be taken from supplier's works to Meerut and in case the distance is less than 500 km. Loading shall be done for a minimum distance of 500 kms.) |                                 |                         |
| (e)  | Transit insurance               | @0.5%                   |
| (f)  | Insurance for 30 days storage   | @0.5%                   |
| after receipt of equipment at destination station.   |                                 |                         |

However, while placing order on such firms (who have not quoted various elements of freight insurance etc.) The order shall be awarded to them taking minimum of the charges as quoted by the tenderers.

Where tenderer quotes only F.O.R. destination prices without break-up as schedule 'P-1' the required ex-works prices shall be computed by deducting the minimum of the packing forwarding, freight and insurance rates quoted by other tenderers. However, while placing

the order on such firms, the maximum of the packing and forwarding, freight & insurance (combined) quoted by other tenderers in the tender shall be provided, in the purchase order and the ex- works prices for order shall be worked out from quoted F.O.R. destination price.

- 1.6.4 If any bidder quotes payment terms, which amount to advance and / or payment which is in deviation from payment terms given in form 'B' and general requirement of specification annexed with this bid document, the bid shall be loaded @ 20% interest per annum on the amount and for period of advance payment involved.  
In case of tender (s) demanding payment in excess of 90% against R/R through bank admissible as per tender specification, loading at the rate of 20% (twenty percent) per annum on the amount demand in excess of 90% for a period of one month shall be done irrespective of the fact that the tenderer has offered to submit a Bank Guarantee and irrespective of the quantum of the bank guarantee.
- 1.6.5 And rebate/discount linked with quantity, terms of payment any other conditions shall not be considered for the purpose of evaluation and comparison of such offer vis-a-vis others. However, the same may be availed while placing orders with such successful tenderers. Where slab rates are quoted each, slab will be treated as separate offer.
- 1.6.6 If the tenderer fails to quote prices for any of the item (s) \ component (s) as asked for or confirm its supply free of cost the highest price as quoted by the other tenderer (s) for the same shall be added to arrive at F.O.R. destination computed prices or such tenderer for comparison purposes only.
- 1.6.7 The price shall be compared inclusive of GST.
- 1.6.8 Loading on any account as may be deemed necessary in the opinion of the purchaser to bring the various offers at par to each for comparison purpose may be done at the discretion of the purchaser.

## 1.7 **SPLITTING OF ORDER & ALLOTMENT OF QUANTITY:**

- 1.7.1 The Purchaser reserves the right to split the order among various successful tenderers in any manner he chose without assigning any reasons what so-ever.
- 1.7.2 The Purchaser reserves the right to reduce the ordered quantity upto any extent without assigning any reasons what so-ever at any stage of tender even after placing the order or agreement with firm, if it is observed that the firm is not adhering the delivery schedule and hence the supply of material is adversely affected.
- 1.7.3 The quantity reduced in this manner from poor performing firm may be allotted to other firms who show better performance.
- 1.7.4 If the tender quantity is split among various successful tenderers and the extension of tender quantity is needed, the performance of firms may be taken into consideration by the purchaser for allotment of this extended quantity among the firms.
- 1.7.5 Tender Quantity may be allotted as per performance of the firm:-
  - a) Damage % of DT in Guarantee Period.
  - b) Delay in Delivery Schedule.
  - c) Delay in lifting, Replacing of Damage transformers in Guarantee Period.
  - d) MSME Case

## 1.8 **AWARD OF CONTRACT:**

- 1.8.1 The purchaser is not bound to accept the lowest or any tender and may reject any or all the tenders without assigning any reason.
- 1.8.2 The order to the successful bidder(s) shall be placed on finally accepted unit F.O.R. destination price exclusive GST by the Discom. GST shall be payable extra as applicable.
- 1.8.3 The successful Tenderer, if required to do so, may have to enter in to a contract/rate contract agreement with the purchaser as per General conditions of Form-B and other conditions attached with the tender specification. However, the rate contract shall be for one year, which may be extended for on other one year with mutual consent.

1.8.4 For signing the contract, a duly authorized representative of the successful Tenderer shall be required to sign and accept the contract at Meerut within the time specified in the letter of intent, failing which it shall be considered that he is not interested in accepting the offer and actions as deemed fit shall be taken by purchaser without making any further correspondence with successful tenderer.

1.9 **INCOME AND SALES TAX CLEARANCE CRTIFICATE :** ~~The tenderer shall furnish with the tender, income tax and sales tax clearance certificate of current, as well of the preceding year from the competent authority. Alternatively, the tenderer shall give valid reasons for his inability to furnish such a certificate. The purchaser reserves the rights to reject any tender if income tax / sales tax clearance certificates are not furnished or the reasons for the tenderer's inability to furnish such certificates, are not given in the tender.~~

1.10 **DEVIATIONS :** The offer should be strictly in line with the conditions, specifications and other requirements mentioned in this tender specification document. No deviations are permitted except under special circumstances. Should the tenderer wish to depart from the general requirements of Technical Specification or General Conditions of contract form 'B' in any way, he must draw specific attention to such departure (s). All such deviations shall specifically be filled up in the relevant deviation schedule. If deviations are not specifically recorded in these schedule and submitted along with the tender documents, it will be presumed that there are no deviations and this interpretation will be binding upon the tenderer. Purchaser is, however, not bound to accept all or any deviations as mentioned in such schedule. Tenderers are also advised not to enclose their own standard or printed terms and conditions for sale etc. as the same shall not be considered.

1.11 **CANVASSING:** No tenderer shall canvass any PVVNL official or the Engineer, with respect to his own or other tender. Contravention of this condition will result in rejection of the tender, This clause shall not be deemed to prevent the tenderer, from supplying to the Engineer any further information / clarification asked for by Engineer.

1.12 **SPECIAL NOTE :** It may very clearly be noted by all that no modification in price reduction clause No. 27 of contract form 'B' shall be accepted i.e. broadly a price reduction of 1/2 % per week subject to a maximum of 10% shall be applicable.

1.13 **STANDARD:**

1.13.1 Except as modified by this tender specification, all materials and equipment shall conform to the requirement of the latest editions of relevant ISS / IEC.

1.13.2 However in the event of the tenderer offering equipment conforming to standards other than Specification ISS / IEC standards, the salient point of comparison between the standards adopted and relevant ISS / IEC standards shall be indicated clearly in the proposal.

1.13.3 Should the tenderer wish to depart from the provisions of the specifications, either on account of manufacturing practices or for any other reason, he shall clearly mention the departure and submit complete justification supported by information, drawings etc. as it will enable to assess the suitability of equipment (s) offered.

In the event of the tanderers's specifications drawing forms and tables etc. being found to disagree with the requirement of this specifications at any stage these specifications shall be binding unless the departures have been duly approved in writing by the purchaser.

1.14 **DEVIATION FROM SPECIFICATION:** This specification is mainly for the guidance of the tenderer / manufacturer. These requirements of necessity included some specific elements of construction and materials but are not intended to preclude ingenuity or improvement.

If the tenderer proposes any deviation from this specification these will be considered provided, they are necessary either to improve the utility, performance and efficiency or to secure overall economy. This will be clearly and explicitly explained in the tender. Such deviations shall also be brought out clearly use in the prescribe schedule.

- 1.15 **VARIATION IN QUANTITY OF MATERIAL / EQUIPMENT**: The requirement indicated in this specification can vary to the extent of 20 % on either side.
- 1.16 **DELIVERY SCHEDULE**: The delivery shall be quoted specifically and explicitly for each complete item separately in schedule 'K' and shall be guaranteed under price reduction clause 27 of general condition of form 'B' annexed.
- 1.17 **ERECTION SUPERVISION**:
  - 1.17.1 The tenderer shall quote for the services of an erection engineer who shall assume full responsibility for the erection, testing and commissioning of the equipment offered. Skilled and unskilled labor and tools of general use would be provided by the purchaser.
  - 1.17.2 The tenderer shall submit a list of all special tools and instrument required for erection testing an commissioning and shall include the same in the tender.
  - 1.17.3 The tenderer shall indicate per item and per menses rates for the services of the erection, engineer. Tender shall also indicate the estimated time for the erection, testing and commissioning to the equipment offered.
- 1.18 **DRAWINGS & MANUALS**: Along with tender, the tenderer shall submit the following drawings -
  - (a) General arrangement drawings of the equipment offered.
  - (b) Detailed dimensional drawings and descriptive literature of all the components supplied.
  - (c) Basic electrical diagram.
- 1.19 **SPARE PARTS**: The tender shall recommend a set of spare parts required for normal maintenance of the equipment offered for a period of five years.
- 1.20 **FOREIGN EXCHANGE** : Tenderer offering equipment without involving any foreign exchange and commitment on the part of purchaser will be considered.
- 1.21 Tenderers are cautioned to take a special note of Clause 1.5.2 (Taxes & Duties) and 1.1.4, as Vague Statements may lead to REJECTION of their BID.
- 1.22 Tenderers offering quantity less than that of mentioned in clause 1.2 of “Schedule of quantities, desired delivery & earnest money” of the required individual material shall not be considered and their offer shall be summarily rejected.
- 1.23 The tenderer and their principal shall have to submit the documentary evidence of having financial capability to execute the offer. The bankers certificate in this regard shall be preferred.
- 1.24 The tenderers and their principals shall have to submit a certificate of reasonability of the rates (in the schedule L) that the rates quoted by the tenderer are lowest from any rates quoted by them during last one year. In case the prices are not lowest, they will have to mention the percentage variation from the lowest prices alongwith the reason of variation. Further they will also quote the variation in the prices from the lowest prices of last three years, copies of order of these shall also be enclosed with the tender.
- 1.25 The purchaser reserves the right to open the Part III of any tenderer for any reason. Opening of the part III does not mean the tenderer qualifies for the order.
- 1.26 Orders issued by UPPCL, PVVNL, UPSEB either before or at any stage shall be applicable and binding on the tenderer.

- 1.27 The material shall be checked of being properly sealed as per the sealing done after the inspection and material being the same, which was inspected by the representative of M.D. of concerned Disoms of UPPCL, sat the stores alongwith the quality & Quantity of the material.
- 1.28 The contractor shall be responsible for any defects found in the supplied material during occasional random checking by representative of M.D. of concerned Disoms of UPPCL even if the payments have been cleared.
- 1.29 All the material shall be marked with the name of manufacturer, PVVNL/DVVNL/PuVVNL/MVVNL serial nos. from one to the last no. of the ordered quantity and these serial nos. shall be quoted right from the inspection report, dispatch note, Challans, Invoices, Bills, M.B. and stock accounts.
- 1.30 Total packing as well as the individual item shall be weighed and it shall be assured that the weights are as per the minimum guaranteed weight during inspection as well as during and after receipt of material at store for recording the same in the M.B.
- 1.31 No tolerance shall be accepted on negative side either in dimension or in weight. However, if there is tolerance on negative side within the permissible limit of the specified standard, and it does not make any difference in the performance of the material, to be decided by purchaser only the proportionate reduction in prices shall be done by the consignee.
- 1.32 Purchaser reserves the right to relax any condition mentioned anywhere in the tender document without assigning any reason whatsoever.
- 1.33 For Price variation, the base date mentioned in Price schedule "P1" (Price Bid) shall prevail over the base date mentioned at anywhere in tender documents.
- 1.34 **FORFEIT THE AMOUNT OF EARNEST MONEY** : PVVNL will be entitled to forfeit the amount of Earnest Money without any prejudice under any of the following conditions:
  - a) If an Applicant engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice as envisaged under this tender;
  - b) If any Applicant withdraws its Proposal during the period of its validity as specified in this RFP and as extended by the bidder from time to time,
  - c) In the case of the Selected bidder, fails to sign the contract or provide the Performance Security within the specified time limit.
  - d) If the Applicant commits any breach of terms of this tender or is found to have made a false representation to PVVNL.
- 1.35 The tenderer has to submit the original copy of documents which are required in tender (in original) within 7 days of date of bid opening failing which the bid may be rejected-
  - 1) Pay in slip of RTGS/NEFT of tender fee and EMD.
  - 2) BG against EMD, in case EMD is submitted in form of BG.
  - 3) Schedule-C on affidavit of Rs.100 Stamp Paper with notary.
  - 4) Blacklisting/debarred under taking on affidavit of Rs.100 Stamp Paper with notary.
  - 5) Power of Attorney authorizing to sign the bid on affidavit of Rs. 100 stamp paper with notary.
- 1.36 The bidders have to put the serial number on each page of the tender documents before uploading. An "INDEX of Enclosures" is provided with the SCHEDULES. The "INDEX of Enclosures" duly filled should be uploaded along with Part-II of bid.

### **SPECIAL CONDITIONS FOR TENDER**

1. The material will be guaranteed for a period of at least 96 calendar months from the date of installation at the site or 102 months from the date of receipt of material by the purchaser at the site/store, whichever is earlier, called the "maintenance period." If the material is damaged within the guaranteed period, it shall be replaced/repared by the supplier free of cost within one month of receipt of intimation. If a transformer is damaged within above guarantee period, then the guarantee period of the repaired transformer will be extended by 24 months. The total guarantee period will now be 120/126 months as applicable."

Both stage and final inspection of at least 10-20 percent of the quantity of repaired transformer will be carried out at the manufacturer's works/local repairing center. The manufacturer has to inform the address of the local repairer in advance. In case, the repair work/replacement of transformer is not effected within three months of the above notice/intimation the consignees will ensure deduction of the amount equal to the price of new transformer from pending bills of the contractor. Such defaults shall be taken into consideration by the consignees while evaluating and reporting the performance of the contractor.

The outage period i.e., period from the date of failure till unit is repaired/replaced shall not be counted for arriving at the guarantee period. In the event of the supplier's inability to adhere to the aforesaid provisions, suitable penal action will be taken against the supplier which may inter alia include blacklisting of the firm for future business with the purchaser for a certain period. Further, installation of 10 percent Distribution Transformers (both new and repaired) shall be carried out in the supervision of manufacturer's representative.

2. **Additional Guarantee Period:** The material supplied by the **trial supplier** (covered under cl. 1.2 of instruction to tenderer) shall be guaranteed for **additional 24 months** from the guarantee period applicable for regular supplier.
3. Payment shall be made after receipt and satisfactory checking of material at site as per conditions of Form 'B'. No interest shall be paid for delayed payments, whatsoever the delay may be.
4. **The individual tender wise Security amount shall be 10%.**

#### **4.1 Consolidated Security : The bidder shall also have the option to submit the consolidated security as per following details :-**

- 4.1.1 पश्चिमांचल विविनिलि में परिवर्तकों की आपूर्ति के लिये निविदादाता को न्यूनतम रु0 50 लाख की कन्सोलिडेटेड बैंक गारण्टी देनी होगी जो रु0 10 करोड तक के कार्यों हेतु न्यूनतम गारण्टी होगी। तदुपरान्त निम्नवत् कन्सोलिडेटेड बैंक गारण्टी देनी होगी:-

क्रयादेशों की कुल राशि	कन्सोलिडेटेड बैंक गारण्टी
Above Rs. 10 Cr to Rs. 15 Cr.	Rs. 75 Lacs
Above Rs. 15 Cr to Rs. 20 Cr.	Rs. 1.00 Cr
Above Rs. 20 Cr to Rs. 25 Cr.	Rs. 1.25 Cr.
Above Rs. 25 Cr.	Rs. 1.30 Cr

- 4.1.2- कन्सोलिडेटेड बैंक गारण्टी का विकल्प चुनने पर आपूर्तिकर्ता फर्मों को प्रथम क्रयादेश के लिये आफ इन्डेट जारी होने के अधिकतम एक माह के अन्दर आगामी वित्तीय वर्ष में सम्भावित कुल क्रयादेशों के सापेक्ष उपरोक्त तालिका के अनुसार किसी एक स्लैब के समतुल्य धनराशि बैंक गारण्टी के रूप में जमा करनी होगी।
- 4.1.3. यदि किसी भी समय निगम को ऐसी आवश्यकता जान पड़ती है कि सन्दर्भित कन्सोलिडेटेड बैंक गारण्टी अपर्याप्त है तब फर्म को उच्चतर स्लैब के समतुल्य धनराशि की कन्सोलिडेटेड बैंक गारण्टी जमा करनी होगी।
- 4.1.4. साथ ही आपूर्तिकर्ता द्वारा कन्सोलिडेटेड बैंक गारण्टी का विकल्प चुने जाने पर बैंक गारण्टी में निम्नलिखित क्लॉज को सम्मिलित किया जाना होगा:-

Present clause (Clause 2 of form of guarantee bond for security)	Amended clause (To be incorporated in consolidated B.G at clause no. 2 of Guarantee Bond)
We _____ Bank Ltd. do hereby undertake to pay the amount due and payable under this guarantee without any demur merely on demand from the Nigam stating that the amount claimed is due by way of loss or damage caused or would be caused to or suffered by the Nigam by reason of any breach by the said Contractor of any of the terms and conditions contained in the said Agreement or by reason of the Contractors failure to perform the said agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount no exceeding to Rs. _____.	We _____ Bank Ltd. do hereby undertake to pay the amount due and payable under this guarantee without any demur merely on demand from the Nigam stating that the amount claimed is due by way of loss or damage caused or would be caused to or suffered by the Nigam by reason of any breach by the said Contractor of any of the terms and conditions contained in the said Agreement <b>or any other agreement executed by supplier with concerned Discom for supply of any type or capacity of transformer</b> or by reason of the Contractors failure to perform the said agreement <b>or any other agreement executed by supplier with concerned Discom for supply of any type or capacity of transformer</b> . Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount no exceeding to Rs. _____.

4.1.5 किसी भी वर्ष में दी गयी गारण्टी को न्यूनतम 3 वर्ष तक वैध (Valid) रखा जायेगा।

4.1.6. यदि किसी कम्पनी के परिवर्तको में गुणवत्ता की शिकायतों पर कम्पनी को व्यापार निषिद्ध अथवा ब्लैकलिस्ट किया जाता है तब कम्पनी को यह अधिकार होगा कि वे कन्सोलिडेटेड बैंक गारण्टी को इनकैश करा लें।

5. One no approved sample of the transformer from the first lot after clearance of inspecting authority deputed by Discom Quality Control Cell will be kept in **Concerned Disom** workshop as sample for further supplies. The transformers to be supplied in future will be compared to this transformer and supply will be accepted only after full satisfaction of **Concerned Disom**.
6. The purchaser is not bound to accept the lowest or any tender and may reject any or all the tenders, without assigning any reason. The purchaser may negotiate or re-tender on limited tender basis if substantial financial benefit is likely to accrue to the Board/Corporation. This is known as inviting "Rock Bottom Rates" where in the Tenderers are given the choice to reduce their rates to the minimum level possible. The purchaser may also provide the counter offer rates if need be, to the various Tenderers in the best interest of the Corporation.

These Special Conditions shall be read and construed alongwith the general conditions of Form 'B' and 'Instructions to Tenderers' but in case of any conflict or inconsistency with provisions of Form 'B' and 'Instruction to Tenderers' the conditions contained herein shall prevail.

7. The manufacturer on receipt of damage report from consignee shall ensure to lift the damaged transformer within in fifteen (15) days of such notice and in case, the repair work / replacement of transformer is not within forty five (45) days, the consignees will ensure deduction of the amount equal to the price of new transformer from pending bills of the Contractor. Such defaults should be taken into consideration by the consignee while evaluating and reporting the performance of the contractor.
8. **For evaluation of price bid the value of Excise Duty & CST/VAT shall not be considered. This shall override the conditions mentioned elsewhere in the specification.**
9. **Price Fall Back:** If certain quantity of the equipment ordered under this specification remains unsupplied up to finalization of next/subsequent tender, lowest of the prices of this tender and the subsequent tender shall be payable for balance unsupplied material. In case the tenderer do not agree to supply the balance unsupplied quantity at the lower rates received in new tender, the unsupplied tendered quantity will be cancelled without prejudice.
10. In case on receipt of inspection call from the firm after agreement, the material is not found ready or not as per GTP/Drawing/Technical Specification and relevent IS by the inspection team of **Concerned Disom**'s works of firm/manufacturer, the penal charges for such futile journeys shall be levied as per following:



- |    |  |   |           |
|----|--|---|-----------|
| a. | Location of firms works upto a distance of 1000 Kms. from <b>Concerned Disom</b> 's headquarter. | - | 35,000.00 |
| b. | Location of firms works above distance of 1000 Kms. from <b>Concerned Disom</b> 's headquarter.  | - | 40,000.00 |

The re-inspection call shall be entertained only after submission of futile journey charges by the firm in the form of demand draft in the name of Managing Director, of all Disoms of UPPCL and payable at concerned Disom. The firm shall be responsible for delay in supply of material due to futile journey as above.

The above shall be applicable with the following conditions:

- a) The firm shall be allowed to withdraw or defer the inspection call only once during the currency of the contract.
- b) If after withdrawing or deferment of inspection call once as mentioned in (a) above, firm again withdraws or defers inspection call due to reasons beyond their control, the Managing Director, PVVNL-Meerut may waive off the above penalty on merit.

The futile journey charges shall be allowed maximum two times. In case of failure of inspection twice, the action against the firm shall be taken as per rules.

These Special Conditions shall be read and construed alongwith the general conditions of Form 'B' and 'Instructions to Tenderers' but in case of any conflict or inconsistency between provision of Form 'B' and 'Instruction to Tenderers' the conditions contained herein shall prevail.

**11. Pre-qualifying Conditions for trial suppliers:**

The purchaser at his discretion may consider to award trial order of small quantity to those bidders who have proven design and meet the requirements of **"Pre Qualifying Requirements for trial supplier"**. However such tenderers need not to submit their price bid but rest of the documents as asked for in the tender are required to be submitted invariably. In case of award the firm shall be offered rates as approved by the department for other regular suppliers.

**12.0 Price Analysis** The tenderer shall necessarily submit the cost analysis of the material in support of the rates quoted by them in the tender. It shall be enclosed with the price part II only

**13. A) Challenge testing**

- a. The label contents can be challenged by any person.
- b. The challenge must be submitted to PVVNL in writing.
- c. PVVNL will examine the challenge within a month of the date of receipt in writing. The Standards and Labeling Implementation Committee will recon whether to conduct a challenge test or not, keeping in view the basis of the complaint and examination of past records.
- d. The decision of PVVNL shall be final and will be conveyed to complainant along with justification.
- e. If a challenge test is required then
  - i. The complainant will deposit the expenses related to transportation (to and from the place of picking of sample to the test laboratory) and testing in advance to PVVNL.
  - ii. PVVNL will arrange for selection and sealing of samples. The transportation to the assigned laboratory is the task of the user of label.
  - iii. The testing will be conducted in an independent Test laboratory as per decision of PVVNL and the testing charges would be paid out of the advance by the complainant.
- f. The complainant and the user of label may witness the process of challenge testing.
- g. If the equipment fails the challenge test, then the expenses paid by the complainant would be reimbursed by the user of label whose equipment has failed.
- h. If the equipment passes the challenge test, then the deposit of complainant would be forfeited. If the equipment fails the challenge test the enforcement process (section) will be followed.

**B) Enforcement Process**

- a. If the equipment fails the verification/challenge testing, then the matter will be placed before the Standards and Labeling Implementation Committee and the user of label will be informed about the failure.
- b. The user of label has the option to go in for the second test, in case the equipment fails the first verification/challenge test
- c. A second test will be carried on with twice the initial test sample size, and all the samples should pass the test.
- d. The user of label will bear the expenses related to the second test.
- e. If the equipment passes the second verification/challenge test then no further action would be taken and the appliance would deem to confirm to the label.
- f. If the equipment subjected to verification/ challenge testing fails the second test the user of label will within the given time limit by PVVNL:
  - i. Correct the label level or remove the defects or deficiencies found for next equipment/models yet to be shipped out as well as for equipment/model sale in the market.
  - ii. Change particulars/information on advertising material
- g. If the user of label fails to comply with the direction issued under clause (f) the use of label for that model will be prohibited. In addition,
  - i. PVVNL will inform the consumers about the failure of the equipment by wide publicity.
  - ii. PVVNL may advise the government to debar the equipment/model and the user of the label from participating in any public tender.

**14.0 INSPECTION & TESTING:**

**14.1** When the material is ready for inspection, 15 days notice shall have to be given to concerned Disom's Superintending Engineer (Discom Quantity Control Cell), for every lot of material being ready for stage and final inspection, so that the inspection of the material may be carried out at the supplier's premises. The copies of routine test certificates, packing list and the details of dispatches of last inspected lot shall be enclosed invariably with the notice. A copy of offer notice along with above mentioned certificates / details shall be sent to this office.

**1. Stage Inspection:**

Firm shall send the inspection call for the stage inspection for *as per delivery Schedule*. During stage inspection following shall compulsorily be checked by the inspection team-

- (a) Physical measurements of core, coils, tank etc and ensure their dimensions as per approved GTP/drawings.
- (b) Unique no. & 'property of Concerned Discom' punched on the top and bottom channel of core coil assembly & tank side walls (as per specification) shall be verified by the inspection team. Thereafter signatures will be put on core coil assembly jointly by inspecting team & firm's representative by permanent marker.

**2. Final Inspection:**

The final inspection for 75 nos. transformers (minimum) shall be submitted & following shall compulsorily be done by the inspection team-

- (a) Core coil assembly of one number randomly selected transformer out of the offered lot shall be lifted to check the signature on windings and punching of unique number on top and bottom channel.
- (b) The measurement of following parameters shall be done for 100% transformers offered in a lot:
  - 1) No load losses
  - 2) Load losses
  - 3) No load current
  - 4) Total losses at 50 % load at 75 degree centigrade
  - 5) Total losses at 100 % load at 75 degree centigrade
- (c) All the test shall be done as per ISS/technical specifications and if the test results of the transformers are satisfactory, top cover of transformer shall be sealed by Polycarbonate/Lead Seals by the inspecting team and the transformer's tank body shall be jointly signed by the inspecting team & firm's representative by the permanent marker, only then DA shall be issued by the inspecting officers.
- (d) Temperature rise test shall be done on one number randomly selected transformer from the first offered lot.

- (e) MS plate of size 150 x100x2 mm (as per approved drawing) shall be continuously welded on the same side wall of the transformers on which name plate is fixed and Size of letters / digits of details (as per approved drawing) to be engraved on the MS plate shall be approx 10 mm and depth of engraving shall be approx 0.5 mm. In “REP(UGP) : ...../...../.....,” column, engraving of date of I<sup>st</sup>, II<sup>nd</sup> & III<sup>rd</sup> repair of the T/F in Guarantee period, if any, shall be sequentially done in the blank space by the firm.
- (f) No negative tolerances shall be allowed on above parameters. The offer of the firms whose GTP does not meet the above requirements shall be summarily rejected.
- (g) If there is any change in the above procedure it shall be confirmed after stage/final inspection of 1st offered lot.
- 14.2** The contractor shall inform the purchaser likely date of assembly of core and readiness of HT & LT coils, well in advance enabling the purchaser to depute his officers for stage inspection at different level, failing which final inspection call shall not be entertained.
- 14.3** Inspection and Testing shall be done as per clause 14 of Form ‘B’ and clause 2.7 of General Requirement of specification to ensure that material offered is in accordance with technical specification and guaranteed technical particulars and approved drawings. Every offer for inspection shall be accompanied with satisfactory routine test results in respect of lot of material offered.
- 14.4** Good Quality material will be used in the manufacturing of transformer, and core laminations be of Prime M-4 Grade. Sample of raw material/core, if required, shall be sealed in the presence of contractor or his authorized representative for testing at any recognized Government laboratory/test house or the third party testing lab., if any.
- 14.5** The “Engineer of Contract” reserves the right to send a sample of the material out of the supply to any recognized government laboratory/test house and get any/all the tests conducted. As far as possible these tests shall be got conducted in presence of the representative of “Engineer of the Contract” and the supplier.
- 14.6** The cost of such test(s) shall be borne initially by the supplier but in case, the material is found conforming to desired specification, the purchaser shall reimburse the charges. In case the material fails or does not conform to the specification, the test charges shall be borne by the supplier.
- 14.7** In addition to this, as per Managing Director, UPPCL Letter No. 1622-रेस्पो/ग्रा0वि0/सैम्पल टेस्टिंग dated 23.05.2019, the following penalizing action shall be taken by the “Engineer of the Contract” :-

**1-A Quality Control (for purchase order)**

- Purchaser shall send any randomly selected sample (s) from the each lot of total ordered material for any/all Routine/Acceptance/type Test as per technical specification/ISS in govt. Lab. The results of such test shall be final and binding on the both the purchaser and supplier. The Cost of such test (s) shall initially be borne by the purchaser and in case the materials is found not conforming to desired specifications, the above cost shall be recovered from the supplier in addition to this following panel action shall be taken by the purchaser :-
- (a) **The order for the remaining supplies shall be cancelled.**
- (b) **The supplier will be debarred/blacklisted from participating in Tenders for at least 2 Years from the date of tests result into failure of the supplied materials.**
- 14.8** If any test house does not allow witnessing the tests by representatives, in such case, test results certified by the test house shall be acceptable to both the purchaser and the supplier.
- 14.9** The name of the manufacturer and unique no allotted to him & **‘property of Concerned Discom of UPPCL’** shall also be punched at a visible portion on the core assembly of each transformer.
- 14.10** It is essentials for the supplier to ensure that all the material of previous inspection, if any, have been dispatched before offering the material for inspection. Accordingly at the time of inspection the supplier shall furnish details of dispatch of material pertaining to earlier inspection, if any to the inspecting officers.

- 14.11** All instruments used in inspection and testing should be properly calibrated and sealed once a year. Calibration certificates when demanded by the inspecting officer shall be produced for verification purpose. In case of any dispute regarding calibration of Instrument. Instrument shall be sealed and signed by the representative of the supplier and purchaser and will be sent to Institution / Laboratory of repute for calibration at the cost of supplier. The results of such testing shall be binding on the supplier.
- 14.12** Inspection of offered material shall be carried out at the works of Contractor by Inspecting Team deputed by **Concerned Discom's Superintending Engineer (Discom Quality Control Cell)**.
- 14.13** During inspection, the Contractor may be required to produce acceptance and type test report of the manufacturers of all the bought out items to satisfy the inspecting officers that it conforms the standards contained in technical specification and guaranteed technical particulars.
- 14.14** Copies of all type tests along with drawings approved by CPRI/ERDA/NTH as per Technical Specification shall be submitted as per successful type testing. In case of any variation in parameter, drawing shall be finally approved by the Engineer of Contract taking into consideration the dimensions offered in GTP drawings duly approved by CPRI/ERDA/NTH and technical specification. Four sets of all relevant drawings of Transformer may be submitted for approval within one week of this order.
- 14.15** Copy of test reports of materials, prepared by the Inspecting Officers shall be sent to **concerned Discom's Superintending Engineer (MM)**.
- 14.16** (A) Every consignee (Stores divisions) shall measure the following parameters for 100% transformers offered in a lot at the stores centre after delivery of transformers.
- 1) No load losses
  - 2) Total losses at 50 % load at 75 degree centigrade
  - 3) Total losses at 100 % load at 75 degree centigrade
- The bills for payment shall only be verified once the entry of above parameters has been entered in the measurement books. In case these parameters are found to be more than the prescribed limit mentioned in technical specification of the tender, no payment shall be made to the supplier. The payment shall only be made after checking of losses and their values falling within the prescribed limit.
- (B) In case no load as well as load losses are found to be in excess of the prescribed limit of GTP, the entire lot of the transformer shall be returned back to the firm on his expense and his remaining order under the contract shall be cancelled.
- 15.** *The Bidder shall submit an affidavit on a stamp paper of Rs 100/- that it is not debarred or blacklisted from any Government /public/private power utilities /organization in India.*
- 16.** Minimum Weights of core, coil and conductor in offered **25 KVA to 100 KVA Distribution Transformers** shall be as follows:

Capacity	Minimum Weight of Material			Max. Losses (Watts)		Minimum Thickness of Tank (mm)	
KVA	Core (kg)	Conductor (kg)	Oil (kg)	50% Loading	100% Loading	Top & Bottom	Side
25	74	36	74	190	635	5	3.15
63	157	78.6	148	340	1140	5	3.15
100	228	112.5	188	475	1650	5	3.15

\*Flux density shall not be more than 1.69 tesla

- 17.** Transformers shall be supplied with LT Bushing Side Bus Bar arrangement as per Drawing enclosed. No negative tolerances shall be allowed on above parameters. The offer of the firms whose GTP does not meet the above requirements shall be summarily rejected.

**18. (A) Quality Control (for purchase order)**

प्रबन्ध निदेशक उ०प्र०पा०का०लि० के पत्र संख्या 1/29203/2025/रेस्प०/क्वालिटी-सेल/सैंपलिंग दिनांक 29.10.2025 के अनुसार वितरण परिवर्तकों की गुणवत्ता के सम्बन्ध में निम्न प्रक्रिया का पालन सुनिश्चित किया जायेगा:-

**6. Procedure of Sample selection from the supplied DI:-**

The Procedure for sample selection for the testing in the NABL accredited /CPRI/ERDA/NTH Lab shall be selected as under :-

- (a) If DI quantity is more than 300: 2 Samples will be selected from the DI by UQC.
- (b) If DI quantity is less than 300: 1 Sample will be selected from the DI by UQC.
- (c) If multiple DIs are created against single pre-dispatch inspection, UQC will club together one or more such DIs to select 1 or 2 final samples based on total inspected quantity as per criteria given in 6(a) and 6(b). UQC will ensure that unnecessary samples are not selected from multiple DIs of single inspection lot.

As per the criteria mentioned above, the sample shall be selected and sealed from the supplied lot in the presence of the following officials:-

- A. For DT Capacity upto 200 KVA
  - i. Assistant Engineer, Electricity Store Centre, concerned.
  - ii. Junior Engineer (Store)/Store Keeper, concerned.
  - iii. Representative of the supplier firm.
- B. For DT Capacity above 200 KVA
  - i. Executive Engineer, Electricity Store Division concerned.
  - ii. Assistant Engineer (Store), concerned.
  - iii. Representative of the supplier firm.

The Chief Engineer (Quality Cell) & Superintending Engineer, Electricity Store Circle of Discom concerned will ensure that sample is selected and sealed in the presence of the authorized representative of the firm within 20 days of receipt of the material at store centre. The store centre concerned shall be responsible to intimate the date of sampling to the supplier through email/speed Post. The suppliers are required to intimate their official email ID to store centre and depute their representative for selection and sealing of the sample in their presence, failing which the sample will be selected in the presence of the other members of the team.

The sealed sample shall be sent to the reputed NABL, accredited/CPRI/ERDA/NTH testing lab. The list of the testing lab shall be prepared by the Quality Cell and got approved from the Managing Director of Discom. The quality cell shall nominate the testing lab from the approved list and direct the store officers to send the sample to lab for testing, in a secured way.

9. Tests to be conducted on selected Sample as mentioned below:-

- (a) The sample of distribution transformer will be tested for following routine tests :
  - i. Measurement of winding resistance [IS 2026 (Part-1)]
  - ii. Measurement of voltage ratio and check of phase displacement [IS 2026 (Part-) ]
  - iii. Measurement of short Circuit impedance and Load Loss at 50 percent and 100 percent load [IS 2026 (Part-1) ]
  - iv. Measurement of No-load loss and current [IS 2026 (Part-1) ]
  - v. Measurement of Insulation resistance [IS 2026 (Part-1) ]
  - vi. Induced over voltage withstand test [IS 2026 (Part-3) ]
  - vii. Separate source voltage withstand test [IS 2026 (Part-3)]
  - viii. Oil leakage test [IS 1180 ( Part-1 ) : 2014 ]
  - ix. Temperature Rise Test [ IS 2026 ( Part-2 ) ]
- b) A comparative table of previous tests and revised test to be performed on D.T. sample is given belows :

Tests as per provisions of UPPCL Order 505/Resspo/Saubhagya/QC dated 28.01.2021		Tests as per revised provision	
1	Lightning Impulse Voltage withstand Test on one transformer from P.O.	Removed	
2	Short Circuit Withstand (Thermal and dynamic ability) Test on one transformer from P.O.	Removed	
3	No load loss at service voltage and normal frequency. 50% and 100% load loss at rated current and normal frequency	1	Measurement of No-load loss and current [IS 2026 (Part-1) ]
		2	Measurement of Short Circuit Impedance and load loss at 50%
4	Temperature Rise Test	3	Temperature Rise Test
5	Pressure Test	Removed	
6	Measurement of Voltage Ration and check of phase displacement	4	Measurement of Voltage Ration and check of Phase displacement [IS 2026 (Part-1) ]
7	Double Voltage Double Frequency Test	Removed	
		5	Measurement of winding resistance [IS 2026 (Part-1)]
		6	Measurement of Insulation resistance [IS 2026 (Part-1) ]
		7	Measurement of voltage ratio and check of phase displacement [IS 2026 (Part-) ]
		8	Separate source voltage withstand test [IS 2026 (Part-3)]
		9	Oil leakage test [IS 1180 ( Part-1) : 2014 ]

c) Although the regular samples selected will be subjected to routine tests listed above in point 9(a), U.P.P.C.L., through U.Q.C. (UPPCL Quality Cell), reserves its rights to conduct any or all of the following Type Test at any or all of the randomly selected samples or fresh samples :

- i. Lightning Impulse Test
- ii. Short Circuit withstand Test
- iii. Pressure Test

UQC will mark any sample for above Type Test after the approval of Chairman, UPPCL.

- d) The results of all the tests enumerated in 9(a) and 9(b) will be binding on the suppliers and the DISCOMs.
- e) DQC shall coordinate with the test labs to ensure that the tests enlisted above are conducted on sample as soon as possible. However, even if test lab takes time, the supplier will be liable to Penal Provisions given in Point -10 of this letter, irrespective of the time incurred in testing, if the sample is found non-conforming in any test.

**10. Action to be taken against suppliers, in case a sample is found non-conforming to the above test parameters:**

- a) If the material of whole lot has not been utilized, following penal actions will be taken on the supplier to ensure good quality supply:

Case	Failure	Penal Action		
		Replacement	Financial Penalty	Debarment/Blacklisting
Failure-1	First Time failure in supply of lot	100%	Nil	Nil
Failure-2	Second time failure in subsequent lot or replaced previous lots of the same P.O.	100%	10% of Ex-works (including F and I) Value of the lot	Nil
Failure-3	Third time failure in subsequent lot or replaced previous lots of the same P.O.	100%	Encashment of performance bank guarantee	Debarment/Blacklisting from the business in all DISCOMs for 2 years.

- b) If the material of each lot has been utilized due to urgent/necessary requirement, following penal actions will be taken on the supplier:

Failure	Penal Action	
	Financial Penalty	Debarment/Blacklisting
Failure of sample in any test listed in clause No. 9(a) but passed in Losses Test (Load Loss Test at 50% and 100% Load)	20% of ex-works (including F and I ) value of the lot	Nil
Failure of sample in Test(s) including Losses Test (Load Loss Test at 50% and 100% Load)	20% of ex-works (including F and I ) value of the lot and encashment of performance bank guarantee	Debarment/Blacklisting from the business in all DISCOMs for 2 years.
Failure of sample in any test listed in 9(c)	20% of ex-works (including F and I ) value of the lot and encashment of performance bank guarantee	Debarment/Blacklisting from the business in all DISCOMs for 2 years.

- c) The provision in the above tables mentioned in point :

10 (a) and 10 (b) shall be implemented in the following order :

- i. If the whole lot is completely unutilized till the receipt the test reports, Table in 19(b) will be applicable
- ii. If the whole lot is completely utilized till the receipt of the test reports Table in 19(b) will be applicable.
- iii. If the lot is partially utilized till the receipt of the test reports, table in 19(b) will be applicable on utilized portion of lot whereas table in 19(a) will be applicable on unutilized portion of lot.

**19. Quality Plan of Material/Equipment based on Field Performance:-**

On the basis of records keeping by DQC regarding failure of materials erected at site, the maximum permissible limit of failures is as under, against the Material/Equipment supplied against each lot/order (in case the supply is completed):-

Name of Material/Equipment	Maximum permissible failure in a supplied lot/order quantity (in case the supply is completed) within Guarantee Period.	Probable action for failure more than the permissible limit
Power Transformer	NIL	Upto 10%-debarring from participation in next three tenders or 3 Years (whichever is later) of Power/Distribution Transformer in all UP Discom. More than 10%- Debarring/Blacklisting for three years.
Distribution Transformer	5%	
Energy Meter	2%	Upto 5%-debarring from participation in next three tenders of Energy Meters or 3 Years (whichever is later) in all UP Discom. More than 5%- Debarring/Blacklisting for three years.

**20. Modification in GTP:-** HV & LV winding resistance modified at 20 & 75<sup>0</sup>C and as certified by the testing lab in the type tests of the offered design in the bid for short circuit withstand test (before short circuit), should be mentioned in GTP (with  $\pm 5\%$  manufacturing tolerance). The quality cell of each Discom should have few precision calibrated mili-ohm meter and resistance of each power and distribution transformer at store centre should be measured and recorded mandatorily by the team deputed by the quality cell through above instruments.

21. The Chief Engineer (MM), Discom shall be responsible to issue unique number to each power and distribution transformer irrespective of any scheme. The designated unique number should be embossed on core coil assembly and tank body (on properly welded mild steel plate of size 150x150x3 mm size on tank body) of each power and distribution transformer.
22. During the stage inspection of power transformer, the inspection team should sign with permanent marker pen/wax pen on each part of the transformer.
23. After successful final inspection of the power transformer, the supplier should diagonally seal weld the top cover and tank body with U clip (min. 50 mm wide 2 mm thick). The inspecting officer shall also mark their signature on U clip with permanent marker/wax pen after seal welding.
24. The following provisions have been made for micro, small scale industries (MSE's) and startups, vide OM No. 8930/PVVNL-MT/MM/21-22 dated 16.02.2022 of Chief Engineer (MM) PVVNL Meerut in compliance of MD UPPCL, Lucknow OM No. 634 dated 09.04.2021 and OM 1499 dated 13.09.2021 :-

पविनिनिलि की उत्पादों एवं सेवाओं हेतु आमंत्रित निविदाओं में प्रतिभाग करने वाले सूक्ष्म एवं लघु उद्यमों (MSE's) को निम्नलिखित लाभ प्रदान किये जाते हैं—

**(1). प्राइस मैचिंग का विकल्प:-**

- 1.1 यदि टेण्डर में एल-1 आफर देने वाली फर्म उत्तर प्रदेश में स्थित सूक्ष्म एवं लघु उद्यम से इतर है (अर्थात् मध्यम या बृहद फर्म है) और किसी सूक्ष्म एवं लघु उद्यम के द्वारा एल-1 आफर के मूल्य के 15 प्रतिशत की सीमा तक अधिक मूल्य अंकित किया गया है तो ऐसी दशा में उक्त सूक्ष्म एवं लघु



उद्यम(या एक से अधिक ऐसे उद्यमों की दशा में 15 प्रतिशत बैण्ड में स्थित सभी सूक्ष्म एवं लघु उद्यमों) को यह अधिकार होगा कि वे अपने मूल्य को एल-1 स्तर पर लाकर कुल निविदा मूल्य के 25 प्रतिशत तक की सीमा तक आपूर्ति कर सकते हैं। ऐसी स्थिति में विभाग या उपक्रम द्वारा अनुमति दी जायेगी तथा आपूर्ति भी सुनिश्चित की जायेगी। एक से अधिक सूक्ष्म एवं लघु उद्यमों की दशा में उनसे ली जाने वाली आपूर्ति को उनके द्वारा निविदित मात्रा के आनुपातिक रूप में बांटा जायेगा।

- 1.2 टेण्डर के उपरांत सूक्ष्म एवं लघु इकाइयों के पक्ष में निर्णय लेते समय गुणवत्ता के मानकों में किसी प्रकार की छूट संबंधित इकाइयों को नहीं दी जायेगी और आशय का उल्लेख टेण्डर में स्पष्ट रूप से अंकित भी किया जायेगा।

**(2). विभागीय क्रय में सूक्ष्म एवं लघु उद्योगों से क्रय किये जाने हेतु आरक्षण:-**

उ०प्र० पावर कारपोरेशन लि० एवं सहयोगी वितरण निगम आदेश निर्गत होने की तिथि से अपने अधीन प्रस्तावित कुल वार्षिक क्रय (उत्पाद एवं सेवाओं को सम्मिलित करते हुए) का न्यूनतम 25 प्रतिशत लक्ष्य उत्तर प्रदेश में स्थित सूक्ष्म और लघु उद्यम के उत्पादों या सेवाओं से क्रय द्वारा आपूर्ति करने के उद्देश्य से निर्धारित करेंगे। शर्त यह है कि यदि 25 प्रतिशत क्रय के लिये उत्तर प्रदेश में स्थित सूक्ष्म एवं लघु इकाई उपलब्ध नहीं है अथवा 25 प्रतिशत के लक्ष्य में कमी आती है तो देश में स्थित किसी भी सूक्ष्म एवं लघु इकाई से 25 प्रतिशत की पूर्ति की जायेगी।

**(3). सूक्ष्म एवं लघु उद्योगों से क्रय किये गये उत्पादों एवं सेवाओं की आपूर्ति में निम्नलिखित को भी गिना जायेगा:-**

- 3.1 वृहद उद्यमों को दिए गए क्रयदेशों के सापेक्ष उनके द्वारा सूक्ष्म एवं लघु उद्यमों को निर्गत उपसंविदाओं के माध्यम से की गयी आपूर्ति।
- 3.2 उत्तर प्रदेश लघु उद्योग निगम द्वारा गठित सूक्ष्म एवं लघु उद्यम संघों की उपसंविदाओं के माध्यम से की गयी आपूर्ति।

**(4). संव्यवहार लागत में कमी:-**

व्यवसाय चलाने की संव्यवहार लागत में कमी लाने के उद्देश्य से सूक्ष्म और लघु उद्यम (MSE's) तथा स्टार्टअप्स को निम्नलिखित सुविधाएं दी जायेगी:-

- 4.1 निविदा सेट निःशुल्क उपलब्ध कराया जाएगा।
- 4.2 ईएमडी से छूट प्रदान की जाती है।

**NOTE:-**

1. If the bidder firm comes under the criteria of exemption from Tender fee and EMD as per terms-condition of tender, being MSE's or startup firm, and seeking the exemption from Tender fee and EMD, they have to submit an under taking giving the reason for exemption mentioning the category of the firm i.e. small/micro/startup with relevant certificate issued by the competent government authority.
2. Certificate for Micro & Small enterprises issued by MSME shall be on the basis of latest audited balance sheet failing which the claim for exemption in tender fee and EMD shall not be considered & offer of the bidder shall be rejected for further evaluation.

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**TECHNICAL SPECIFICATION FOR OUTDOOR NON-SEALED TYPE DISTRIBUTION TRANSFORMERS 11 KV/0.433 KV ALLUMINUM WOUND {(As Per Amendment No. 4 to IS 1180 (Part 1) :2014} 25 KVA, 63 KVA & 100 KVA DISTRIBUTION TRANSFORMER WITH LT BUSHING SIDE BUSBAR ARRANGEMENT, EXTERNAL H.T. FUSE UNIT AND OIL IMMERSSED LT INTERNAL BREAKER FOR EACH TRANSFORMER**

**1. SCOPE**

- 1.1 This specification covers design, engineering, manufacture, assembly, stage testing, inspection and testing before supply and delivery at site of oil immersed, naturally cooled 3 phase 11 kV/433 - 250 V, 25 kVA, 63 kVA and 100 kVA, BIS mark, Energy Efficiency Level-1 (As Per Amendment No. 4 to IS 1180 part 1) distribution transformers for outdoor use.
- 1.2 The equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation, in a manner acceptable to the purchaser, who will interpret the meanings of drawings and specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective and trouble-free operation. Such components shall be deemed to be within the scope of bidder's supply irrespective of whether those are specifically brought out in this specification and/or the commercial order or not.
- 1.3 The transformer and accessories shall be designed to facilitate operation, inspection, maintenance and repairs. The design shall incorporate every precaution and provision for the safety of equipment as well as staff engaged in operation and maintenance of equipment.
- 1.4 All outdoor apparatus, including bushing insulators with their mountings, shall be designed so as to avoid any accumulation of water.

**2. STANDARD RATINGS:**

The standard ratings shall be 25 kVA, 63 kVA and 100 kVA for 11 kV distribution transformers.

**3. STANDARDS:**

- 3.1 The materials shall conform in all respects to the relevant Indian/International Standards, with latest amendments thereof unless otherwise specified herein. Some of them are listed below:

<b>Indian standard</b>	<b>Title</b>	<b>Internationally Recognized standards</b>
IS-2026	Specification for Power Transformers	IEC 76
IS-1180 (Part-1): 2014	Outdoor Type Oil Immersed distribution Transformer up to and including 2500 kVA, 33 kV Specification	
IS-12444	Specification for Copper wire rod	ASTM B-49
IS-335	Specification for Transformer Oil	BS 148, D-1473, D-1533-1934, IEC Pub 296
IS-5	Specification for colors for ready mixed paints	
IS-104	Ready mixed paint, brushing zinc chromate, priming	
IS-2099	Specification for high voltage porcelain bushing	
IS-649	Testing for steel sheets and strips and magnetic circuits	
IS-3024	Cold rolled grain oriented electrical sheets and strips	
IS-4257	Dimensions for clamping arrangements for bushings	
IS-7421	Specification for Low Voltage bushings	
IS-3347	Specification for Outdoor Bushings	DIN 42531 to 42533
IS-5484	Specification for Aluminum Wire rods	ASTM B-233
IS-9335	Specification for Insulating Kraft Paper	IEC 554
IS-1576	Specification for Insulating Press Board	IEC 641
IS-6600	Guide for loading of oil Immersed Transformers	IEC 76
IS-2362	Determination of water content in oil for porcelain bushing of transformer	

IS-6162	Paper covered Aluminum conductor	
IS-6160	Rectangular Electrical conductor for electrical machines	
IS-5561	Electrical power connector	
IS-6103	Testing of specific resistance of electrical insulating liquids	
IS-6262	Method of test for power factor and dielectric constant of electrical insulating liquids	
IS-6792	Determination of electrical strength of insulating oil	
IS-10028	Installation and maintenance of transformers	

3.2 Material conforming to other internationally accepted standards, which ensure equal or better quality than the standards mentioned above, would also be acceptable. In case the bidders who wish to offer material conforming to other standards, the bidder shall clearly bring out the salient points of difference between the standards adopted and the specific standards in relevant schedule. Four copies of such standards with authentic English translations shall be furnished along with the offer.

#### 4. SERVICE CONDITIONS:

The Distribution Transformers to be supplied against this Specification shall be suitable for satisfactory continuous operation under the following climatic conditions as per IS 2026 (Part - I).

i)	Location	:	At various locations in the country
ii)	Maximum ambient air temperature ( $^{\circ}\text{C}$ )	:	50
iii)	Minimum ambient air temperature ( $^{\circ}\text{C}$ )	:	- 5
iv)	Maximum average daily ambient air temperature ( $^{\circ}\text{C}$ )	:	40
v)	Maximum yearly weighted average ambient temperature ( $^{\circ}\text{C}$ )	:	32
vi)	Maximum altitude above mean sea level (Meters)	:	To be specified by the user

#### Note:

1. The climatic conditions specified above are indicative and can be changed by the user as per requirements.
2. The equipment shall generally be for use in moderately hot and humid tropical climate, conducive to rust and fungus growth unless otherwise specified.

#### 5. PRINCIPAL PARAMETERS:

The transformers shall be suitable for outdoor installation with three phase, 50 Hz, 11 kV or 33 kV system in which the neutral is effectively earthed and they should be suitable for service with fluctuations in supply voltage upto plus 12.5% to minus 12.5%.

The transformers shall conform to the following specific parameters:

Sl. No.	Item	11 kV Distribution transformers
1.	System voltage (max.)	12 kV
2.	Rated voltage HV	11 kV
3.	Rated voltage LV	433 – 250 V
4.	Frequency	50 Hz +/- 5%
5.	No. of Phases	Three
6.	Connection HV	Delta
7.	Connection LV	Star (Neutral brought out)
8.	Vector group	Dyn-11
9.	Type of cooling	ONAN

Audible sound levels (decibels) at rated voltage and frequency for liquid immersed distribution transformers shall be as below (NEMA Standards):

kVA rating	Audible sound levels (decibels)
0-50	48
51-100	51
101-300	55
301-500	56

## 6. TECHNICAL REQUIREMENTS:

### 6.1 CORE MATERIAL - CRGO

#### 6.1.1 CRGO Material

- 6.1.1.1 The core shall be **stack type** of high grade cold rolled grain oriented (**CRGO M-3 or higher grade**) annealed steel lamination having low loss and good grain properties, coated with hot oil proof insulation, bolted together and to the frames firmly to prevent vibration or noise. The core shall be stress relieved by annealing under inert atmosphere if required. The complete design of core must ensure permanency of the core loss with continuous working of the transformers. The value of the maximum flux density allowed in the design and grade of lamination used shall be clearly stated in the offer. **Flux density shall not be more than 1.69 Tesla**
- 6.1.1.2 The bidder should offer the core for inspection and approval by the purchaser during manufacturing stage.
- 6.1.1.3 The transformers core shall be suitable for over fluxing (due to combined effect of voltage and frequency) up to 12.5% without injurious heating at full load conditions and shall not get saturated. The bidder shall furnish necessary design data in support of this situation.
- 6.1.1.4 No-load current shall not exceed 3% of full load current and will be measured by energizing the transformer at 433 volts, 50 Hz on the secondary. Increase of voltage of 433 volts by 12.5% shall not increase the no-load current by 6% (maximum) of full load current.
- 6.1.1.5 **The name of the manufacturer and unique no allotted to him shall also be punched at a visible portion on the core assembly of each transformer.**

## 7. WINDINGS:

### 7.1 Material:

- 7.1.1 **HV and LV windings shall be wound from Double Paper covered aluminium winding wire.**
- 7.1.2 **HV and LV windings wound from Super Enameled Aluminium winding wire shall not be considered.**
- 7.1.3 LV winding shall be such that neutral formation will be at top.
- 7.1.4 The winding construction of single HV coil wound over LV coil is preferable.
- 7.1.5 Inter layer insulation shall be Nomex /Epoxy dotted Kraft Paper.
- 7.1.6 Proper bonding of inter layer insulation with the conductor shall be ensured. Test for bonding strength shall be conducted.
- 7.1.7 Dimensions of winding coils are very critical. Dimensional tolerances for winding coils shall be within limits as specified in Guaranteed Technical Particulars.
- 7.1.8 Current density for HV and LV winding should not be **more than 2.5 Ampere per sq. mm. for copper and 1.4 Ampere per sq. mm for Aluminium Conductor.**
- 7.1.9 The core/coil assembly shall be securely held in position to avoid any movement under short circuit conditions.
- 7.1.10 Joints in the winding shall be avoided. However, if jointing is necessary the joints shall be properly brazed and the resistance of the joints shall be less than that of parent conductor. In case of foil windings, welding of leads to foil can be done within the winding.

## 8. TAPS:

No tapping shall be provided for transformers.

## 9. OIL:

- 9.1 The insulating oil shall comply with the requirements of IS 335 or BS 148. Use of recycled oil is not acceptable. The specific resistance of the oil shall not be less than  $2.5 \times 10^{12}$  ohm-cm at 27°C when tested as per IS 6103.
- 9.2 Oil shall be filtered and tested for break down voltage (BDV) and moisture content before filling.
- 9.3 The oil shall be filled under vacuum.

9.4 The design and all materials and processes used in the manufacture of the transformer, shall be such as to reduce to a minimum the risk of the development of acidity in the oil.

#### **INSULATION LEVELS:**

Sl. No.	Voltage (kV)	Impulse Voltage (kV Peak)	Power Frequency (Voltage kV)
1.	0.433	—	3
2.	11	75	28
3.	33	170	70

#### **10 LOSSES:**

- 10.1 The bidder shall guarantee individually the no-load loss and load loss without any positive tolerance. The bidder shall also guarantee the total losses at 50% and 100% load condition (at rated voltage and frequency and at 75°C).
- 10.2 The maximum allowable losses at rated voltage and rated frequency permitted 75°C for 11/0.433 kV transformers up to rating of 100 kVA Level-1 (As per amended BIS level-1) as indicated below:-

Sl. No.	Capacity (KVA)	Max. Losses at 50% loading (watts)	Max. Losses at 100% loading (watts)
2	25	190	635
3	63	340	1140
4	100	475	1650

**Note:-**Bids with higher losses than the above specified values would be treated as non-responsive. However, the manufacturer can offer losses less than above.

#### **11 TOLERANCES:**

No positive tolerance shall be allowed on the maximum losses displayed on the label for both 50% and 100% loading values.

#### **12 PERCENTAGE IMPEDANCE:**

The value of impedance of transformers at 75°C shall be 4.5% for transformers up to and 200 kVA and for ratings above 200 kVA shall be in accordance with IS 2026.

- 13 **TEMPERATURE RISE:** The temperature rise over ambient shall not exceed the limits given below:

- 13.1 Top oil temperature rise measured by thermometer : 35°C  
 13.2 Winding temperature rise measured by resistance method : 40°C

**Bids not meeting the above limits of temperature rise will be treated as non-responsive.**

The transformer shall be capable of giving continuous rated output without exceeding the specified temperature rise. Bidder shall submit the calculation sheet in this regard.

#### **14 PENALTY FOR NON PERFORMANCE:**

- 14.1 During testing at supplier's works if it is found that the actual measured losses are more than the values quoted by the bidder, the purchaser shall reject the transformer and he shall also have the right to reject the complete lot.
- 14.2 Purchaser shall reject the entire lot during the test at supplier's works, if the temperature rise exceeds the specified values.
- 14.3 Purchaser shall reject any transformer during the test at supplier's works, if the impedance values differ from the guaranteed values including tolerance.

#### **15 INSULATION MATERIAL:**

- 15.1 Electrical grade insulation epoxy dotted Kraft Paper/ Nomex and pressboard of standard make or any other superior material subject to approval of the purchaser shall be used.
- 15.2 All spacers, axial wedges / runners used in windings shall be made of pre-compressed Pressboard-solid, conforming to type B 3.1 of IEC 641-3-2. In case of cross-over coil winding of HV all spacers shall be properly sheared and dovetail punched to ensure proper locking. All axial wedges / runners shall be properly milled to dovetail shape so that they pass through the designed spacers freely. Insulation shearing, cutting, milling and punching

operations shall be carried out in such a way, that there should not be any burr and dimensional variations.

#### **16 TANK:**

- 16.1 Transformer tank construction shall confirm in all respect to clause 15 of IS:1180(Part-1):2014
- 16.2 The internal clearance of tank shall be such, that it shall facilitate easy lifting of core with coils from the tank without dismantling LV bushings.
- 16.3 All joints of tank and fittings shall be oil tight and no bulging should occur during service.
- 16.4 Inside of tank shall be painted with varnish/hot oil resistant paint.
- 16.5 The top cover of the tank shall be slightly sloping to drain rain water.
- 16.6 The tank plate and the lifting lugs shall be of such strength that the complete transformer filled with oil may be lifted by means of lifting shackle/hook type.
- 16.7 Manufacturer should carry out all welding operations as per the relevant ASME standards and submit a copy of the welding procedure and welder performance qualification certificates to the customer.

#### **17 PLAIN TANK:**

- 17.1 The transformer tank shall be of robust construction rectangular/octagonal /round/ elliptical in shape and shall be built up of electrically tested welded mild steel plates of thickness of min. 5.0 mm for the top and bottom plates and min. 3.15 mm for the side plates for transformers of 25 kVA and up to and including 100 kVA capacity.
- 17.2 In case of rectangular tanks above 100 kVA the corners shall be fully welded at the corners from inside and outside of the tank to withstand a pressure of  $0.8 \text{ kg/cm}^2$  for 30 minutes. In case of transformers of 100 kVA and below, there shall be no joints at corners and there shall not be more than 2 joints in total.
- 17.3 Under operating conditions the pressure generated inside the tank should not exceed  $0.4 \text{ kg/sq. cm}$  positive or negative. There must be sufficient space from the core to the top cover to take care of oil expansion. The space above oil level in the tank shall be filled with dry air or nitrogen conforming to commercial grade of IS 1747.
- 17.4 The tank shall be reinforced by welded flats on all the outside walls on the edge of the tank.
- 17.5 Permanent deflection: The permanent deflection, when the tank without oil is subjected to a vacuum of 525 mm of mercury for rectangular tank and 760 mm of mercury for round tank, shall not be more than the values as given below:

(All figures in mm)

Horizontal length of flat plate (in mm)	Permanent deflection (in mm)
Up to and including 750	5.0
751 to 1250	6.5
1251 to 1750	8.0
1751 to 2000	9.0

- 17.6 The tank shall further be capable of withstanding a pressure of  $0.8 \text{ kg/sq.cm (g)}$  and a vacuum of  $0.7 \text{ kg/sq.cm (g)}$  without any deformation.
- 17.7 The radiators can be tube type or fin type or pressed steel type to achieve the desired cooling to limit the specified temperature rise.
- 17.8 *Unique number, provided by the purchaser, has to be punched on inside portion of the top cover and sidewall of transformer in visible condition. PROPERTY of PVVNL/ PuVVNL/ Kesco/ DVVNL/ MVVNL' also to be punched below unique number on sidewall of the transformer tank.*

#### **18 CORRUGATED TANK:**

- 18.1 The bidder may offer corrugated tank for transformer of all ratings.
- 18.2 The transformer tank shall be robust construction corrugated in shape and shall be built up of tested sheets.
- 18.3 Corrugation panel shall be used for cooling. The transformer shall be capable of giving

continuous rated output without exceeding the specified temperature rise. Bidder shall submit the calculation sheet in this regards.

- 18.4 Tank with corrugation shall be tested for leakage test at pressure of 0.25kg/sq.cm measured at the top of the tank.
- 18.5 The transformer with corrugation should be provided with a pallet for transportation, the dimensions of which should be more than the length and width of the transformer tank with corrugation.

## **19. CONSERVATOR:**

- 19.1 The Transformer of rating 63kVA and above with plain tank construction, the provision of conservator is mandatory. For corrugated tank and sealed type transformers with or without inert gas cushion, conservator is not required.
- 19.2 When a conservator is provided, oil gauge and the plain or dehydrating breathing device shall be fitted to the conservator which shall also be provided with a drain plug and a filling whole [32 mm (1¼")] normal size thread with cover. In addition, the cover of the main tank shall be provided with an air release plug.
- 19.3 The dehydrating agent shall be silica gel. The moisture absorption shall be indicated by a change in the color of the silica gel crystals which should be easily visible from a distance. Volume of breather shall be suitable for 500g of silica gel conforming to IS 3401 for transformers upto 200 kVA and 1 kg for transformers above 200 kVA.
- 19.4 The capacity of a conservator tank shall be designed keeping in view the total quantity of oil and its contraction and expansion due to temperature variations. The total volume of conservator shall be such as to contain 10% quantity of the oil. Normally 3% quantity the oil shall be contained in the conservator.
- 19.5 The cover of main tank shall be provided with an air release plug to enable air trapped within to be released, unless the conservator is so located as to eliminate the possibility of air being trapped within the main tank.
- 19.6 The inside diameter of the pipe connecting the conservator to the main tank should be within 20 to 50 mm and it should be projected into the conservator so that its end is approximately 20 mm above the bottom of the conservator so as to create a sump for collection of impurities. The minimum oil level (corresponding to -5°C) should be above the sump level.

## **20 SURFACE PREPARATION AND PAINTING:**

- 20.1 GENERAL:** The transformer tank body shall be painted with **Hex#b3c4db Color (Gray)**.
- 20.1.1 All paints, when applied in a normal full coat, shall be free from runs, sags, wrinkles, patchiness, brush marks or other defects.
- 20.1.2 All primers shall be well marked into the surface, particularly in areas where painting is evident and the first priming coat shall be applied as soon as possible after cleaning. The paint shall be applied by airless spray according to manufacturer's recommendations. However, where ever airless spray is not possible, conventional spray be used with prior approval of purchaser.
- 20.2 CLEANING AND SURFACE PREPARATION:**
- 20.2.1 After all machining, forming and welding has been completed, all steel work surfaces shall be thoroughly cleaned of rust, scale, welding slag or spatter and other contamination prior to any painting.
- 20.2.2 Steel surfaces shall be prepared by shot blast cleaning (IS9954) to grade Sq.2.5 of ISO 8501-1 or chemical cleaning including phosphate of the appropriate quality (IS 3618).
- 20.2.3 Chipping, scraping and steel wire brushing using manual or power driven tools cannot remove firmly adherent mill-scale. These methods shall only be used where blast cleaning is impractical. Manufacturer to clearly explain such areas in his technical offer.

### 20.3 PROTECTIVE COATING:

As soon as all items have been cleaned and within four hours of the subsequent drying, they shall be given suitable anti-corrosion protection.

### 20.4 PAINT MATERIAL:

20.4.1 Following are the types of paint which may be suitably used for the items to be painted at shop and supply of matching paint to site: Heat resistant paint (Hot oil proof) for inside surface

20.4.2 For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of synthetic enamel/polyurethane base paint. These paints can be either air drying or stoving.

20.4.3 For highly polluted areas, chemical atmosphere or for places very near to these a coast, paint as above with one coat of high build Micaceous iron oxide (MIO) as an intermediate coat may be used.

### 20.5. PAINTING PROCEDURE:

20.5.1 All prepared steel surfaces should be primed before visible re-rusting occurs or within 4 hours, whichever is sooner. Chemical treated steel surfaces shall be primed as soon as the surface is dry and while the surface is still warm.

20.5.2 Where the quality of film is impaired by excess film thickness (wrinkling, mud cracking or general softness) the supplier shall remove the unsatisfactory paint coating and apply another coating. As a general rule, dry film thickness should not exceed the specified minimum dry film thickens by more than 25%.

### 20.6. DAMAGED PAINTWORK:

20.6.1 Any damage occurring to any part of a painting scheme shall be made good to the same standard of corrosion protection and appearance as that was originally applied.

20.6.2 Any damaged paint work shall be made good as follows:

20.6.2.1 The damaged area, together with an area extending 25 mm around its boundary, shall be cleaned down to bare metal.

20.6.2.2 A priming coat shall be immediately applied, followed by a full paint finish equal to that originally applied and extending 50 mm around the perimeter of the original damage.

20.6.2.3 The repainted surface shall present a smooth surface. This shall be obtained by carefully chamfering the paint edges before and after priming.

### 20.7 DRY FILM THICKNESS:

20.7.1 To the maximum extent practicable the coats shall be applied as a continuous film of uniform thickness and free of pores. Overspray, skips, runs, sags and drips should be avoided. The different coats may or may not be of the same color.

20.7.2 Each coat of paint shall be allowed to harden before the next is applied as per manufacturer's recommendation.

20.7.3 Particular attention must be paid to full film thickness at the edges.

20.7.4 The requirements for the dry film thickness (DFT) of paint and the materials to be used shall be as given below:

Sl. No.	Paint type Area to be painted		No. of coats	Total dry film thickness (min.) (microns)
1.	Thermo setting powder paint	Inside outside	01 01	30 60
2.	Liquid paint:			
	a) Epoxy (primer)	Outside	01	30
	b) P.U. Paint (Finish coat)	Outside	02	25 each
	c) Hot oil paint. Varnish	Inside	01	35/10

### 20.8 TESTS FOR PAINTED SURFACE:

20.8.1 The painted surface shall be tested for paint thickness.



- 20.8.2 The painted surface shall pass the cross hatch adhesion test and impact test as acceptance tests and Salt spray test and Hardness test as type test as per the relevant ASTM standards.

**Note:** Supplier shall guarantee the painting performance requirement for a period of not less than 5 years.

## **21. BUSHINGS:**

- 21.1. The bushings shall conform to the relevant standards specified and shall be of outdoor type. The bushing rods and nuts shall be made of brass material 12 mm diameters for both HT and LT bushings. The bushings shall be fixed to the transformers on side with straight pockets and in the same plane or the top cover for transformers above 100 kVA. For transformers of 100 kVA and below the bushing can be mounted on pipes. The tests as per latest IS 2099 and IS 7421 shall be conducted on the transformer bushings.
- 21.2 For 33 kV, 52 kV class bushings shall be used for transformers of ratings 500 kVA and above. And for transformers below 500 KVA, 33 kV class bushings, for 11 kV, 17.5 kV class bushings and for 0.433 kV, 1.1 kV class bushings shall be used.
- 21.3 Bushing can be of porcelain/epoxy material. Polymer insulator bushings conforming with relevant IEC can also be used.
- 21.4 Bushings of plain shades as per IS 3347 shall be mounted on the side of the Tank and not on top cover.
- 21.5 Dimensions of the bushings of the voltage class shall conform to the Standards specified and dimension of clamping arrangement shall be as per IS 4257.
- 21.6 Minimum external phase to phase and phase to earth clearances of bushing terminals shall be as follows:

Voltage Clearance	Phase to Phase	Phase to earth
33 kV	350 mm	320 mm
11 kV	255 mm	140 mm
LV	75 mm	40 mm

The aforesaid external clearances are minimum clearances and no negative tolerance on these clearances shall be allowed.

- 21.7 Brazing of all inter connections, jumpers from winding to bushing shall have cross section larger than the winding conductor. All the Brazes shall be qualified as per ASME, section – IX.
- 21.8 The bushings shall be of reputed make supplied by those manufacturers who are having manufacturing and testing facilities for insulators.
- 21.9 The terminal arrangement shall not require a separate oil chamber not connected to oil in the main tank.
- 21.10 Arcing Horn shall be provided on HV Bushings.

## **22. TERMINAL CONNECTORS:**

The LV and HV bushing stems shall be provided with suitable terminal connectors as per IS 5082 so as to connect the jumper without disturbing the bushing stem. Connectors shall be with eye bolts so as to receive conductor for HV. Terminal connectors shall be type tested as per IS 5561.

### **22.1 TERMINAL MARKINGS:**

High voltage phase windings shall be marked both in the terminal boards inside the tank and on the outside with capital letter 1U, 1V, 1W and low voltage winding for the same phase marked by corresponding small letter 2u, 2v, 2w. The neutral point terminal shall be indicated by the letter 2n. Neutral terminal is to be brought out and connected to local grounding terminal by an earthing strip.

## 23 FITTINGS:

The following standard fittings shall be provided:

- i. Rating and terminal marking plates, non-detachable.
- ii. Earthing terminals with lugs - 2 Nos.
- iii. Lifting lugs for main tank and top cover
- iv. Terminal connectors on the HV/LV bushings (For bare terminations only).
- v. Thermometer pocket with cap – 1 No.
- vi. Air release device (for non-sealed transformer)
- vii. HV bushings - 3 Nos.
- viii. LV bushings - 4 Nos.
- ix. Pulling lugs
- x. Stiffener
- xi. Radiators - No. and length may be mentioned (as per heat dissipation calculations)/ corrugations.
- xii. Arcing horns on HT side -3 No.
- xiii. Prismatic oil level gauge.
- xiv. Oil filling hole having p. 1- ¼ “ thread with plug and drain plug on the conservator.
- xv. Silicagel breather
- xvi. Base channel 75x40 mm for up to 100 kVA and 100 mmx50 mm above 100 kVA, 460 mm long with holes to make them suitable for fixing on a platform or plinth.
- xvii. 4 No. rollers for transformers of 200 kVA and above.
- xviii. Pressure relief device or explosion vent.

**NOTE : OIL DRAIN & FILTER VALVE ARE NOT TO BE PROVIDED**

## 24 FASTENERS:

- 24.1 All bolts, studs, screw threads, pipe threads, bolt heads and nuts shall comply with the appropriate Indian Standards for metric threads, or the technical equivalent.
- 24.2 Bolts or studs shall not be less than 6 mm in diameter except when used for small wiring terminals.
- 24.3 All nuts and pins shall be adequately locked.
- 24.4 Wherever possible bolts shall be fitted in such a manner that in the event of failure of locking resulting in the nuts working loose and falling off, the bolt will remain in position.
- 24.5 All ferrous bolts, nuts and washers placed in outdoor positions shall be treated to prevent corrosion, by hot dip galvanizing, except high tensile steel bolts and spring washers which shall be electro-galvanised/ plated. Appropriate precautions shall be taken to prevent electrolytic action between dissimilar metals.
- 24.6 Each bolt or stud shall project at least one thread but not more than three threads through the nut, except when otherwise approved for terminal board studs or relay stems. If bolts and nuts are placed so that they are inaccessible by means of ordinary spanners, special spanners shall be provided.
- 24.7 The length of the screwed portion of the bolts shall be such that no screw thread may form part of a shear plane between members.
- 24.8 Taper washers shall be provided where necessary.
- 24.9 Protective washers of suitable material shall be provided front and back of these curing screws.

## 25. OVERLOAD CAPACITY:

The transformers shall be suitable for loading as per IS 6600.

## 26. PROTECTION FEATURES:

- 26.1 Internally Mounted Oil immersed LT circuit breaker on the LV Side of the Transformer:
- 26.2 **3 Pole LT circuit breaker:** All LT faults after the breaker shall be cleared by this breaker. The bidder shall furnish the time / current characteristics of LT circuit breaker **.NO HT Fuse Link shall be provided in the HT Bushings inside the Transformers.**
- 26.3 The bidder shall carry out coordination test as indicated above and this forms one of the tests for acceptance test.

- 26.4 The breaker shall be coordinated thermally with the transformer design to follow closely the variations of oil temperature due to fluctuating loads and ambient temperatures.
- 26.5 The breaker shall be mounted **Inside the transformer on the top of core assembly & shall remain oil dipped always**. The incomer to the Internal breaker & outgoing from breaker to LV bushings shall be connected with through single core copper leads of adequate size, the wiring shall be dressed properly. ***The handle of the Circuit Breaker shall be so designed that it can be operated from the ground.*** The rate for Internal Circuit Breaker, connecting arrangement etc shall be quoted separately.
- 26.6 Arrangements shall be provided to enable the Internal breaker to be closed and opened manually standing on ground. ***For which bidder shall provide one mechanism (operating rod etc) with nos 50 of transformer for such operations***
- 26.7 The cross section of the current carrying parts of the breaker shall withstand the full load current density not more than 2.5 A/sq. mm (for additional mechanical strength the area should be more.)
- 26.8 Rated short circuit breaking capacity of the breaker shall not be less than 2.5 kA. Circuit breaker should have been type tested to Test Sequence II in accordance with IEC: 60947-2 (2009). The Type Test reports of the same should be attached by the supplier and this forms one of the criteria for acceptance
- 26.9 The internal breaker shall be located in the same oil as the core and coil assembly so that the bimetal is sensitive to the temperature of the Oil as well as the Load.
- 26.10 The detailed technical specification of internal breaker are enclosed separately with the tender documents.

## 27. TESTS:

All the equipment offered shall be fully type tested by the bidder or his collaborator as per the relevant standards including the additional type tests. The type test must have been conducted on a transformer of same design **during the last five years** at the time of bidding. The bidder shall furnish four sets of type test reports along with the offer. Offers without type test reports will be treated as non-responsive.

- a. Special tests other than type and routine tests, as agreed between purchaser and bidder shall also be carried out as per the relevant standards.
- b. The requirements of site tests are also given in this clause.
- c. The test certificates for all routine and type tests for the transformers and also for the bushings and transformer oil shall be submitted with the bid.
- d. The procedure for testing shall be in accordance with IS 1180/2026 as the case may be except for temperature rise test.
- e. Before dispatch each of the completely assembled transformers shall be subjected to the routine tests at the manufacturer's works.

## 28. ROUTINE TESTS:

- a. Ratio, polarity, phase sequence and vector group.
- b. No Load current and losses at service voltage and normal frequency.
- c. Load losses at rated current and normal frequency.
- d. Impedance voltage test.
- e. Resistance of windings at each tap, cold (at or near the test bed temperature).
- f. Insulation resistance.
- g. Induced over voltage withstand test.
- h. Separate source voltage withstand test.
- i. Neutral current measurement-The value of zero sequence current in the neutral of the star winding shall not be more than 2% of the full load current.
- j. Oil samples (one sample per lot) to comply with IS 1866.
- k. Measurement of no load losses and magnetizing current at rated frequency and 90%, 100% and 110% rated voltage.
- l. Pressure and vacuum test for checking the deflection.

## 29. TYPE TESTS TO BE CONDUCTED ON ONE UNIT

In addition to the tests mentioned in clause 27 and 28 following tests shall be conducted:

- a. Temperature rise test for determining the maximum temperature rise after continuous full load run. The ambient temperature and time of test should be stated in the test certificate.
- b. Impulse voltage test: with chopped wave of IS 2026 part-III. BIL for 11 kV shall be 75 kV peak.
- c. Short circuit withstand test: Thermal and dynamic ability.
- d. Air Pressure Test: As per IS – 1180 (Part-1):2014.
- e. Magnetic Balance Test.
- f. Un-balanced current test: The value of unbalanced current indicated by the ammeter shall not be more than 2% of the full load current.
- g. Noise-level measurement.
- h. Measurement of zero-phase sequence impedance.
- i. Measurement of Harmonics of no-load current.
- j. Transformer tank shall be subjected to specified vacuum. The tank designed for vacuum shall be tested at an internal pressure of 0.35 kg per sq cm absolute (250 mm of Hg) for one hour.

The permanent deflection of flat plates after the vacuum has been released shall not exceed the values specified below:

Horizontal length of flat plate (in mm)	Permanent deflection (in mm)
Up to and including 750	5.0
751 to 1250	6.5
1251 to 1750	8.0
1751 to 2000	9.0

- k. Transformer tank together with its radiator and other fittings shall be subjected to pressure corresponding to twice the normal pressure or 0.35 kg / sq.cm whichever is lower, measured at the base of the tank and maintained for an hour. The permanent deflection of the flat plates after the excess pressure has been released, shall not exceed the figures for vacuum test.
- l. Pressure relief device test: The pressure relief device shall be subject to increasing fluid pressure. It shall operate before reaching the test pressure as specified in the above class. The operating pressure shall be recorded. The device shall seal-off after the excess pressure has been released.
- m. **Short Circuit Test and Impulse Voltage Withstand Tests:** The purchaser intends to procure transformers designed and successfully tested for short circuit and impulse test. In case the transformers proposed for supply against the order are not exactly as per the tested design, the supplier shall be required to carry out the short circuit test and impulse voltage withstand test at their own cost in the presence of the representative of the purchaser.
  - i. The supply shall be accepted only after such test is done successfully, as it confirms on successful withstand of short circuit and healthiness of the active parts thereafter on un-tanking after a short circuit test.
  - ii. Apart from dynamic ability test, the transformers shall also be required to withstand thermal ability test or thermal withstand ability will have to be established by way of calculations.
  - iii. It may also be noted that the purchaser reserves the right to conduct short-circuit test and impulse voltage withstand test in accordance with the IS, afresh on each ordered rating at purchaser cost, even if the transformers of the same rating and similar design are already tested. This test shall be carried out on a transformer to be selected by the purchaser either at the manufacturer's works when they are offered in a lot for supply or randomly from the supplies already made to purchaser's stores. The findings and conclusions of these tests shall be binding on the supplier.
  - iv. Type test certificates for the tests carried out on prototype of same specifications shall be submitted along with the bid. The purchaser may select the transformer for type tests randomly.

### **30. ACCEPTANCE TESTS:**

1. **At least 10% transformers of the offered lot (minimum of one)** shall be subjected to the following routine/ acceptance test in presence of purchaser's representative at the place of manufacture before dispatch without any extra charges. The testing shall be carried out in accordance with IS: 1180 and IS:2026.
2. Checking of weights, dimensions, fitting and accessories, tank sheet thickness, oil quality, material, finish and workmanship as per GTP and contract drawings.
3. Physical verification of core coil assembly and measurement of flux density of one unit of each rating, in every inspection with reference to short circuit test report
4. Temperature rise test on one unit of the total ordered quantity.

### **31. TESTS AT SITE:**

The purchaser reserves the right to conduct all tests on transformer after arrival at site and the manufacturer shall guarantee test certificate figures under actual service conditions.

### **32. INSPECTION:**

In respect of raw material such as core stampings, winding conductors, insulating paper and oil, supplier shall use materials manufactured/supplied by standard manufacturers and furnish the manufacturers' test certificate as well as the proof of purchase from these manufacturers (excise gate pass) for information of the purchaser. The bidder shall furnish following documents along with their offer in respect of the raw materials:

- i. Invoice of supplier.
- ii. Mill's certificate.
- iii. Packing list.
- iv. Bill of landing.
- v. Bill of entry certificate by custom.

### **33. INSPECTION AND TESTING OF TRANSFORMER OIL**

- a. To ascertain the quality of the transformer oil, the original manufacturer's tests report should be submitted at the time of inspection. Arrangements should also be made for testing of transformer oil, after taking out the sample from the manufactured transformers and tested in the presence of purchaser's representative.
- b. To ensure about the quality of transformers, the inspection shall be carried out by the purchaser's representative at following two stages:-
  - b.1 Anytime during receipt of raw material and manufacture/ assembly whenever the purchaser desires.
  - b.2 At finished stage i.e. transformers are fully assembled and are ready for dispatch.
- c. The stage inspection shall be carried out in accordance with **Annexure-II**.
- d. After the main raw-material i.e. core and coil material and tanks are arranged and transformers are taken for production on shop floor and a few assembly have been completed, the firm shall intimate the purchaser in this regard, so that an officer for carrying out such inspection could be deputed, as far as possible within seven days from the date of intimation. During the stage inspection a few assembled core shall be dismantled (only in case of CRGO material) to ensure that the CRGO laminations used are of good quality. Further, as and when the transformers are ready for dispatch, an offer intimating about the readiness of transformers, for final inspection for carrying out tests as per relevant IS shall be sent by the firm along with Routine Test Certificates. The inspection shall normally be arranged by the purchaser at the earliest after receipt of offer for pre-delivery inspection. The proforma for pre delivery inspection of Distribution transformers is placed at **Annex- III**.
- e. In case of any defect/defective workmanship observed at any stage by the purchaser's Inspecting Officer, the same shall be pointed out to the firm in writing for taking remedial measures. Further processing should only be done after clearance from the Inspecting Officer/ purchaser.

- f. All tests and inspection shall be carried out at the place of manufacture unless otherwise specifically agreed upon by the manufacturer and purchaser at the time of purchase. The manufacturer shall offer the Inspector representing the Purchaser all reasonable facilities, without charges, to satisfy him that the material is being supplied in accordance with this specification. This will include Stage Inspection during manufacturing stage as well as Active Part Inspection during Acceptance Tests.
- g. The manufacturer shall provide all services to establish and maintain quality of workman ship in his works and that of his sub-contractors to ensure the mechanical /electrical performance of components, compliance with drawings, identification and acceptability of all materials, parts and equipment as per latest quality standards of ISO 9000.
- h. Purchaser shall have every right to appoint a third party inspection to carryout the inspection process.
- i. The purchaser has the right to have the test carried out at his own cost by an independent agency wherever there is a dispute regarding the quality supplied. Purchaser has right to test 1% or more of the supply selected either from the stores or field to check the quality of the product. In case of any deviation purchaser have every right to reject the entire lot or penalize the manufacturer, which may lead to blacklisting, among other things.

#### **34. QUALITY ASSURANCE PLAN:**

- a. The bidder shall invariably furnish following information along with his bid, failing which his bid shall be liable for rejection. Information shall be separately given for individual type of equipment offered.
- b. Statement giving list of important raw materials, names of sub-suppliers for the raw materials, list of standards according to which the raw materials are tested, list of tests normally carried out on raw materials in the presence of bidder's representative, copies of test certificates.
- c. Information and copies of test certificates as above in respect of bought out accessories.
- d. List of manufacturing facilities available.
- e. Level of automation achieved and list of areas where manual processing exists.
- f. List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspection.
- g. List of testing equipment available with the bidder for final testing of equipment along with valid calibration reports. These shall be furnished with the bid. Manufacturer shall possess 0.1 accuracy class instruments for measurement of losses.
- h. Quality Assurance Plan (QAP) withhold points for purchaser's inspection.
- i. The successful bidder shall within 30 days of placement of order, submit following information to the purchaser :
- j. List of raw materials as well as bought out accessories and the names of sub-suppliers selected from those furnished along with offer.
- k. Type test certificates of the raw materials and bought out accessories.
- l. The successful bidder shall submit the routine test certificates of bought out accessories and central excise passes for raw material at the time of routine testing.
- m. ISI marking on the transformer is mandatory. As per Quality control order for Electrical Transformers-2015, issued by Department of Heavy Industries, Govt. of India, the Standard/ ISI marking on Distribution transformers is mandatory and the product should be manufactured in compliance with IS 1180 Part-1: (2014).

#### **35. DOCUMENTATION:**

- a. The bidder shall furnish along with the bid the dimensional drawings of the items offered indicating all the fittings.
- b. Dimensional tolerances.
- c. Weight of individual components and total weight.
- d. An outline drawing front (both primary and secondary sides) and end-elevation and plan of the tank and terminal gear, wherein the principal dimensions shall be given.

- e. Typical general arrangement drawings of the windings with the details of the insulation at each point and core construction of transformer.
- f. Typical general arrangement drawing showing both primary and secondary sides and end-elevation and plan of the transformer.

**36. PACKING AND FORWARDING:**

- a. The packing shall be done as per the manufacturer's standard practice. However, it should be ensured that the packing is such that, the material would not get damaged during transit by Rail / Road / Sea.
- b. The marking on each package shall be as per the relevant IS.

**37. MANADATORY SPARES:**

Mandatory spares shall be supplied as per the purchaser's requirement.

**38. GUARANTEE:**

The material will be guaranteed for a period of at least 96 calendar months from the date of installation at the site or 102 months from the date of receipt of material by the purchaser at the site/store, whichever is earlier, called the "maintenance period." If the material is damaged within the guaranteed period, it shall be replaced/ repaired by the supplier free of cost within one month of receipt of intimation.

If a transformer is damaged within above guarantee period, then the guarantee period of the repaired transformer will be extended by 24 months. The total guarantee period will now be 120/126 months as applicable."

Both stage and final inspection of at least 10-20 percent of the quantity of repaired transformer will be carried out at the manufacturer's works/local repairing center. The manufacturer has to inform the address of the local repairer in advance.

In case, the repair work/replacement of transformer is not effected within three months of the above notice/intimation the consignees will ensure deduction of the amount equal to the price of new transformer from pending bills of the contractor. Such defaults shall be taken into consideration by the consignees while evaluating and reporting the performance of the contractor.

The outage period i.e., period form the date of failure till unit is repaired/replaced shall not be counted for arriving at the guarantee period.

In the event of the supplier's inability to adhere to the aforesaid provisions, suitable penal action will be taken against the supplier which may inter alia include blacklisting of the firm for future business with the purchaser for a certain period.

Further, installation of 10 percent Distribution Transformers (both new and repaired) shall be carried out in the supervision of manufacturer's representative.

**39. SCHEDULES:**

The bidder shall fill in the following schedule which will be part of the offer. If the schedule are not submitted duly filled in with the offer, the offer shall be liable for rejection.

Schedule- A : Guaranteed Technical Particulars

Schedule- B : Schedule of Deviations

**40. DEVIATIONS:**

- a. The bidders are not allowed to deviate from the principal requirements of the Specifications. However, the bidder is required to submit with his bid in the relevant schedule a detailed list of all deviations without any ambiguity. In the absence of a deviation list in the deviation schedules, it is understood that such bid conforms to the bid specifications and no post-bid negotiations shall take place in this regard.
- b. The discrepancies, if any, between the specification and the catalogues and / or literatures submitted as part of the offer by the bidders, shall not be considered and representations in this regard shall not be entertained.

- c. If it is observed that there are deviations in the offer in guaranteed technical particulars other than those specified in the deviation schedules then such deviations shall be treated as deviations.
- d. All the schedules shall be prepared by vendor and are to be enclosed with the bid.

#### 41. GUARANTTED PARAMETERS

**Minimum guaranteed weight of core, conductor, transformer oil & minimum thickness of tank sheet shall be as following:**

Capacity	Minimum Weight of Material			Max. Losses (Watts)		Minimum Thickness of Tank (mm)	
KVA	Core (kg)	Conductor (kg)	Oil (kg)	50% Loading	100% Loading	Top & Bottom	Side
25	74	36	74	190	635	5	3.15
63	157	78.6	148	340	1140	5	3.15
100	228	112.5	188	475	1650	5	3.15

**\*Flux density shall not be more than 1.69 tesla**

#### 41 L.T. Bushing Bus Bar Arrangement

- This arrangement will include 4 nos. Aluminum Strips of size **160x40x5** mm each, one no. Bakelite strip of size 500x40x6 mm & 4 nos. Al. Lugs (70mm<sup>2</sup>).
- External phase to phase clearance of Aluminum strips provided on L.T, side (as per Drawing) shall be min 100 mm.
- Al. Strips & Al. Lugs shall be drawn from EC grade Aluminum rods confirming to specification IS-5484-1978 or latest amendment thereof.
- Aluminum strips shall be bolted to L.T Bushing Rods with Nut- Bolt of Brass material.
- Aluminum lugs shall be bolted to Aluminum strips with good quality M.S. galvanized Nut- Bolts of size 12 mm as per IS specifications.

#### 42 External HT fuse unit: This unit shall be provided on HT Bushing of the transformer as per enclosed drawing :-

##### 42.1 This unit will include –

- (a) 3 H.T. connectors of Aluminum material & size 12 mm each
- (b) 3 nos. Glass Fiber strips size 170x40x6 mm each
- (c ) 3 nos. H.T. Brass Rod size 12 mm each.

##### 42.2 External phase to phase clearance of Glass Fiber strips shall be min 255 mm.

##### 42.3 Glass Fiber strips should be made of good quality Glass Fiber material, which should be capable to withstand high voltages of 28 KV.

**No negative tolerances shall be allowed on above parameters. The offer of the firms whose GTP does not meet the above requirements shall be summarily rejected.**



## **Technical Specification of L.T. Internal Circuit Breaker**

### **Oil Immersed Internal Circuit Breaker (L.T. Circuit Breaker):**

All L.T. faults after the breaker shall be cleared by the Oil Immersed Internal Circuit Breaker. The supplier shall furnish the time/current characteristics of LT circuit breaker for various current multiples. This shall be based on the type test carried out on one of the transformers. In addition, the supplier shall carry out coordination test as indicated above, and this forms one of the tests for acceptance. MCCB is not acceptable.

#### **Approved Makes:**

1. Ermco Components, Ph: +1-4236386171
2. Ardry Trading Company, Ph: +1-9127542474
3. P & A Power System, +82-31-2408000 Email: pa.powersystem@gmail.com
4. Global Electrical Traders, India, Ph: +91-8130344276, Email:-[info@globalelectricaltraders.com](mailto:info@globalelectricaltraders.com)
5. Vijay Mercantile Ltd. New Delhi, Ph. +91-9811641869 Email- vijmer@hotmail.com
6. Transguard Electrical Systems, Andhra Pradesh, Ph: +91-9440384449 Email-[engineering@transcoind.com](mailto:engineering@transcoind.com)
7. M/s Crystal electrical Company Ltd., Ludhiana.
8. M/s Electro shield Power Industries Bathinda.
9. Mangal Electrical Industries, Jaipur.

The breaker is to be mounted on the secondary side of the transformer under oil to minimize premature operations from primary surges as would be with undersized line fuses. Two single pole elements are preferred. THE BREAKER SHALL BE COORDINATED THERMALLY WITH THE TRANSFORMER RATING TO FOLLOW CLOSELY THE VARIATIONS OF COIL TEMPERATURE DUE TO FLUCTUATIONS IN LOADS AND AMBIENT TEMPERATURES.

This is to be accomplished by connecting the breaker in series between the secondary winding and the load current. The breaker shall be located in the same oil as the core and coil assembly so that the bimetal are sensitive to the temperature of oil as well as the load current. The circuit breaker may be an electromechanical device with three elements viz.

- (i) Temperature Sensing
- (ii) Latching and Tripping
- (iii) Current Interrupting

The temperature sensing function might be accomplished through the use of bimetallic strips, which would be built into the breaker, such that load current of the transformer flows through them. In addition to this, a magnetic tripping device is to be provided for increasing the opening speed of the breaker under high fault conditions. The circuit breaker shall be mounted inside of the transformer so that these bimetallic strips are within the top oil layer of the transformer. The latching and tripping functions of the circuit breaker may be carried out within assembly similar to those used in industrial type air circuit breaker. The circuit breaker shall also be closed and opened manually standing on ground and with a magnetic trip device also. The current interruption element shall consist of copper current carrying parts plus a set of copper tungsten current interrupting contacts. The magnetic element shall increase the opening speed of the circuit breaker under high fault current conditions. The response of circuit breaker to the activity shall remain unchanged by the addition of the magnetic trip element. The specification to which the breakers conform shall be indicated by the circuit breaker manufacturer. Circuit breaker should have been type tested to Test Sequence II in accordance with IEC: 60947-2(2009). The Type Test reports of the same should be attached by the supplier and this forms one of the criteria for acceptance.

## Annexure – II

### PROFORMA FOR STAGE INSPECTION OF DISTRIBUTION TRANSFORMERS

#### (A) GENERAL INFORMATION:

1. Name of firm : M/s.
2. Order No. and Date :
3. Rating-wise quantity offered :
4. Details of offer
  - a) Rating
  - b) Quantity
  - c) Serial Numbers
5. Details of last stage inspected lot:
  - a) Total quantity inspected
  - b) Serial Numbers
  - c) Date of stage inspection
  - d) Quantity offered for final inspection of  
(a) above with date

#### (B) Availability of material for offered quantity :

Details to be filled in

#### (C) Position of manufacturing stage of the offered quantity :

- a) Complete tanked assembly
- b) Core and coil assembly ready
- c) Core assembled
- d) Coils ready for assembly
  - (i) HV Coils
  - (ii) LV Coils

**Note:** (i) Offered quantity or stage Inspection shall be entertained.

If awarded quantity is less than 100 nos. than whole lot shall be offered in single lot.

(ii) The stage inspection shall be carried out in case:-

- (a) At least 25% quantity offered has been tanked and
- (b) core coil assembly of further at least 30% of the quantity offered has been completed.

(iii) Quantity offered for stage inspection should be offered for final Inspection within 15 days from the date of issuance of clearance for stage inspection, otherwise stage inspection already cleared shall be liable for cancellation.

Sl. No	Particulars	As offered	As observed	Deviation and Remarks								
(D)	<b>Inspection of Core:</b>											
	<b>(I) Core Material</b>											
	(1) Manufacturer's Characteristic Certificate in respect of grade of lamination used. (Please furnish test certificate)											
	(2) Remarks regarding Rusting and smoothness of core.											
	(3) Whether laminations used for top and bottom yoke are in one piece.											
	<b>(II) Core Construction :</b>											
	(1) No. of Steps											
	(2) Dimension of Steps											
	Step No.      1      2      3      4      5      6      7      8      9      10      11      12											
	<b>As offered:</b>											
	W mm											
	T mm											
	<b>As found:</b>											
	W mm											
	T mm											
	(3) Core Dia (mm)											
	(4) Total cross Section area of core											
	(5) Effective cross Sectional area of core											
	(6) Clamping arrangement											
	(i) Channel Size											
	(ii) Bolt size and No.											
	(iii) Tie Rods size and No.											
	(iv) <b>Painting</b>											
	(a) Channels											
	(b) Tie Rods											
	(c) Bolts											

	(7) Whether top yoke is cut for LV connection.		
	(8) If yes, at 7 above, whether Reinforcement is done.		
	(9) Size of Support Channels provided for Core base and bottom yoke (Single piece of channels are only acceptable) this will not be applicable for Amorphous core. For Amorphous core, core clamp with locking arrangement with tank base cover will be provided.		
	(10) Thickness of insulation provided between core base and support channel.		
	(11) core length (leg center to leg center)		
	(12) Window height		
	(13) Core height		
	(14) Core weight only (without channels etc.)		
<b>(E)</b>	<b>INSPECTION OF WINDING</b>		
	<b>(I) Winding material</b>		
	(1) Material used for		
	(a) HV winding		
	(b) LV winding		
	(2) Grade of material for		
	(a) HV winding		
	(b) LV winding		
	3) Test certificate of manufacturer (enclose copy) for winding material of:		
	(a) HV		
	(b) LV		
	<b>(II) CONSTRUCTIONAL DETAILS</b>		
	(1) Size of Cross Sectional area of conductor for :		
	(a) HV winding		

	(b) LV winding			
	(2) Type of insulation for conductor of :			
	a) HV winding			
	(b) LV winding			
	(3) Diameter of wire used for delta formation (mm)			
	(4) Diameter of coils in:			
	a) LV winding			
	i) Internal dia (mm)			
	ii) Outer dia (mm)			
	b) HV winding			
	i) Internal dia (mm)			
	ii) Outer dia (mm)			
	(5) Current Density of winding material used for :			
	(a) HV			
	(b) LV			
	(6) Whether neutral formation on top.			
	(7) HV Coils/ Phase			
	a) Number			
	b) Turns / coil			
	c) Total turns			
	(8) LV Coils/ Phase			
	a) Number			
	b) Turns / coil			
	c) Total turns			
	(9) Method of HV Coil Joints			
	(10) Total weight of coils of			

	a) LV winding (kg)			
	b) HV winding (kg)			
<b>(F)</b>	<b>INSULATION MATERIALS :</b>			
	<b>(I) MATERIAL :</b>			
	1) Craft paper			
	a) Make			
	b) Thickness (mm)			
	c) Test Certificate of manufacturer (enclose copy).			
	2) Press Board			
	a) Make			
	b) Thickness (mm)			
	c) Test Certificate of manufacturer (enclose copy).			
	3) Material used for top and bottom yoke and insulation			
	<b>(II) Type and thickness of material used : (mm)</b>			
	a) Between core and LV			
	b) Spacers			
	c) Inter layer			
	d) Between HV and LV winding			
	e) Between phases			
	f) End insulation			
<b>(G)</b>	<b>CLEARANCES : (mm)</b>			
	<b>(I) Related to core and windings</b>			
	1) LV to Core (Radial)			
	2) Between HV and LV  (Radial)			
	3) (i) Phase to phase between HV Conductor			

	(ii) Whether two Nos. Press Board each of minimum 1 mm thick provided to cover the tie rods.			
	4) Thickness of locking spacers between LV coils (mm)			
	5) Axial wedges between HV and LV coils / phase (Nos.)			
	6) No. of radial spacers per phase between HV coils			
	7) Size of duct between LV and HV winding (mm)			
	(II) <b>Between core - coil assembly and tank : (mm)</b>			
	1) Between winding and body:			
	a) Tank lengthwise			
	b) Tank Breadth wise			
	2) Clearance between top cover and top yoke upto 100 kVA and between top cover and top most live part of tap changing switch for 200 kVA and above.			
(H)	<b>TANK :</b> (I) <b>Constructional details :</b> 1) Rectangular shape 2) Thickness of side wall (mm) 3) Thickness of top and bottom plate (mm) 4) Provision of slopping top cover towards HV bushing.			

Sl. No	Particulars	As offered	As observed	Deviation	Remarks
	5) Tank internal dimensions (mm)				
	a) Length				
	b) Breadth				
	c) Height				
	(i) On LV side				
	(ii) On LV side				
	(II) General details :				
	1) Inside painted by varnish/ oil corrosion resistant paint (please specify which type of coating done).				
	2) Gasket between top cover and tank				
	i) Material				
	ii) Thickness (mm)				
	iii) Jointing over laps (mm)				
	3). Reinforcement of welded angle (specify size and No. of angle provided ) on side walls of tank.				
	4) Provision of lifting lugs:				
	a) Numbers				
	b) Whether lugs of 8 mm thick MS Plate provided				
	c) Whether reinforced by welded plates edge wise below the lug upto re- enforcing angle of the tank done.				
	5) Pulling lug of MS Plate				
	a) Nos.				
	b) Thickness (mm)				
	c) Whether provided on breadth side or length side				
	6) Provision of air release plug				
	7) Provision of galvanized GI Nuts Bolts with 1 No. Plain and 1 No. spring washer.				
	8) Deformation of length wise side wall of tank when subject to:				
	a) Vacuum of (-) 0.7 kg/sq cm for 30 minutes.				



Sl. No	Particulars	As offered	As observed	Deviation and Remarks
	b) Pressure of 0.8 kg/sqcm for 30 minutes.			
<b>(I)</b>	<b>RAIDATORS :</b>			
	1. Fin Radiators of 1.25 mm thick sheet			
	a) Dimension of each fin (LxBxT)			
	b) Fins per radiator			
	c) Total No. of radiators			
	2. Verification of manufacturer's test certificate regarding Heat dissipation (excluding Top and Bottom) in w/sq m			
	3. Verification of position of radiator with respect to bushing.			
<b>(J)</b>	<b>CONSERVATOR :</b>			
	1. Dimensions ( L x D) (in mm)			
	2. Volume (m <sup>3</sup> )			
	3. Inside dia of Conservator tank pipe (mm)			
	4. Whether conservator outlet pipe is projected approx. 20 mm inside the conservator tank.			
	5. Whether arrangement made so that oil does not fall on the active parts.			
	6. Whether die cast metal oil level gauge indicator having three positions at ( - 5° C, 30 ° C and 98 °C) is provided .			
	7. Whether drain plug and filling hole with cover is provided.			
	8. Inner side of the conservator Tank painted with-			
<b>(K)</b>	<b>BREATHER :</b>			
	1. Whether Die cast Aluminium body breather for silica gel provided.			
	2. Make			
	3. Capacity			

Sl. No (L)	Particulars <b>TERMINALS :</b>	As offered	As observed	Deviation and Remarks
	1. Material whether of Brass Rods/ Tinned Copper.			
	a) HV			
	b) LV			
	2. Size (dia in mm)			
	a) HV			
	b) LV			
	3. Method of Star connection formed on LV side of 6mm thick(Should use Al./Cu. Flat bolted/ brazed with crimped lugs on winding alternatively for 63 and 100 kVA ratings brazing is done covered with tubular sleeve duly crimped). - Please state dimensions of Al/ Cu flat or tubular sleeve used.(mm)			
	4. Method of Connection of LV winding to LV Bushing (end of winding should be crimped with lugs (Al/Cu) and bolted with bushing stud).			
	5. Method of Connection of HV winding to HV bushing (Copper joint should be done by using silver brazing alloy and for Aluminium, brazing rod or with tubular connector crimped at three spots).			
	6. Whether SRB Ptube/insulated paper used for formation of Delta on HV.			
	7. Whether Empire sleeves used on the portion of HV winding joining to HV bushing.			
	8. Whether neutral formation is covered with cotton tape			
(M)	<b>BUSHINGS :</b>			
	1. Whether HV bushings mounted on side walls. Whether sheet metal 2. pocket used for mounting bushing			

	(pipe are not acceptable)			
	a) H V			
	b) L V			
3.	Whether arrangement for studs for fitting of HV Bushing are in diamond shape (so that Arcing Horns are placed vertically).			
4.	Position of mounting of LV bushings.			
5.	Bushing Clearance: (mm)			
	a) LV to Earth			
	b) HV to Earth			
	c) Between LV Bushings			
	d) Between HV Bushings			
(N)	<b>TANK BASE CHANNEL /</b>			
	<b>ROLLERS :</b>			
	1. Size of channel (mm)			
	2. Whether channels welded across the length of the tank			
	3. Size and type of roller (mm)			
(O)	<b>OIL :</b>			
	1. Name of supplier			
	2. Break down voltage of oil: (kV)			
	i) Filled in tanked transformer			
	ii) In storage tank (to be tested by Inspecting Officer).			
	3. Supplier's test certificate(enclose copy)			
(P)	<b>ENGRAVING :</b>			
	1. Engraving of Sl. No. and name of firm.			
	i) On bottom of clamping channel of core-coil assembly.			
	ii) On side wall and top cover of tank along with date of dispatch.			
(Q)	i) MS plate of size 125x125 mm welded on width side of stiffner			
	ii) Following details engraved (as per approved GTP):			
	(a) Serial Number			
	(b) Name of firm			
	(c) Order No. and Date			
	(d) Rating			
	(e) Name of Inspecting Officer			
	(f) Designation			
	(g) Date of dispatch			
(R)	<b>NAME PLATE DETAILS :</b>			
	Whether Name Plate is as per approved drawing			
(S)	<b>Color of Transformer</b>			
	1. Tank body color shall be as per annexure -paint which is attach here with			
	2. Conservator color shall be as per annexure - paint which is attach here with			
(T)	<b>CHECKING OF TESTING FACILITIES:</b>			
	<b>TESTS :</b>			

	1. No Load Current			
	2. No Load Loss			
	3. % Impedance			
	4. Load Losses			
	5. Insulation Resistance Test			
	6. Vector Group Test (phase relationship)			
	7. Ratio and Polarity test relationship			
	8. Transformer Oil Test (Break Down Voltage)			
	9. Magnetic Balance			
	10. Measurement of winding resistance (HV and LV both)			
	11. Induced over voltage withstand test (Double voltage and Double frequency)			
	12. Separate source power frequency withstand test at 28kV for HV and 3kV for LV (one minute).			
	13. Air pressure/ Oil leakage Test			
	14. Vacuum test			
	15. Unbalanced current test			
	16. Temperature rise (Heat Run) test.			
(U)	We have specifically checked the following and found the same as per G.T.P./deviations observed as mentioned against each:			
	i) Rustlessness of CRGO laminations used			
	ii) Core steps			
	iii) Core area			
	iv) Core weight			
	v) Winding cross sectional area			
	a) LV			
	b) HV			
	vi) Weight of windings			
	vii) Clearance between winding and wall of tank (mm)			
	a) Length-wise			
	b) Breadth-wise			
	viii) Clearance between top of yoke/ top most live part of tap changer to tank cover.			
	ix) Details of Neutral formation			
	x) Connections to bushings:			
	a) LV			
	b) HV			
	xi) Slope of tank top			
	xii) Position of mounting of bushings			

## Schedule II

### SOURCE OF MATERIALS/PLACES OF MANUFACTURE, TESTING & INSPECTION

<b>Sl. No.</b>	<b>Item</b>	<b>Source of Material</b>	<b>Place of Manufacture</b>	<b>Place of testing and inspection</b>
1.	Laminations			
2.	Aluminium/Copper			
3.	Insulated winding wires			
4.	Oil			
5.	Press boards			
6.	Kraft paper			
7.	MS plates/ Angles/Channels			
8.	Gaskets			
9.	Bushing HV/LV			
10.	Paints			

## Annexure-Paint

### Painting-Transformer Main tank, pipes, Conservator Tank, Radiator etc.-

Detail of material	Surface Preparation	primer coat	Intermediate under coat	finish coat	total DFT	Colour shade
Main tank, pipes, conservator tank, etc. (External surfaces)	Blast cleaning Sa2½	Epoxy Base Zinc primer 30-40 micron	Epoxy base Zinc primer 30-40 micron	Aliphatic Polyurethane (PU Paint) (min SO micron	Min 110 micron	541shade of IS:5
Main tank, pipes (above 80 NB), conservator tank, etc (Internal surfaces)	Blast cleaning Sa2½	Hot oil resistant, non-corrosive varnish or paint	--	--	Min 30 micron 1	Glossy white for paint
Radiator (External surfaces)	Chemical/ blast cleaning (Sa2½)	Epoxy base zinc primer 30-40 micron	Epoxy base Zinc primer Min 30-40 Micron	Aliphatic Polyurethane (PU Paint) (min)SO Micron	Min 110 micron	541shade of IS:5
Radiator and pipes up to 80 NB (Internal surfaces)	Chemical cleaning if required	Hot oil Proof low viscosity varnish or hot oil resistant non corrosive paint	--	--	--	Glossy white for paint

## Annexure -A

### **Check-list for Inspection of Prime quality CRGO for Transformers**

During inspection of PRIME CRGO, the following points needs to be checked by the Transformer manufacturer. Utility's inspector shall verify all these points during inspection:-

i) **In case PRIME CRGO cutting is at works of Transformer Manufacturer:**

Review of documents:

Purchase Order (unpriced) to PRIME CRGO supplier/Authorised  
Agency Manufacturer's test certificate  
Invoice of the Supplier  
Packing List  
Bill of Landing  
Bill of Entry Certificate by Customs Deptt.  
Reconciliation Statement as per format  
below Certificate of Origin  
BIS Certification

**Format for Reconciliation/Traceability records**

Packing List No./date/Quantity of Prime CRGO received

Name of Manufacturer

Manufacturer test certificate No. /date

Serial No.	Details of Package/Job	Drawing reference	Quantity Involved	Commulative Quantity Consumed	Balance Stock

(ii).1 **Inspection of PRIME CRGO Coils:**

PRIME CRGO-Manufacturer's Identification Slip on PRIME CRGO Coils Visual  
Inspection of PRIME CRGO Coils offered as per packing list ( for verification of coil details as per  
Test certificate & healthiness of packaging }.

Unique numbering inside of each sample of PRIME CRGO coil and verification of records to  
be maintained in the register for consumption of CRGO coil.

**ISI logo sticker on packed mother coil and ISI logo in Material TC.**

- 2.2. During inspection of PRIME CRGO, surveillance testing of sample shall be carried out  
for Stacking Factor, Permeability, Specific watt loss at 1.5 Tesla and/or 1.7 Tesla  
depending on the grade of PRIME CRGO and aging test etc. applicable as per relevant  
IS/ IEC standard, Tech. Spec., MQP and Transformer manufacturer plant standard.

**Inspection Clearance Report would be issued after this inspection**

3. Inspection of PRIME CRGO laminations: Transformer manufacturer will maintain  
records for traceability of laminations to prime CRGO coils and burr/bow on laminations  
shall be measured. Utility can review these records on surveillance basis.
4. Inspection at the time of core building:  
Visual Inspection of PRIME CRGO laminations. In case of suspected mix-up/ rusting/  
decoloration, samples may be taken for testing on surveillance basis for tests mentioned in  
A.2.2 above.

Above tests shall be witnessed by Utility. In case testing facilities are not available at Manufacturer's work, the sample(s) sealed by Utility to be sent to approved labs for testing.

**Inspection Clearance Report would be issue after this inspection**

**iii) In case PRIME CRGO cutting is at Sub-vendor of Transformer Manufacturer:**

Review of documents:

- Purchase Order (unpriced) to PRIME CRGO supplier/ Authorised Agency
- Purchase Order (unpriced) to Core Cutter
- Manufacturer test certificate
- Invoice of the Supplier
- Packing List
- Bill of Landing
- Bill of Entry Certificate by Customs Deptt.
- Reconciliation Statement as per format below Certificate of origin.
- BIS Certification

**Format for Traceability records as below:-**

Packing List No./date /Quantity of PRIME CRGO received

Serial No.	Name of consumer	Details of Package/Job	Drawing reference	Quantity Involved	Commulative Quantity Consumed	Balance Stock	Dispatch

**iv) Inspection of PRIME CRGO Coils:**

PRIME CRGO-Manufacturer's Identification Slip on PRIME CRGO Coils. Visual Inspection of PRIME CRGO Coils offered as per packing list ( for verification of coil details as per Test certificate & healthiness of packaging).

Unique numbering inside of each sample of PRIME CRGO coil and verification of records to be maintained in the register for consumption of CRGO coil.

ISI logo sticker on packed mother coil and ISI logo in Material TC.

2.2. During inspection of PRIME CRGO, surveillance testing of sample shall be carried out for Stacking Factor, Permeability, Specific watt loss at 1.5 Tesla and/or 1.7 Tesla, thickness depending on the grade of PRIME CRGO and aging test etc. applicable as per relevant IS/ IEC standard, Tech. Spec., MQP and Transformer manufacturer plant standard.



### **Inspection Clearance Report would be issued after this inspection**

#### **3 Inspection of PRIME CRGO laminations:**

Transformer manufacturer representative will inspect laminations and issue their internal Inspection Clearance Report. Inspection will comprise of review of traceability to prime CRGO coils, visual inspection of PRIME CRGO laminations and record of burr/bow. After clearance given by transformer manufacturer, Utility will issue an Inspection Clearance Report after record review. If so desired by Utility, their representative may also join transformer manufacturer representative during this inspection.

### **Inspection Clearance Report would be issued after this inspection**

#### **vi) Inspection at the time of core building:**

Visual Inspection of PRIME CRGO laminations. In case of suspected mix-up/rusting/decoloration, samples may be taken for testing on surveillance basis for tests mentioned in B.2.2.

Inspection Clearance Report would be issued after this inspection NOTE:-

a) Transformer Manufacturer to ensure that PRIME CRGO is procured from POWERGRID approved vendors and CRGO manufacturer should have valid BIS Certificate for respective offered Grade.

Transformer Manufacturer should also involve themselves for ensuring the quality of CRGO laminations at their

Core Cutter's works. They should visit the works of their Core cutter and carry out necessary checks.

#### **a) General**

If a surveillance sample is drawn and sent to TPL (if testing facility not available with the manufacturer), the Transformer manufacturer can continue manufacturing at their own risk and cost pending TPL test report on PRIME CRGO sample drawn. Decision for acceptance of PRIME CRGO shall be based upon report of the sample drawn.

These checks shall be read in-conjunction\_with approved Quality Plan, specification as a whole and conditions of contract.

If a surveillance sample is drawn and sent to TPL (if testing facility not available with the manufacturer), the Transformer manufacturer can continue manufacturing at their own risk and cost pending TPL test report on PRIME CRGO sample drawn. Decision for acceptance of PRIME CRGO shall be based upon report of the sample drawn.

These checks shall be read in-conjunction\_with approved Quality Plan, specification as a whole and conditions of contract.

33 / 11kV

DTs and  
other  
ratings.

#### **Sampling Plan {PRIME CRGO}**

-1st transformer and subsequently at random 10% of Transformers (min. 1) offered for inspection.

-1st transformer and subsequently at random 2% of Transformers (min. 1) offered for inspection.

Note : One sample for each lot of CRGO shall be drawn on surveillance basis. CRGO has to be procured only from POWERGRID approved vendors. List of such vendors is available at the following website. Since the list is dynamic in nature, the site may be checked from time to time to see the list of approved vendors. · <http://apps.powergridindia.com/ims/ComponentList/Power-former%20upto%20420%20kV-CM%20List.pdf>

**SCHEDULE I-A OF GUARANTEED TECHNICAL PARTICULARS FOR SUPPLY OF  
OUTDOOR TYPE THREE PHASE 11/ 0.4 33 KV ALUMINUM WOUND (LEVEL-1 AS PER  
AMENDED BIS) DISTRIBUTION TRANSFORMERS OF 100 KVA RATING.**

S.N.      Particulars :

- |    |                                 |   |
|----|---------------------------------|---|
| A. | Name of Manufacturer &          | : |
| B. | Place of manufacture            | : |
| C. | Make                            | : |
| 1. | Name of Tenderer                | : |
| 2. | Type :                          |   |
| 3. | Rating                          | : |
|    | (a) Rated output (KVA)          | : |
|    | (b) Rated voltage-H.V. (Volts)  | : |
|    | (c) Rated Voltage-L.V. (Volts)  | : |
|    | (d) No load voltage ratio       | : |
|    | (e) No. of phases               | : |
|    | (f) Frequency (c/s)             | : |
|    | (g) Vector Group                | : |
| 4. | Method of Cooling Radiator type | : |
| 5. | Internal Dimensions of Tank     |   |
|    | (a) Length (mm)                 | : |
|    | (b) Breadth (mm)                | : |
|    | (c) Height (mm)                 | : |
|    | (d) Thickness of tank sheets :  |   |
|    | (i) Sides (mm)                  | : |
|    | (ii) Top & Bottom (mm)          | : |
| 6. | <u>DETAILS OF CORE</u>          |   |
|    | (a) Diameter (mm)               | : |

- (b) Window Height (mm) :
- (c) Limb Center (mm) :
- (d) Width of the main step :
- (e) Whether yoke is plain or stepped inside window :
- (f) Cross Sectional Area (sq.mm.) :
  - (i) Gross :
  - (ii) Nett :
  - (Staking factor of 0.97 shall be taken)
- (g) Working flux density at rated voltage & frequency (Tesla) actual as per your design. :
- (h) Over fluxing without saturation :
  - (Curve to be furnished by the manufacturer in support of his claim)
- (i) Insulation Material provided for core :
- (j) Grade of Material & Thickness of Lamination used (mm) :
- (k) Total min weight of stamping used in core and yoke (kg.) :
  - (Please furnish core weight calculations, details of core steps and its drawing)

7. H.V. COIL CONSTRUCTION DETAILS :

- (a) Type of winding :
- (b) Type & Size of Conductor (Bare) mm :
- (c) Size of conductor insulated(mm) :
- (d) Cross Sectional area of Conductor (mm<sup>2</sup>)
  - (i) Gross :
  - (ii) Nett :

- (e) No. of Coils per Limb :
- (f) Outer Diameter of Coil (mm) :
- (g) Inner Diameter of Coil (mm) :
- (h) Mean Diameter of Coil (mm)
- (i) Insulation of Conductor :
- (j) Interlayer reinforcement details :
  - i) Top & bottom layer :
  - ii) In between all layers :
  - iii) End turn insulation :
  - iv) Whether wedges are provided at 50% turns of HV coil. :
- (k) Current at full load (Amp) :
- (l) Working current density as per your design (Amp/Sq.mm) :
- (m) Weight of bare conductor used in one leg of H.V. (Kg.) :
- (n) Weight of insulated conductor used in one leg of H.V. (Kg.) :
- (o) No. of turns per leg :
- (p) Length of mean turns (mm) :
- (q) Resistance of winding (with 5% tolerance)
  - a) at 20 °C (Ohms) :
  - b) at 75 °C (Ohms) :
- (r) I<sup>2</sup>R at 75°C. :
- (s) Axial Length (mm) :
- (u) Weight of oil soaked coils in one leg :

8. L.V. COIL CONSTRUCTION DETAILS :

- (a) Type of Winding :
- (b) Type, Number and Size of bare conductor. :
- (c) Size of insulated conductor :
- (d) Cross sectional area of bare conductor (sq.mm.)
  - (i) Gross :
  - (ii) Net As per IS:6160 :
- (e) No. of coils per limb :
- (f) Outer diameter of coil (mm) :
- (g) Inner Diameter of Coil (mm) :
- (h) Mean Diameter of Coil (mm) :
- (i) Insulation of Conductor :
- (j) Inter layer reinforcement details :
- (k) Current at full load (Amp) :
- (l) Current density as per your design (A/mm<sup>2</sup>) :
- (m) End turn insulation :
- (n) Weight of bare conductor used in one leg of LV (kg) :
- (o) Weight of insulated conductor used in one leg of LV (kg.) :
- (p) No. of turns per leg :
- (q) Length of mean turns (mm) :
- (r) Resistance of winding (with 5% tolerance)
  - a) at 20 °C (Ohms) :
  - b) at 75 °C (Ohms) :

- (s) I<sup>2</sup>R at 75°C :
- (t) Axial Length (mm) :
- (u) Weight of oil soaked coil in one leg :

#### 9. INSULATION DETAILS MATERIAL AND SIZE

- (a) H.V. Coil end packing :
- (b) L.V. coil end packing :
- (c) Inter coil spacer of HT sections :
- (d) Bottom yoke strip insulation at  
foot plate :
- (e) Yoke Insulation :
- (f) Clamp Insulation :
- (g) Inter Phase Barrier :
- (h) Core Wrap :
- (i) Cylindrical Insulation Between  
H.T. & L.T. :
- (j) Type of blocks used in between coils :
- (k) Weight of total insulating material  
in one T/F (oil soaked). :

(Enclose calculation of losses with complete details of factors assumed)

#### 10. **DETAILS OF CLEARANCES (mm)**

- (a) Internal clearance between inner  
walls of Tank & core coil  
assembly unit
  - (i) On length(Bushing side) :
  - (ii) On Breadth Side(Non bushing side) :
- (b) Radial clearance between H.V. :  
& L.V. Winding

- (c) Phase of phase clearance between :  
H.V. Limb
- (d) Clearance from top of the live part of :  
top changer to the inside of the top  
cover of the tank.
- (e) Radial clearance of L.V. coil :  
from core.
- (f) Minimum clearance between LV  
Pole to earth)
- (g) Horizontal duct between H.T. :  
Section coil
- (h) End clearance of H.T. coil from :  
Yoke (With angle shaped windings)
- (i) Minimum clearance between core  
& tank bottom.
- (j) Angular ducts between LT & HT winding.

**Note: Above clearances include the thickness of insulation.**

**11. IMPULSE TEST VOLTAGE OF WINDING FOR 1.2/50 M.S. WAVE  
ACCORDING TO RELEVANT ISS :**

- (a) H.V. (KVP) :
- (b) L.V. (KVP) :
- 12. Volts per coil of H.V. Winding (Volts) :
- 13. Approximate volts per layer of H.V.  
winding (Volts) :
- 14. Performance reference temperature (°C) :
- 15. Core loss in watts (Guaranteed value without  
any positive tolerance) (Watts)
  - a) Normal Voltage :
  - b) Maximum Voltage :
- 16. Full Load losses at 75 °C (Watts) :  
(Guaranteed value without any positive tolerance)

17. Load loss at 50% load & at 75 °C :  
(Guaranteed value without any positive tolerance)
18. Total Losses at 100% load at 75 °C (Watts) :  
(Guaranteed value without any positive tolerance)
19. Total losses at 50% load at 75 °C :  
(Guaranteed value without any positive tolerance)
20. Magnetising (No Load) Current at
  - a) 90% Voltage :
  - b) 100% Voltage :
  - c) 110% Voltage :
21. Regulation at normal full load and
  - a) Unity P.F. and :
  - b) 0.8 P.F. :
22. Impedance voltage at rated voltage :  
& frequency at 75°C.
23. Percentage reactance at rated voltage :  
& frequency at 75°C.
24. Percentage resistance at 75°C. :
25. **PERCENTAGE IMPEDANCE AT 75°C.**
  - (a) With respect to high voltage :
  - (b) With respect to low voltage :
26. Un-balance current as percentage of :  
full load current
27. **Efficiency at 75 °C**
  - a) Unity P.F. and :
  - b) 0.8 P.F.



- i) 125% load :
  - ii) 100% load :
  - iii) 75% load :
  - iv) 50% load :
  - v) 25% load :
28. Permissible duration of overload following Continuous running at normal rated load in Ambient temperature of 50°C.
- (a) 10% overload :
  - (b) 20% overload :
  - (c) 30% overload :
29. RMS value of symmetrical short circuit current which the transformer can withstand and its duration according to clause 9.1 of ISS:2026 or CL:1001 of BSS with latest amendment thereof. :
30. Increase in temperature of winding at full load by resistance method in an ambient temperature of 50°C. :
31. Increase in temperature of oil by thermometer at full load in an ambient temperature of 50°C. :
32. Temperature of hottest spot in the winding at full load in an ambient temperature of 50°C. :
33. Terminal arrangement of H.V. side :
34. Terminal arrangement of L.V. side :
35. **PARTICULARS OF H.V. BUSHING** :
- (a) Name of Manufacturer :
  - (b) Type :
  - (c) Confirming to ISS :

- (d) Dry withstand voltage for one minute :
- (e) Wet withstand voltage for 30 minutes :
- (f) Voltage rating :
- (g) Impulse withstand voltage  
1/50  $\mu$  sec. wave :
  - (i) Positive :
  - (ii) Negative :
- (h) Total creepage distance in air (mm) :
- (i) Height of bushing above transformer tank. :
- (j) Material & Size of HV terminal spends.

36. **PARTICULARS OF L.V./ NEUTRAL BUSHING** :

- (a) Name of Manufacturer :
- (b) Type :
- (c) Confirming to ISS :
- (d) Voltage rating :
- (e) Dry withstand voltage for 1 minute :
- (f) Wet Withstand voltage for 30 min. :
- (g) Total creepage distance in air (mm) :
- (h) Material and Size of LT terminal studs :

37. Time constant of transformer :

38. Radiation

- i) Heat dissipation by tank walls (excluding top & bottom) :
- ii) Heat dissipation by cooling tubes :
- iii) Diameter and thickness of cooling Tubes :
- iv) Whether calculation sheet for selecting cooling area to ensure that the transformer :

is capable of giving continuous rated  
output without exceeding temperature  
rise is enclosed.

39. **TRANSFORMER OIL**

- (a) Grade of Oil :
- (b) Dielectric strength :
- (c) Resistivity :
- (d) Acidity :
- (e) Tan Delta :
- (f) Name of Supplier (only reputed make :  
shall be accepted)

40. **Quantity of transformer oil**

- a) First filling :
- b) Drained out :

41. **WEIGHT OF THE FOLLOWING**

- (a) Tank & Fitting (Kg) :
- (b) Core coil assembly (Kg) :
- (c) All HV & LV coil (Kg) :
- (d) Core stampings(only) (Kg) :
- (e) Transformer oil (Kg) :
- (f) Total weight of transformer  
including oil (Kg.) :

42. **OVERALL DIMENSIONS OF  
TRANSFORMER**

- (a) Length (mm) :
- (b) Breadth (mm) :
- (c) Height (mm) :

43. Conservator dimensions :

44. Name of material, number, weight :  
and size used for clamping of core  
& winding
- (a) Core Clamp :
- (b) Tie Rod :
- (c) Core Bolt :
- (d) Bottom Foot Plate :
45. Line lead support details
46. Silica Gel breather size:
47. Clearance in air between :
- (a) Phase to Phase (HV Side) :
- (b) Phase to Earth (HV Side) :
- (c) Phase to Phase (LV) side
- ( d) Phase to Earth (LV Side) :
48. Type Testing:
- (a) Is the offered 11/0.4 KV Conventional :  
Type (3 Star rated) Distribution Transformer type tested?
- (b) If yes, when and where it was Type Tested? :
- (b) Is there any deviation in the technical specifications :  
of offered transformer, if yes give details

(d) Details of type test reports:

	Name of test	Date of test	Whether test report enclosed or not (Y/N)	If yes no. of sheets enclosed
1	Impulse voltage withstand test at 75 KVP			
2	Temperature rise test			
3	Short circuit withstand test: Thermal and dynamic ability.			

4	Magnetic Balance Test.			
5	Air Pressure Test: As per IS – 1180.			
6	Noise-level measurement.			
7	Un-balanced current test:			
8	Measurement of zero-phase sequence impedance.			
9	Measurement of Harmonics of no-load current			

49. Whether you will use specified Aluminium alloy or brass/ copper with suitable bimetallic arrangement for HV/LV connector? Yes/No
50. Have you submitted drawings and calculations of cross sectional area of core? Yes/No
51. Have you submitted calculation for computation of losses 100% and 50% load at 75 deg. C. as per design data of offered transformer? Yes/No
52. Whether the name plate gives all particulars : Yes/No  
As required in tender?
53. Whether the offer confirms to the limits of : Yes/No  
Temperature rise mentioned in the specification
56. Whether engraving of Unique. No. ( letter /digit size approx 10mm & engraving depth approx 0.5 mm ) on the top channel of core coil assembly & on inside portion of top cover of transformer shall be done. Yes/No
57. Whether MS Plate of size 150 × 100 x 2 mm shall be continuously welded on the same side wall on which name plate is fixed. Yes/No
58. Whether engraving of name of firm, Unique No, Rating of transformer, PO NO and Date of inspection etc on M.S Plate ( as per above column no. 56 ) as per approved Drawing shall be done. Yes/No

**IMPORTANT NOTES :**

- (1) CROSS SECTIONAL AREA OF CORE IS TO BE SUBSTANTIATED BY DRAWINGS AND CALCULATIONS.

- (2) MAXIMUM FLUX DENSITY AT RATED VOLTAGE AND FREQUENCY IS TO BE SUPPORTED BY CALCULATIONS.
- (3) WEIGHT OF STAMPINGS IN CORE ASSEMBLY MUST BE SUBSTANTIATED BY CALCULATIONS.
- (4) COMPUTATION OF NO LOAD CURRENT AT 90%, 100% AND 110.0% MAY BE SUPPORTED BY CALCULATIONS.
- (5) COMPUTATION OF NO LOAD AND FULL LOAD LOSS AT 75 DEG.C. MAY BE SUPPORTED BY CALCULATIONS.
- (6) DETAILS OF CLEARANCES AS GIVEN IN CLAUSE: 11 INCLUDE THICKNESS OF.

**SCHEDULE IB****ADDITIONAL DETAILS**

Sl. No.	Description	
1.	Core Grade	
2.	Core diameter	mm
3.	Gross core area	sq cm
4.	Net core area	sq cm
5.	Flux density	Tesla
6.	Mass of core	kg
7.	Loss per kg core at the specified flux density	watt
8.	Core window height	mm
9.	Center to center distance o the core	mm
10.	No. of LV Turns	
11.	No. of HV Turns	
12.	Size of LV conductor bare/covered	mm
13.	Size of HV conductor bare/covered	mm
14.	No. of parallels	
15.	Current density of LV winding	A/sq mm.
16.	Current density of HV winding	A/sq mm.
17.	Wt. of the winding for Transformer	kg
18.	Wt. of the HV winging of Transformer	kg
19.	No. of LV Coils/phase	
20.	No. of HV Coils/phase	
21.	Height of LV Windings	mm
22.	Height of HV Windings	mm
23.	ID/OD of HV winding	mm
24.	ID/OD of LV winding	mm
25.	Size of the duct in LV winding	mm
26.	Size of the duct in HV winding	mm
27.	Size of the duct between HV and LV	mm
28.	HV winding to tank LV winding clearance	mm
29.	HV winding to tank clearance	mm
30.	Calculated impedance	%
31.	HV to earth creepage distance	mm
32.	LV to earth creepage distance	mm







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IEEMA/PVC/DIST\_AL\_upto 2.5 MVA/2021

Effective from: 01 September 2021

**PRICE VARIATION CLAUSE FOR ALUMINIUM WOUND DISTRIBUTION TRANSFORMERS  
COMPLETE WITH ALL ACCESSORIES AND COMPONENTS  
(For single & three phase of ratings up to and including 2,500 KVA and voltage class up to 33 KV)  
supplied against domestic contracts**

This price variation clause is applicable for 'Aluminium Wound Distribution Transformers', with rating up to and including 2,500 KVA and voltage class up to 33 KV supplied against domestic contracts. A separate price variation clause IEEMA/PVC/DIST\_AL\_upto 2.5 MVA/DE/2021 has been evolved for above types of Transformers supplied against export/deemed export contracts under special imprest licensing scheme.

The price quoted/confirmed is based on the input cost of raw materials/components and labour cost as on the date of quotation and the same is deemed to be related to prices of raw materials and all India average consumer price index number for industrial workers as specified in the price variation clause given below. In case of any variation in these prices/indices, the price payable shall be subject to adjustment, up or down in accordance with the following formula:

$$P = \frac{P_0}{100} \left( 8 + 22 \frac{AL}{AL_0} + 36 \frac{ES}{ES_0} + 12 \frac{IS}{IS_0} + 5 \frac{IM}{IM_0} + 10 \frac{TO}{TO_0} + 7 \frac{W}{W_0} \right)$$

Wherein,

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

P<sub>0</sub> = Price quoted/confirmed.

AL<sub>0</sub> = LME CSP Average of Aluminium (refer notes)  
This price is as applicable for the month, ONE month prior to the date of tendering.

ES<sub>0</sub> = Price of CRGO Electrical Steel Lamination (refer notes)  
This price is as applicable for the month, ONE month prior to the date of tendering.

IS<sub>0</sub> = Price of HR Coil of 3.15 mm thickness (refer notes)  
This price is as applicable for the month, ONE month prior to the date of tendering.

IM<sub>0</sub> = Price of Insulating Materials (refer notes)  
This price is as applicable for the month, ONE month prior to the date of tendering.

TO<sub>0</sub> = Price of Transformer Oil (refer notes)  
This price is as applicable for the month, ONE month prior to the date of tendering.

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IEEMA/PVC/DIST\_AL\_upto 2.5 MVA/2021

Effective from: 01 September 2021

$W_0$  = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100)  
 This index number is as applicable for the month, **THREE** months prior to the date of tendering.

For example, if date of tendering falls in December 2021, applicable prices of Aluminium ( $AL_0$ ), Transformer Oil ( $TO_0$ ), CRGO Steel Sheets ( $ES_0$ ), HR Coil ( $IS_0$ ) and Insulating material ( $IM_0$ ) should be as on 1<sup>st</sup> November 2021 and all India average consumer price index no. ( $W_0$ ) should be for the month of September 2021.

The above prices and indices are as published by IEEMA vide circular reference number IEEMA(PVC)/PWR\_DIST\_TRF (R-1)/\_/ **ONE** month prior to the date of tendering.

AL = LME CSP Average of Aluminium (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of delivery.

ES = Price of CRGO Electrical Steel Lamination (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of delivery.

IS = Price of HR Coil of 3.15 mm thickness (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of delivery.

IM = Price of Insulating Materials (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of delivery.

TO = Price of Transformer Oil (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of delivery.

W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100)  
 This index number is as applicable for the month, **THREE** months prior to the date of delivery.

For example, if date of delivery in terms of clause given below falls in December 2022, applicable prices of Aluminium (AL), Transformer Oil (TO), CRGO Steel Sheets (ES), HR Coil (IS) and Insulating material (IM) should be as on 1<sup>st</sup> November 2022 and all India average consumer price index number (W) should be for the month of September 2022.

The above prices and indices are as published by IEEMA vide circular reference number IEEMA(PVC)/PWR\_DIST\_TRF (R-1)/\_/ **ONE** month prior to the date of delivery.





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The date of delivery is 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 is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

**Notes:**

- (a) All prices are exclusive of GST amount and exclusive of any other central, state or local taxes etc.
- (b) Date of Tendering is the due date of tender submission or date of tender opening whichever is earlier
- (c) The details of prices are as under:
  1. Price of LME average Cash SELLER Settlement price of Primary Aluminium in US\$ per MT as published by London Metal Bulletin (LME) including Premium for Aluminium Ingot in US\$ per MT is converted in Indian Rs./MT using exchange rate and adding appropriate customs duty.
  2. The price of CRGO Electrical Steel Lamination suitable for Transformers of voltage up to 33 KV is the average price as quoted by processing centres of mills and lamination suppliers
  3. Price of steel is the average retail price of HR Coil 3.15 mm thickness as published by Joint Plant Committee (JPC) in Rs./MT.
  4. The average price of Insulating materials (in Rs./Kg) of pre-compressed pressboards of size 3 mm and 10 mm thick, 3200 mm x 4100 mm C&F price in free currency per MT converted into Indian Rupees with applicable exchange rates prevailing as on 1<sup>st</sup> working day of the month as quoted by primary suppliers. This price is the landed cost, inclusive of applicable customs duty only but exclusive of countervailing duty.
  5. The price of Transformer Oil (in Rs./K.Ltr) is the average price on ex-refinery basis as quoted by primary producers for supply in drums.
- d) Some purchasers are purchasing oil immersed Transformers from manufacturers without first filling of oil. Oil for first filling is procured and filled by the purchasers. For such supplies PVC formula, excluding Oil will apply as under:

$$P = \frac{P_o}{90} \left( 8 + 22 \frac{AL}{AL_o} + 36 \frac{ES}{ES_o} + 12 \frac{IS}{IS_o} + 5 \frac{IM}{IM_o} + 7 \frac{W}{W_o} \right)$$

Where description of P, P<sub>o</sub>, AL, ES, IS, IM, W etc. remains same as mentioned earlier

**Director**

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**SCHEDULE I-A OF GUARANTEED TECHNICAL PARTICULARS FOR SUPPLY OF  
OUTDOOR TYPE THREE PHASE 11/ 0.4 33 KV ALUMINUM WOUND (LEVEL-1 AS  
PER AMENDED BIS) DISTRIBUTION TRANSFORMERS OF 100 KVA RATING.**

<b>S.N.</b>	<b>Particulars</b>	<b>:</b>
A.	Name of Manufacturer &	:
B.	Place of manufacture	:
C.	Make	:
1.	Name of Tenderer	:
2.	Type :	
3.	Rating	:
	(a) Rated output (KVA)	:
	(b) Rated voltage-H.V. (Volts)	:
	(c) Rated Voltage-L.V. (Volts)	:
	(d) No load voltage ratio	:
	(e) No. of phases	:
	(f) Frequency (c/s)	:
	(g) Vector Group	:
4.	Method of Cooling Radiator type	:
5.	Internal Dimensions of Tank	
	(a) Length (mm)	:
	(b) Breadth (mm)	:
	(c) Height (mm)	:
	(d) Thickness of tank sheets :	
	(i) Sides (mm)	:
	(ii) Top & Bottom (mm)	:
6.	<u>DETAILS OF CORE</u>	
	(a) Diameter (mm)	:

- (b) Window Height (mm) :
- (c) Limb Center (mm) :
- (d) Width of the main step :
- (e) Whether yoke is plain or stepped inside window :
- (f) Cross Sectional Area (sq.mm.) :
  - (i) Gross :
  - (ii) Nett :
 (Staking factor of 0.97 shall be taken)
- (g) Working flux density at rated voltage & frequency (Tesla) actual as per your design. :
- (h) Over fluxing without saturation :  
(Curve to be furnished by the manufacturer in support of his claim)
- (i) Insulation Material provided for core :
- (j) Grade of Material & Thickness of Lamination used (mm) :
- (k) Total min weight of stamping used in core and yoke (kg.)  
(Please furnish core weight calculations, details of core steps and its drawing) :

7. **H.V. COIL CONSTRUCTION DETAILS :**

- (a) Type of winding :
- (b) Type & Size of Conductor (Bare) mm :
- (c) Size of conductor insulated(mm) :
- (d) Cross Sectional area of Conductor (mm<sup>2</sup>)
  - (i) Gross :
  - (ii) Nett :
- (e) No. of Coils per Limb :

- (f) Outer Diameter of Coil (mm) :
- (g) Inner Diameter of Coil (mm) :
- (h) Mean Diameter of Coil (mm)
- (i) Insulation of Conductor :
- (j) Interlayer reinforcement details :
  - i) Top & bottom layer :
  - ii) In between all layers :
  - iii) End turn insulation :
  - iv) Whether wedges are provided at 50% turns of HV coil. :
- (k) Current at full load (Amp) :
- (l) Working current density as per your design (Amp/Sq.mm) :
- (m) Weight of bare conductor used in one leg of H.V. (Kg.) :
- (n) Weight of insulated conductor used in one leg of H.V. (Kg.) :
- (o) No. of turns per leg :
- (p) Length of mean turns (mm) :
- (q) Resistance of winding (with 5% tolerance)
  - a) at 20 °C (Ohms) :
  - b) at 75 °C (Ohms) :
- (r)  $I^2R$  at 75°C. :
- (s) Axial Length (mm) :
- (u) Weight of oil soaked coils in one leg :

8. L.V. COIL CONSTRUCTION DETAILS :

- (a) Type of Winding :

- (b) Type, Number and Size of bare conductor. :
- (c) Size of insulated conductor :
- (d) Cross sectional area of bare conductor (sq.mm.)
  - (i) Gross :
  - (ii) Net As per IS:6160 :
- (e) No. of coils per limb :
- (f) Outer diameter of coil (mm) :
- (g) Inner Diameter of Coil (mm) :
- (h) Mean Diameter of Coil (mm) :
- (i) Insulation of Conductor :
- (j) Inter layer reinforcement details :
- (k) Current at full load (Amp) :
- (l) Current density as per your design (A/mm<sup>2</sup>) :
- (m) End turn insulation :
- (n) Weight of bare conductor used in one leg of LV (kg) :
- (o) Weight of insulated conductor used in one leg of LV (kg.) :
- (p) No. of turns per leg :
- (q) Length of mean turns (mm) :
- (r) Resistance of winding (with 5% tolerance)
  - a) at 20 °C (Ohms) :
  - b) at 75 °C (Ohms) :
- (s) I<sup>2</sup>R at 75°C :

- (t) Axial Length (mm) :
- (u) Weight of oil soaked coil in one leg :

#### 9. INSULATION DETAILS MATERIAL AND SIZE

- (a) H.V. Coil end packing :
- (b) L.V. coil end packing :
- (c) Inter coil spacer of HT sections :
- (d) Bottom yoke strip insulation at foot plate :
- (e) Yoke Insulation :
- (f) Clamp Insulation :
- (g) Inter Phase Barrier :
- (h) Core Wrap :
- (i) Cylindrical Insulation Between H.T. & L.T. :
- (j) Type of blocks used in between coils :
- (k) Weight of total insulating material in one T/F (oil soaked). :

(Enclose calculation of losses with complete details of factors assumed)

#### 10. DETAILS OF CLEARANCES (mm)

- (a) Internal clearance between inner walls of Tank & core coil assembly unit
  - (i) On length(Bushing side) :
  - (ii) On Breadth Side(Non bushing side) :
- (b) Radial clearance between H.V. & L.V. Winding :
- (c) Phase of phase clearance between :



H.V. Limb

- (d) Clearance from top of the live part of :  
top changer to the inside of the top  
cover of the tank.
- (e) Radial clearance of L.V. coil :  
from core.
- (f) Minimum clearance between LV  
Pole to earth)
- (g) Horizontal duct between H.T. :  
Section coil
- (h) End clearance of H.T. coil from :  
Yoke (With angle shaped windings)
- (i) Minimum clearance between core  
& tank bottom.
- (j) Angular ducts between LT & HT winding.

**Note: Above clearances include the thickness of insulation.**

11. **IMPULSE TEST VOLTAGE OF WINDING FOR 1.2/50 M.S. WAVE  
ACCORDING TO RELEVANT ISS :**

- (a) H.V. (KVP) :
- (b) L.V. (KVP) :
- 12. Volts per coil of H.V. Winding (Volts) :
- 13. Approximate volts per layer of H.V.  
winding (Volts) :
- 14. Performance reference temperature (°C) :
- 15. Core loss in watts (Guaranteed value without  
any positive tolerance) (Watts)
  - a) Normal Voltage :
  - b) Maximum Voltage :
- 16. Full Load losses at 75 °C (Watts) :  
(Guaranteed value without any positive tolerance)

17. Load loss at 50% load & at 75 °C :  
(Guaranteed value without any positive tolerance)
18. Total Losses at 100% load at 75 °C (Watts) :  
(Guaranteed value without any positive tolerance)
19. Total losses at 50% load at 75 °C :  
(Guaranteed value without any positive tolerance)
20. Magnetising (No Load) Current at
  - a) 90% Voltage :
  - b) 100% Voltage :
  - c) 110% Voltage :
21. Regulation at normal full load and
  - a) Unity P.F. and :
  - b) 0.8 P.F. :
22. Impedance voltage at rated voltage :  
& frequency at 75°C.
23. Percentage reactance at rated voltage :  
& frequency at 75°C.
24. Percentage resistance at 75°C. :
25. **PERCENTAGE IMPEDANCE AT 75°C.**
  - (a) With respect to high voltage :
  - (b) With respect to low voltage :
26. Un-balance current as percentage of :  
full load current
27. **Efficiency at 75 °C**
  - a) Unity P.F. and :
  - b) 0.8 P.F.
  - i) 125% load :

- ii) 100% load :
  - iii) 75% load :
  - iv) 50% load :
  - v) 25% load :
28. Permissible duration of overload following Continuous running at normal rated load in Ambient temperature of 50°C.
- (a) 10% overload :
  - (b) 20% overload :
  - (c) 30% overload :
29. RMS value of symmetrical short circuit current which the transformer can withstand and its duration according to clause 9.1 of ISS:2026 or CL:1001 of BSS with latest amendment thereof. :
30. Increase in temperature of winding at full load by resistance method in an ambient temperature of 50°C. :
31. Increase in temperature of oil by thermometer at full load in an ambient temperature of 50°C. :
32. Temperature of hottest spot in the winding at full load in an ambient temperature of 50°C. :
33. Terminal arrangement of H.V. side :
34. Terminal arrangement of L.V. side :
35. **PARTICULARS OF H.V. BUSHING** :
- (a) Name of Manufacturer :
  - (b) Type :
  - (c) Confirming to ISS :
  - (d) Dry withstand voltage for one minute :

- (e) Wet withstand voltage for 30 minutes :
- (f) Voltage rating :
- (g) Impulse withstand voltage  
1/50  $\mu$  sec. wave :
  - (i) Positive :
  - (ii) Negative :
- (h) Total creepage distance in air (mm) :
- (i) Height of bushing above transformer tank. :
- (j) Material & Size of HV terminal spends.

36. **PARTICULARS OF L.V./ NEUTRAL BUSHING :**

- (a) Name of Manufacturer :
- (b) Type :
- (c) Confirming to ISS :
- (d) Voltage rating :
- (e) Dry withstand voltage for 1 minute :
- (f) Wet Withstand voltage for 30 min. :
- (g) Total creepage distance in air (mm) :
- (h) Material and Size of LT terminal studs :

37. Time constant of transformer :

38. Radiation

- i) Heat dissipation by tank walls :  
(excluding top & bottom)
- ii) Heat dissipation by cooling tubes :
- iii) Diameter and thickness of cooling Tubes :
- iv) Whether calculation sheet for selecting cooling area to ensure that the transformer is capable of giving continuous rated output without exceeding temperature :

rise is enclosed.

39. **TRANSFORMER OIL**

- (a) Grade of Oil :
- (b) Dielectric strength :
- (c) Resistivity :
- (d) Acidity :
- (e) Tan Delta :
- (f) Name of Supplier (only reputed make :  
shall be accepted)

40. **Quantity of transformer oil**

- a) First filling :
- b) Drained out :

41. **WEIGHT OF THE FOLLOWING**

- (a) Tank & Fitting (Kg) :
- (b) Core coil assembly (Kg) :
- (c) All HV & LV coil (Kg) :
- (d) Core stampings(only) (Kg) :
- (e) Transformer oil (Kg) :
- (f) Total weight of transformer including oil (Kg.) :

42. **OVERALL DIMENSIONS OF TRANSFORMER**

- (a) Length (mm) :
- (b) Breadth (mm) :
- (c) Height (mm) :

43. Conservator dimensions :

44. Name of material, number, weight :  
and size used for clamping of core

& winding

- (a) Core Clamp :
- (b) Tie Rod :
- (c) Core Bolt :
- (d) Bottom Foot Plate :

45. Line lead support details

46. Silica Gel breather size:

47. Clearance in air between :

- (a) Phase to Phase (HV Side) :
- (b) Phase to Earth (HV Side) :
- (c) Phase to Phase (LV) side
- ( d) Phase to Earth (LV Side) :

48. Type Testing:

- (a) Is the offered 11/0.4 KV Conventional Type (3 Star rated) Distribution Transformer type tested? :
- (b) If yes, when and where it was Type Tested? :
- (b) Is there any deviation in the technical specifications of offered transformer, if yes give details :

(d) Details of type test reports:

	Name of test	Date of test	Whether test report enclosed or not (Y/N)	If yes no. of sheets enclosed
1	Impulse voltage withstand test at 95 KVP			
2	Temperature rise test			
3	Short circuit withstand test: Thermal and dynamic ability.			
4	Magnetic Balance Test.			

5	Air Pressure Test: As per IS – 1180.			
6	Noise-level measurement.			
7	Un-balanced current test:			
8	Measurement of zero-phase sequence impedance.			
9	Measurement of Harmonics of no-load current			

49. Whether you will use specified Aluminium alloy or brass/ copper with suitable bimetallic arrangement for HV/LV connector? Yes/No
50. Have you submitted drawings and calculations of cross sectional area of core? Yes/No
51. Have you submitted calculation for computation of losses 100% and 50% load at 75 deg. C. as per design data of offered transformer? Yes/No
52. Whether the name plate gives all particulars : Yes/No  
As required in tender?
53. Whether the offer confirms to the limits of : Yes/No  
Temperature rise mentioned in the specification
56. Whether engraving of Unique. No. ( letter /digit size approx 10mm & engraving depth approx 0.5 mm ) on the top channel of core coil assembly & on inside portion of top cover of transformer shall be done. Yes/No
57. Whether MS Plate of size  $150 \times 100 \times 2$  mm shall be continuously welded on the same side wall on which name plate is fixed. Yes/No
58. Whether engraving of name of firm, Unique No, Rating of transformer, PO NO and Date of inspection etc on M.S Plate ( as per above column no. 56 ) as per approved Drawing shall be done. Yes/No

**IMPORTANT NOTES :**

- (1) CROSS SECTIONAL AREA OF CORE IS TO BE SUBSTANTIATED BY DRAWINGS AND CALCULATIONS.

- (2) MAXIMUM FLUX DENSITY AT RATED VOLTAGE AND FREQUENCY IS TO BE SUPPORTED BY CALCULATIONS.
- (3) WEIGHT OF STAMPINGS IN CORE ASSEMBLY MUST BE SUBSTANTIATED BY CALCULATIONS.
- (4) COMPUTATION OF NO LOAD CURRENT AT 90%, 100% AND 110.0% MAY BE SUPPORTED BY CALCULATIONS.
- (5) COMPUTATION OF NO LOAD AND FULL LOAD LOSS AT 75 DEG.C. MAY BE SUPPORTED BY CALCULATIONS.
- (6) DETAILS OF CLEARANCES AS GIVEN IN CLAUSE: 11 INCLUDE THICKNESS OF.



**SCHEDULE IB**  
**ADDITIONAL DETAILS**

Sl. No.	Description	
1.	Core Grade	
2.	Core diameter	mm
3.	Gross core area	sq cm
4.	Net core area	sq cm
5.	Flux density	Tesla
6.	Mass of core	kg
7.	Loss per kg core at the specified flux density	watt
8.	Core window height	mm
9.	Center to center distance o the core	mm
10.	No. of LV Turns	
11.	No. of HV Turns	
12.	Size of LV conductor bare/covered	mm
13.	Size of HV conductor bare/covered	mm
14.	No. of parallels	
15.	Current density of LV winding	A/sq mm.
16.	Current density of HV winding	A/sq mm.
17.	Wt. of the winding for Transformer	kg
18.	Wt. of the HV winging of Transformer	kg
19.	No. of LV Coils/phase	
20.	No. of HV Coils/phase	
21.	Height of LV Windings	mm
22.	Height of HV Windings	mm
23.	ID/OD of HV winding	mm
24.	ID/OD of LV winding	mm
25.	Size of the duct in LV winding	mm
26.	Size of the duct in HV winding	mm
27.	Size of the duct between HV and LV	mm
28.	HV winding to tank LV winding clearance	mm
29.	HV winding to tank clearance	mm
30.	Calculated impedance	%
31.	HV to earth creepage distance	mm
32.	LV to earth creepage distance	mm

## **PRE-QUALIFYING REQUIREMENTS**

**These pre-qualifying requirements (PQR) shall prevail over the pre-qualifying requirement mentioned in “Instructions to Tenderers” or anywhere in the tender documents.**

### **PRE-QUALIFYING REQUIREMENTS FOR REGULAR SUPPLIER.**

**1. Manufacturer :-**

The firm shall themselves be manufacturer of the transformers and should be registered with Bureau of Indian Standards (BIS) in accordance to the Gazette of India published vide no. 948 dated 07.05.2015 and the transformers shall be supplied with BIS Marking.

**2. Turn Over (with GST):-**

The Bidder should have a minimum average annual turnover (MAAT) of 5% of estimated cost of minimum quoted quantity **i.e. Rs. 9.72 Crore with GST** for best three financial years out of last five financial years. The audited balance sheet or CA's certificate with UDIN number shall be enclosed in support of above, failing which the bid shall not be considered.

**3. Operational Experiences:-**

- i. The firm must have supplied 11/4 KV 100 KVA Distribution transformers or higher rating transformer to government/government undertaking/ power utilities directly or through EPC contractor and should have given three year proven trouble free operational service in tropical climate prevailing in India.
- ii. The firm is expected to furnish damage percentage rate in guarantee period of same capacity of transformers supplied by them in government/government undertaking/power utilities directly or through EPC contractor by the concerned utilities. In case the damaged rate is more than 10% in a particular year, this may lead to non-consideration as eligible supplier.

**4. Manufacturing Experience:-**

The indigenous manufacturer must have manufactured and supplied at least 10% of tendered quantity of 11/4 KV 100 KVA & above rating transformers to government/government undertaking/ power utilities directly or through EPC contractor during last five calendar years. The manufacturing experience of only last five Calendars Years (**Year 2021, year 2022, year 2023, year 2024 & year 2025 and upto date of opening of Part-1 of tender**) shall be considered for eligibility of tenderer. The firm shall have to submit the details of manufacturing of 11/4 KV 100 KVA Distribution transformers or higher rating transformers during last five Calendars Years in following proforma :-

**Table- PE**

Year	Complete postal address including designation of authority placing order	Order no. & date (for 100 KVA & above rating transformers)	Capacity of the transformers for which order was placed (KVA)	Quantity Ordered (Nos.) ( for all ratings)	No of transformers supplied during the year ( for all ratings)	Balance quantity to be supplied against orders in hands
1	2	3	4	5	6	7
Calendar Year 2021						
Calendar Year 2022						
Calendar Year 2023						
Calendar Year 2024						
Calendar Year 2025 and upto date of opening of Part-1 of tender						

The tenderer shall have to submit self-attested copies of purchase orders & dispatch instructions to substantiate the above details failing which their bid shall not be considered. If tenderer does not submit the proforma & only encloses the copies of purchase orders & dispatch instructions, then their bid may not be considered.

**5. Minimum quantity to be quoted:- 5% of the tendered quantity of transformers.**

**6. Testing Facilities:-**

The tenderer must have all necessary facilities at their works for carrying out such routine and acceptance tests as prescribed in the relevant ISS and any other routine and acceptance test as specified in the specification. Documentary evidence of existence of such facilities will be filed along with the tender.

**7. Type Test:-**

The firm should have valid type test reports of the offered capacity of transformer as per GTP/Technical specification during the last 5 year period from CPRI/ERDA/NTH. An undertaking for required type test shall not be acceptable.

**PRE-QUALIFYING REQUIREMENTS FOR TRIAL SUPPLIER.**

Purchaser at his discretion may consider to award trial order of small quantity to those bidders who have proven design and meet the following requirement.

8. **Manufacturer:-**  
The bidder must be the original manufacturer of the Material and in case of Transformers, should have valid BIS Certification/License.
9. **Testing facilities:-**  
The bidder must have routine and acceptance tests facilities as per the relevant Indian Standards (IS) at their works.
10. **Turnover:-**  
The bidder must have a Minimum Annual Average Turnover (MAAT) equal to either 50% of the value corresponding to the minimum quantity proposed to be supplied or 50% of the MAAT (**i.e. Rs. 4.86 Cr. with GST**) specified for regular suppliers/ manufacturers, whichever is lower.
11. **Operational Experience:-**  
Operational Experience is not mandatory for trial order.
12. **Manufacturing experience:-**  
Manufacturing Experience is not required for trial firms.
13. **Minimum quantity to be quoted:-** 5% of the tendered quantity of transformers.
14. **Type Test:-**  
The firm should have valid type test reports of the offered capacity of transformer as per GTP/Technical specification during the last 5 year period from CPRI/ERDA/NTH. An undertaking for required type test shall not be acceptable.

*All statements and claims regarding turnover, operational and manufacturing experience and production capacity should be duly supported by authenticated copies of documents without which the tender is liable to be rejected summarily. PVVNL may call the tenderer to produce original purchase order/dispatch instruction or any other document for verification of submitted documents during the evaluation of their bid. The bidder is also required to submit an affidavit on stamp paper regarding the firm not being blacklisted by any government utility anywhere in India. If any information provided by the bidder is found to be concealed, suppressed or incorrect at the later date, may lead to not only the cancellation of purchase order, if placed by on the tenderer, along with imposition of financial penalty and business debarment.*

*Note:-PVVNL reserves the right to waive minor deviation if they do not materially affect the capability of the applicant to perform the contract.*

**FORM - 'B'****General Condition of contract for the supply of Plants and Machinery for Works Pertaining to the Pashchimanchal Vidyut Vitran Nigam Limited, Meerut**

1. In constructing these General Conditions an annexed Specification, of the following words shall have meaning here in assigned to them unless there is any thing in the subject to context inconsistent with such construction:

**Definition of terms**

The "**Purchaser**" shall mean the Pashchimanchal Vidyut Vitran Nigam Limited, Meerut shall include his successors and assigns.

The "**Contractor**" shall mean the Tenderer whose tender shall be accepted by the Purchaser and shall include such Tenderer's heirs, legal representatives, successors and assigns.

The "**Sub-Contractor**" shall mean the person named in the Contract for any part of the work for any person to whom any part of the Contract has been sublet with the consent in writing of the Engineer and the heirs, legal representatives, successors and assigns of such person.

The "**Engineer**" shall mean the officer placing the order for the work with the Contractor and such other as may be duly authorized and appointment in writing by the purchaser to act as Engineer for the purposes of the Contract and in case where no such officer has been so appointed, the purchaser or his authorized representative.

"**Plant**" shall mean the plant and materials to be provided by the contractor under the Contract.

The "**Contract**" shall mean and include the General Conditions, Specifications, Schedules, Drawings, From or Tender, Covering letter, Schedule of prices or the final General conditions, specifications and Drawing and the Agreement to be entered into under clause 3 of these General Conditions.

The "**Specification**" shall mean the specification annexed to these General Conditions and the schedule thereto (if any),

The "**Site**" shall mean the site of proposed work as detailed in the specification or any other place in Uttar Pradesh where is to be executed under the Contract.

"**Month**" shall mean calendar month.

"**Writing**" shall include any manuscript, typewritten or printed statement, under or over signature of seal as the case may be.

Words important persons shall include Firms Companies, Corporations and other bodies whether incorporated or not.

Words importing the singular only shall also include the plural and vice versa where the context requires.

2. The Contractor shall be deemed to have carefully examined the General Conditions, Specifications Schedules and Drawing. If he shall have any doubt as to the meaning of any portion of these General Conditions, or of the Specifications he shall, before signing the Contract, set forth the particulars there of and submit them to the Engineer in writing in order that such doubt be removed. **Contractor to inform himself fully.**

3. A formal agreement shall, if required by the purchaser, be entered into between the purchaser and the Contractor for the proper fulfillment of the Contract, Further, if required by the Purchaser and the Contractor shall deposit with the purchaser as security for the due and the faithful performance of the contract such sum not being less than one percent of the total value of the Contract as may be fixed by the Purchaser either in cash or any other form approved by the purchaser. The security deposit shall be refunded to the Contractor on the delivery and check of the plant at the site of work. **Contract**

The charges in respect of vetting and execution to the contract document shall be borne by the Contractor. The Contractor shall be furnished with an executed stamped counter-part of the agreement.

After the tender has been accepted by the Purchaser all order or instructions to the Contractor shall, except as herein otherwise provided be given by the Engineer on behalf of the purchaser.

4. The Contractor shall submit, in duplicate, to the Engineer for his approval drawing of the General Arrangement of the plant to be provided and such detailed drawing, other than shop drawings, as maybe reasonably necessary. **Contract drawing**

Within fourteen days of the receipt of such drawings the Engineer shall signify his approval or otherwise of the same, and in the event of disapproving the drawings, the Contractor shall submit further drawing for approval.

Within a reasonable period of the notification by the Engineer to the Contractor of his approval of such drawings, three sets in ink on tracing cloth of forogallic prints mounted on cloth, of the drawings as approved shall be supplied to him by the Contractor and be signed by him and the Contractor, respectively and be thereafter deemed to be the "Contract Drawings"

These drawings when so signed shall be committee property of the Purchaser and be deposited with the Engineer, and shall not be departed from in any way whatsoever except by the written permission of the Engineer as hereinafter provided.

In the event of the Contractor design and to process a signed set of drawing, he shall supply four sets instead of three sets and in this case the Engineer shall sign the fourth set and return the same to the Contractor.

The Contractor if required by the Engineer shall supply in addition copies of any drawing other than shop drawing, which may reasonably be required for the purpose of the Contractor and make a reasonable charge for such copies.

The Engineer or his duly authorized representative, whose name shall have previously been communicated in writing to the Contractor, shall have the right, at all reasonable times, to inspect, at factory of the Contractor, drawing of any portion of the plant.

5. The Contractor shall be responsible for and shall pay for any alternations or the plant due to any discrepancies, errors or omission in the drawings and other particulars, supplied by him, whether such drawing of particulars have been approved by the Engineer or not provided that if such discrepancies, errors or omission are due to inaccurate information of particulars furnished the Contractor by the Engineer any alternations in the plant necessitated by reason of such inaccurate information of particulars shall be paid for by the purchaser.

**Mistake  
in  
drawing**

If any dimensions figured upon the drawings or plan differ from those obtained by scaling the drawing of plant, the dimensions as figured upon the drawing or plan shall be taken as correct.

6. The Contractor shall not without consent in writing of the Engineer or Purchaser which shall not be unreasonably withheld, assign or subject this Contract, or any substantial part thereof other than for raw materials, for minor details, or for any part of the plant, of which the makers are named in the Contract provided that any such consent shall not relieve the contractor from any obligation, duty or responsibility under the Contract.

**Subletting  
of  
contract**

7. In the event of any claim or demand being made or action being brought against the purchaser for infringement or alleged infringement of later patent, In respect of any machine, plant or things used or supplied by the Contractor under this contract or in respect of any method of using or working by the purchaser or such machine, plant, or thing, the Contractor will indemnify the Purchase against such claim or demand and all costs and expenses arising from or incurred by reason of such claim or demand Provided that the Purchaser shall notify the Contractor immediately and claim is made and that the Contractor shall be at liberty, if he so desires, with the assistance of the Purchaser. If required but at all the Contractor's own expense, to conduct all negotiation for the settlement of the same of any litigation that may arise there from and Provided that no such machine, plant, or thing shall be used by the purchaser of any purpose or in any manner other than that for which they have been supplied by the Contractor and specified under this contract.

**Patent  
rights**

8. The plant shall be manufactured and constructed in the best and most substantial and most workmanlike manner and with materials of the best or of approved qualities for their respective uses.

**Quality of  
material**

9. The Contractor shall be responsible for security protecting and packing the plant so as to avoid damage under normal conditions of transport.

**Packing**

10. The cost of delivering the whole of the material F.O.R. at the Railway stations specified shall all be born by the Contractor.

**Delivery  
and  
import  
license  
fee**

The import License fee for the import of equipment or component parts of raw materials, if required shall be paid by the Contractor even when the import License may have to be taken in the name of the Purchaser.

11. No alterations, amendments, omissions, additions, suspensions, or variations of the plant (hereinafter referred to as "Variation") under the Contract as shown by the contract drawings or the Specifications shall be made by the Contractor except as directed in writing by the Engineer, but the Engineer shall have full power, subject to the provision hereinafter contained, from time to time during the execution of the Contract by notice in writing to instruct the contractor to make such variations without prejudice to the Contract, and the Contractors shall make such variations, and be bound by the same conditions as far as applicable, as though the said variations occurred in the specification. If any' suggested variations would in the opinion of the Contractor, if carried out, prevent him from fulfilling any of his obligations or guarantees under the Contract, he shall notify the Engineer thereof in writing, and the Engineer shall decide forthwith whether or not the same shall be carried out, and if the Engineer confirms his instructions, the Contractor's obligations and guarantees shall be modified to such an extent as maybe justified. The difference of cost, if any, occasioned by any such variations shall be added to, or deducted from, the contract-price as the case may require. The amount of such deference, if any, shall be ascertained and determined in accordance with the rates specified in the Schedules of Prices, so far as the same maybe applicable and where the rates are not contained in the said Schedules, or are not applicable they shall be settled by the Engineer and Contractor jointly, as far as possible, before such variations are carried out provided that the Purchaser shall not become liable for the payment of any charge in respect of any such variations, unless, the instruction for the performance of the same shall have been given in writing by the Engineer.

**Power to vary or omit work**

In the event of the Engineer requiring any variations, such reasonable and proper notice shall be given to the Contractor as will enable him to make his arrangement accordingly, and in cases where goods or materials have already been prepared, or any design, drawings or patterns have been made or work done that required to be altered, the Engineer shall allow such compensation in respect thereof as he shall consider reasonable.

Provided that no such variations shall, except with the consent in writing of the Contractor, be such as will involve an increase or decrease of the total price payable under the contract by more than 10 percent thereof.

In every case in which the Contractor shall receive instructions from the Engineer for carrying out any work which either then or later, will in opinion of the Contractor, involve a claim for additional payment, the Contractor shall as soon as reasonably possible after the receipt of such instructions inform the Engineer of such claim for additional payment.

12. If the Contractor shall neglect to manufacture or supply the plant with due diligence and expedition or shall refuse or neglect to comply with any reasonable orders given to him in writing by the Engineer in connection with the manufacture or

**Negligence**

supply, or shall contravene any provision of the Contract, the Purchaser may give seven day's notice in writing to the Contractor, to make good the failure, neglect or contravention complained of any if the Contractor shall fail to comply with the notice within a reasonable time from the date of service thereof in the case of a failure, neglect or contravention capable of being made good within that time then and in such case if the Purchaser shall think fit. It shall be lawful for him to take the manufacturer or supply of plant wholly or in part out of the Contractor's hand and give it to another person on contract at the reasonable price and the purchaser shall be entitled to retain and apply any balance which may be otherwise due on the Contract by him to the Contractor or such part thereof as may be necessary, to the payment of the cost of manufacture of or supply of such plant as aforesaid.

13. If the Contractor shall die or commit any act of Bankruptcy, or being a corporation commence to be wound up except for reconstruction purpose of carry on its business under a receiver, the executors, successors, or other representative in law of the estate of the Contractor or any such receiver, liquidator or any person in whom the contract may become vested shall forthwith give notice thereof in writing to the purchase and shall for one month during which he shall take all reasonable steps to prevent stoppages of the manufacture of plant, have the option of carrying out the Contract subject to his or their providing such guarantee as may be required by the Purchaser, but not exceeding the value of the plant, for the time being remaining unexecuted. In the event of stoppage of the manufacture of the plant the period of the option under this clause & shall be fourteen days only, provided that should the above option not be exercised, the contract may be determined by the purchaser by notice in writing to the contractor, and the purchaser may exercise the same power which he could exercise and will have the same rights which he would have under the last preceding clause if work had been taken out of the contractor's hand under that clause.

**Deaths,  
Bankruptcy  
etc.**

14. The Engineer, and his duly authorized representatives shall have at all reasonable times access to the Contractors premises and shall have the power at all reasonable time to inspect and examine the material and workmanship of the plant during its manufacture there, and if part of the plant is being manufactured on other premises, the Contractor shall obtain for the Engineer and for his duly authorized representatives permission to inspect it as if the plant manufactured on the Contractor's own premises.

**Inspection  
& testing**

The Engineer shall, on giving seven day's notice in writing to the Contractor setting out any grounds of objections which he may have in respect of the work, be at liberty to reject all or any plant or workmanship connected with such work which, in his opinion, are not in accordance with the Contract, or are in his opinion, defective for any reason whatsoever. Provided that, if such notice be not sent to the Contractor within reasonable time after the grounds upon which such notice is based have come to the knowledge of the Engineer, he shall not be entitled to reject the said plant or workmanship on such grounds. Unless specifically provided otherwise all tests shall be made Contractor's works before shipment.



The Contractor shall, if required, give the Engineer notice of any material being ready for testing, and the Engineer, or his said representative, if so desired, shall, on giving twenty four hour's previous notice in writing to the Contractor attend at the Contractor's premises within seven days of the date of which the material is notified as being ready, failing which visit the Contractor may proceed with the test, which shall be deemed to have been made in Engineer presence, and he shall forthwith forward to the Engineer due certified copies of the tests in duplicate.

In all cases where the contractor provides for tests, whether at the premises of the Contractor or of any subcontractor, the Contractor, except where otherwise specified, shall provide, free of charge, such labour, materials, electricity, fuel water stores, apparatus and instruments as may reasonably be demanded to carryout efficiently such test of the plant in accordance with the Contract and shall give facilities to the Engineer or to his authorized representative to accomplish such testing.

**Test at contractor's premises**

In special tests other than those specified in the Contract are required they shall be paid for by the purchaser as variations, under clause 1 1.

When the tests have been satisfactorily completed at the Contractor's work the Engineer shall issue a certificate to that effect.

In all cases where the Contract provide for test on the site, the Purchaser, except otherwise specified, shall provide, free of charge, such labour, materials. Electricity, fuel, water, stores, apparatus and instruments as may be requisite from time to time and as may reasonably be demanded. Efficiently to carry out such test of the plant or workmanship in accordance with the Contract. In the cases of Contractor requiring electricity for test on site such electricity shall be supplied to Contractor in the most convenient form available.

**Test on site**

15. The plant or material shall not be forwarded until shipping dispatch instructions shall have given to the contractor.
- Delivery of Plant**

Notification of delivery or dispatch in regard to each and every consignment shall be made to the Purchaser immediately after dispatch or delivery. The Supplier shall further supply to the Consignee a priced invoice and packing accounts of all stores delivered or dispatched by him. All packagers, containers, bundles and loose material forming part of each and every consignment shall be described in fully in the packing account, and full details of the contents of packages and quantity of material shall be given to enable the Consignee to check the stores on arrival at destination.

16. The manufacture and supply of plants shall be carried out under the direction and to the reasonable satisfaction of the Engineer.
- Engineer's supervision**
17. In respect of all matters which are left to decision of the Engineer, including the granting or withholding of certificates, the Engineer shall, if required so to do by the
- Engineer's decisions**

Contractor, give in writing a decision thereon, and his reasons for such decision. If the decision is not accepted by the Contractor, the matter shall be referred to Chairman, UPPCL and such decision shall be final and binding on the contractor.

18. The contractor shall be responsible for loss, damage of depreciation to goods up to delivery at site. **Liability for accidents and damage**

19. If during the Progress of manufacture or supply plant the Engineer shall decide and notify in writing to the Contractor that the Contractor has manufactured any plant or part of unsound or imperfect, or has supplied and plant inferior in quality to that specified, the contractor on receiving details of such defect or deficiency shall, at his own expenses, within such time as may be reasonably necessary for the purpose proceed to alter, reconstruct or remove such plant or part of plant, supply fresh materials up to the standard of the Specification and in case the Contractor shall fail to do so the Purchaser may, on giving the Contractor seven day's notice in writing of his intention so to do proceed to alter, reconstruct or remove such plant or part of plant of supply all such materials at the Contractor's cost provided that nothing in this clause shall be deemed to deprive the purchaser of or affect any rights under the contract which he may otherwise have in respect of such defects or deficiencies. **Replacement of defective plant or materials**

20. All cost damages or expenses, which the Purchaser may have paid, for which under the Contract, the Contractor is liable, maybe deducted by the Purchaser from any moneys due or which may become due by him to the Contractor under this Contract, or may be recovered by suit or otherwise from the Contractor. **Deduction From contract**

Any sum of Money due and payable to the Contractor (including security deposit returnable to him) under this Contract may be appropriated by the Purchaser and set off against any claim of the Purchaser for the payment of a sum, of money arising out of or under any other Contract made by the Contractor with the Purchaser.

21. (1) Subject to any deduction, which the Purchaser may be authorized to make under the contract, or subject to any additions of deductions provided for under clauses 11, the contractor shall, on the certificate of the Engineer, be entitled to payment as follows: **Terms of payment**
- (a) Ninety percent of the F.O.R. Contract value of the plant alongwith 100% sale tax and Excise Duty as applicable on finished material/equipment shall be made through Bank, intimated by the purchaser in rupees on receipt by the Purchaser of the contractor's invoice giving the number

and date of the railway receipt covering the dispatch of the plant from the Indian Port and of the advice note giving case number and contents, together with a certificate by the Contractor to the effect advice note has actually been that the plant detailed in the said dispatched under the said railway receipt and that the Contract value of the said plant so dispatched is not less than the amount entered in the Invoice.

- (b) Ten percent of the F.O.R. Contract value on presentation of the Contractor's invoice when each commercially useable section of the plant is complete and the last portion of such section has been dispatched and the whole material has been delivered at the place fixed for delivery and checked at the site of the work or, within one month of such delivery, whichever is earlier.

Provided that each of the payments under this clause shall be due on the last of the month in which the invoice for the amount due together with the necessary documents is received by the purchaser, provided also that the Purchaser shall not be bounded to make any payment under sub-clauses (a) unless the amount of such payment represent at least 8 percent of the total contract value of the plant.

- (2) If at the time at which the last installment becomes payable there are minor defects in the plant which are to of such Importance as to affect the full commercial use of the plant, then the Purchaser shall be entitled to retain such part of the installments as represents the cost of making good such minor defects, and any sum so retained shall, subject to the provisions of clause 30, become due upon such minor defects being made good.
- (3) If the purchaser desires that the plant or any portion should not be dispatched by the contractor when it is due for dispatch, the contractor shall store such plant or portion at his works and be responsible for all risk. For such storage the Purchaser shall pay to the contractor at a rate to be mutually agreed upon between the parties, but not exceeding 5 as (five shillings) per ton per week payable quarterly plus interest at percent per annum above the current rate of the State Bank of India, on 80 percent of the contract value of the plant or portion there of so stored, for the period from the date on which the said plant or portion become due and is ready for shipment up to the date on which it is actually shipped.

22. In any case where the contract price includes a provisional sum to be provided by the Contractor for meeting the expenses of extra work or for work to be done or materials to be supplied by a sub-contractor, such sum shall be expended or used either wholly or in part, or be not used at the discretion of the Engineer, and entirely as he may decide and direct. If no part or only a part there of be used, then the whole or the part used, as the case may be, shall be deducted from the contract price. If the sum used is more than such provisional sum the Contractor shall pay the excess. In the case of materials supplied or work done by a sub-contractor, the total of the net sums paid to the sub-contractor on account of such materials or works and a sum equal to 10 percent of such net sum allowed as Contractor's profit shall be deemed to be the sum used. None of the works or articles to which such

**Provisional  
Sums**

sum of money refers shall be done or purchased without the written order of the Engineer. The Contractor shall allow the sub-contractors every facility for the supply of materials or execution of their several works simultaneously with his own, and

shall within fourteen days after the Engineer has requested him in writing so to do, pay the dues of such sub-contractors on account of such materials or work; PROVIDED ALWAYS that the contractor shall have not responsibility with regards to such works or articles unless he shall have previously approved the sub-contractor and or the material or plant to be supplied.

23. (i) Every application to Engineer for a certificate must be accompanied by a detailed invoice (in duplicate) setting fourth in the order of the Schedule of price, particulars of the plant supplied and the certificates as to such plant as is the reasonable opinion of the Engineer, in accordance with the Contract shall be issued within fourteen days of the application for the same. **Certificate of Engineer**
- (ii) The Engineer may, be any certificate make any correction or modification in any previous certificate which shall have been issued by him and payments shall requested and adjusted accordingly.
24. No certificate of the Engineer on account nor any sum paid on account by the purchaser nor any extension of time granted under clause 26 shall affect or prejudice the rights of the Purchaser, against. The contractors either under this agreements or under the law, or relieve the Contractor of his obligations for the due performance of the Contract, or be interpreted as approval of the plant manufactured or supplied; and no certificate of the Engineer shall create liability on the Purchaser to pay for any alteration, amendments, variations, or additions not ordered in writing by the Engineer or absolve the Contractor of the liability for the payment of damages whether due, as curtained or certified or not or of any sum against the payment of which he is bound to indemnity the purchaser, nor shall any such certificate nor the acceptance by him of any sum paid on account of otherwise affect or prejudice the rights of the Contractor against the Purchaser, either under this Agreement or under the law. **Certificate not to effect rights of the purchaser or contractor**
25. The purchaser shall pay to the Contractor all reasonable expenses, incurred by the Contractor by reason of suspension of the manufacture of plant or delay in shipment by order in writing of the purchaser of the Engineer unless such suspension or delay shall be due to some default on the part the Contractor of sub-Contractor. **Suspension of works**
26. The time given to the Contractor for dispatch or delivery shall be reckoned from the date of receipt by the Contractor of the order together with all necessary information and drawings, to enable the work to be put in hand. **Extension of time of completion**

In all cases in which progress shall be delayed by strikes, lockouts, fire, accidents defective materials, delays in approval of drawings or any cause whatsoever beyond the reasonable control of the Contractor, and whether such delays or impediment shall occur before or after the time or extended time, for dispatch or delivery, a reasonable attention of time shall be granted.

27. If the contractor shall fail in the due performance of his Contract within the time fixed by the Contractor any extension there of, the Contractor agrees to accept a reduction of the Contract price by half percent per week reckoned on the contract value of such portion only of the plant as cannot in consequence of the delay be used commercially and efficiently during each week between the appointed or extended time, as the case may be and the actual time of acceptance under clause 29, and such reduction shall be in full satisfaction of the contractor's liability for delay but shall not in any case exceed 10 percent of the contract value of such portion of the plant."

**Price  
reduction  
clause**

28. If the completed plant or any portion thereof, before it is taken over under clause 29 be found to be defective, or fails to fulfill the requirements of the Contract, the Engineer shall give the Contractor notice setting forth particulars of such defects or failure, and the Contractor shall forth with make the defective-plant good, or alter the same to make it comply with the requirements of contract. If the Contractor fails to do so within a reasonable time the Purchaser may reject and replace, at the cost of the Contractor, the whole or any portion of the plant, as the case may be, which is defective or fails to fulfill the requirements of the Contract. Such replacement shall be carried out by the Purchaser within a reasonable time, and at a reasonable price, and where reasonable possible to the same specification and under competitive conditions. In case of such replacement by the purchaser the Contractor shall be liable to pay to the Purchaser the extra cost, if any, of such replacement delivered and or erected as provided for in the original contract, such extra cost being the ascertained difference between the price paid by the Purchaser, under the provisions above mentioned, for such replacement and the Contract price for plant, so replaced and also to repay any sum paid by the Purchaser to the Contractor in respect of such defective plant. If the Purchaser does not so replace the rejected plant within a reasonable time, the Contractor shall be liable only to repay to the Purchaser all moneys paid by the purchaser to him in respect of such plant.

**Rejection  
of  
defective  
plant**

In the event of such rejection, the Purchaser shall be entitled to the use of the plant in a reasonable and proper manner for a time reasonably of sufficient to enable him to obtained other replacement plant. During the period the rejected plant is used commercially the Contractor shall be entitled to a reasonable sum as payments for such use.

29. Where the specification calls for performance test before shipment and these have been successfully carried out, the plant shall be accepted and taken over and the Engineer shall notify the Contractor to that effect. When the specification calls for tests on site the plant shall be taken over immediately after such tests have been satisfactorily carried out and the Engineer shall notify the Contractor to that effect. Such notification shall not be unreasonably withheld, nor shall the Engineer delay giving such notification on account of minor omissions which does not necessarily delay shipment nor affect the commercial use of plant without any serious risk: PROVIDED ALWAYS that the contractor undertakes to make good such omissions and defects at the earliest possible moment.

**Taking  
over**

30. The material will be guaranteed for a period of at least 96 calendar months from the date of installation at the site or 102 months from the date of receipt of material by the purchaser at the site/store, whichever is earlier, called the "maintenance period." If the material is damaged within the guaranteed period, it shall be replaced/ repaired by the supplier free of cost within one month of receipt of intimation.

**Maintenance**

If a transformer is damaged within above guarantee period, then the guarantee period of the repaired transformer will be extended by 24 months. The total guarantee period will now be 120/126 months as applicable."

Both stage and final inspection of at least 10-20 percent of the quantity of repaired transformer will be carried out at the manufacturer's works/local repairing center. The manufacturer has to inform the address of the local repairer in advance.

In case, the repair work/replacement of transformer is not effected within three months of the above notice/intimation the consignees will ensure deduction of the amount equal to the price of new transformer from pending bills of the contractor. Such defaults shall be taken into consideration by the consignees while evaluating and reporting the performance of the contractor.

The outage period i.e., period from the date of failure till unit is repaired/replaced shall not be counted for arriving at the guarantee period.

In the event of the supplier's inability to adhere to the aforesaid provisions, suitable penal action will be taken against the supplier which may inter alia include blacklisting of the firm for future business with the purchaser for a certain period.

Further, installation of 10 percent Distribution Transformers (both new and repaired) shall be carried out in the supervision of manufacturer's representative.

**31.1 Disputes with value up to Rs. 10 crores will be dealt in the following manner:-****Dispute  
Resolution**

- (i) In case of disputes with value less than/ up to Rs 10 crore, the contractor/ vendor will refer the matter to the Managing Director, UPPCL (MD), except in cases where MD, UPPCL himself is the other party in dispute, who will examine the dispute / grievance impartially and try to settle the same through the process of mediation in a time bound manner. For this purpose, MD may seek necessary advice/ inputs from domain experts, finance experts and/or legal experts.
- (ii) In the event that the contractor(s)/vendor(s) is/are not satisfied by the proposed solution they may refer the matter to a Conciliation Committee of Independent Experts (CCIE) for Mediation/Negotiation or Adjudication. In order to deal with such disputes, one or more CCIEs may be set up comprising the following members.
  - a. Former/ retired officers of the rank of Principal Secretary to the Government of UP or above.
  - b. Sector experts, either retired or serving, having substantial domain knowledge or project development, execution and O&M of distribution systems not below the rank of Chief Engineer L1.
  - c. Experts in Finance and taxation, with experience in senior position in the sector / financial institutions, not below the rank of Chief General Manager/General Manager,
- (iii) In exceptional cases of disputes (even with value less than Rs 10 Cr), where the decision would result in a policy change or a much wider impact than just being limited to the dispute in hand, MD, UPPCL may refer the same to Chairman, UPPCL for adjudication. The Chairman may adjudicate the dispute himself or refer the same to the High Level committee (HLC) as mentioned herein after.

**31.2. Disputes with value greater than Rs. 10 crore will be dealt in the following manner:-**

- (i) In case of disputes with value greater than Rs 10 crore, the contractor / vendor will refer the matter to the Chairman, UPPCL who will examine the dispute / grievance impartially and try to settle the same through the process of mediation in a time bound manner. For this purpose, Chairman may seek necessary advice / inputs from domain experts, finance experts and/or legal experts.
- (ii) Chairman may seek advice of a retired judge from the Hon. High Court/Hon. Supreme Court, if so required, at his discretion.
- (iii) In the event that the contractor(s) / vendor(s) is/are not satisfied by the proposed solution through mediation, they may refer the matter to a High-Level Committee (HLC). In order to deal with such disputes, one or more HLCs may be set up comprising the following members:
  - a. Former/ retired officers of the rank of Additional Chief Secretary to the Government of UP or above.
  - b. Sector experts, either retired or serving, having substantial domain knowledge of project development: execution and O&M of distribution systems not below the rank of Director of UPPCL.
  - c. Experts in Finance and taxation, with experience in senior position in the sector/financial institutions, not below the rank of Director of UPPCL.

In exceptional cases, the Chairman UPPCL may provide that the HLC will be headed by a retired judge of Hon. High Court/Hon. Supreme Court with the other three members as proposed above.

32. All dispute arising out of and touching or relating to the subject matter of his agreement shall be subject to the jurisdiction of High Court of Judicature at Allahabad only. **Law Clause**
33. The Contractor shall in all respect be construed and operate as a Contract as defined in the Indian Contract Act. 1872, and all payments there under shall be made in rupees unless otherwise specified. **Constructish of Contract**
34. The marginal note to any clause of this Contract shall not affect or control the construction of such clause. **Marginal Notes**



**Form of Agreement  
(Referred to in Clause 3)**

This Agreement made the            day of            200    Between            (hereinafter referred to as "the Contractor") of the one part and The Pashchimanchal Vidyut Vitran Nigam Ltd., Meerut (hereinafter called "Purchaser") of the other part:

Whereas the Purchaser is about to erect and maintain the (hereinafter called "the works)" and for the purpose requires the plant and machinery mentioned and specified in certain general conditions, specification, schedules, drawings, form offender, covering letter and schedule of prices which, for the purpose of identification, as been signed by -----  
----- on behalf of the Contractor and -----  
-----

(The Engineer or the Purchaser) on behalf of the Purchaser all of which are deemed to form part of this contract as through separately set out herein and are included in the expression "Contract" whenever herein used.

And whereas the purchaser has accepted the tender of the contractor for the supply and delivery of the said plant and machinery for the sum of -----  
-----Upon the terms and subject to the conditions hereinafter mentioned:

NOW THESE PRESENT WITNESS and the parties hereto hereby agree and declare as follows, that is to say, in consideration of the payments to be made to the contractor by the Purchaser as hereinafter mentioned the contractor shall and will duty provide the said plant machinery for the said work on the terms and conditions mentioned in the Contract:

And in consideration of the due provisions of the said plant and machinery by Contractor and due performance of his part of the contract, the purchaser, does hereby for himself, his successors or assigns covenant with the Contractor that he, the Purchaser or his successors or assigns will pay to the contractor the said sum of or such other sums as may become payable to the Contractor under the Provisions of this Contract, such payments to be made at such time and in such manner as is provided by this contract.

In Witness whereof the parties, hereto have signed this Deed hereunder on the dates respectively mentioned against the signature of each.

Signed  
(for and on behalf of the purchaser)  
(date)

signed  
(Contractor)  
(date)

by-----  
-----

in the presence of -----

in the presence of -----

and of -----

and of -----

## **GENERAL REQUIREMENTS OF SPECIFICATIONS**

### **2.1 SCOPE:**

- 2.1.1 This specification covers design; manufacture performance, testing inspection packing and delivery of the equipment with accessories and auxiliary equipment required for various destination of all Disoms of UPPCL. The item and quantities required are as detailed in Technical Schedule P & Q.
- 2.1.2 The equipment shall be supplied complete with all fitting/accessories, apparatus and parts that are necessary as usual for their efficient operation. Such part shall be deemed to be within contractor's scope whether specifically mentioned or not. Equipment in all respect shall incorporate the highest quality of modern engineering design and workmanship.
- 2.1.3 The "General Condition of Contract" Form 'B' copy of which are attached here to form an integral part of this specification. The contractor shall supply all material and perform all work in strict accordance there with. In the event of conflict between the "General Condition of Contract" Form 'B' and General requirement of specification as given here, purchaser's version shall pre vail.
- 2.1.4 The general requirement of specification comprise of this chapter and detailed technical specification. These are supplementary to each other and are essential for complete interpretation of the Purchaser's requirement.

### **2.2 PROJECT DATA**

- |      |  |                     |
|------|--|---------------------|
| I.   | Location various sites in Uttar Pradesh                            |                     |
| II.  | Altitude not exceeding 1000 meters.                                |                     |
| III. | Climatic condition.  |                     |
| a.   | Design maximum ambient air temperature                             | 50 Deg. C           |
| b.   | Maximum daily average ambient temperature in shade                 | 47.2 Deg. C         |
|      | Maximum daily average ambient temperature in sun                   | 65.5 Deg. C         |
| c.   | Minimum ambient air temperature in shade                           | (-) 5 Deg. C        |
| d.   | Relative Humidity  | 100% Max<br>10% min |
| e.   | Wind load  | 195 Kg./Sqmm        |
| f.   | Seismic level  | 0.33                |
| g.   | Isokeraunic level  | 50                  |
| h.   | Average annual rainfall  | 1200 m.m.           |
| i.   | Hot and humid tropical climate conducive to rust and fungal growth |                     |

**2.3 SYSTEM PARTICULARS:**

i.	Rated system voltage	33kv, 11kv, & 0.433kv
ii.	System frequency	50 Hz this may vary by $\pm 5\%$
iii.	No. of phase	three
iv.	Neutral	Effectively earthed
v.	Auxiliary power supply	
	a. for lighting, fixtures space heater & AC separated coils	250 V, 2 wires 50 Hz. A.C. Supply with one point grounded
	b. D.C. Alarm control & protective devices	24 volts, un-grounded DC supply from station battery. The above supply voltage will vary as follows AC voltage will vary $\pm 10\%$ frequency by $\pm 5\%$ and combine voltage and frequency $\pm 10\%$ D.C. voltage, 24 volts to 25 volts

**2.4 DRAWING AND MANUALS:**

- 2.4.1 The contractor shall furnish four prints of each of the following to the Engineer of the contract within four weeks of the date of order.
- General arrangement drawing of the equipment offered.
  - Detailed dimensional drawing and descriptive literature of all the component supplied.
  - Basic Electrical diagram.

In addition, the contractor shall also submit four prints to the Engineer within 30 days of the complete bill of material with each items unidentifiable in the detailed drawing with reference. This will also form detailed packing list of the equipment.

- 2.4.2 The engineer shall return to the Contractor one print of each drawing (a) stamped "Approved" or (b) marked up with comments.

In case of (a), no further resubmission of drawing is required for Engineer's approval. In case of (b), the Contractor shall correct his original drawing to confirm to the comments made by the Engineer and resubmit in the same manner as stated above, within two weeks after the receipt of marked up the print by him.

- 2.4.3. The Contractor on receipt of print stamped "Approved" shall furnish to Engineer of the contract. One direct reading reproducible of each drawing and bill of material within two weeks of receipt of approved set.

**2.5. MANUALS:**

The contractor shall furnish three sets of bound copies of erection commissioning and operation, maintenance manual giving detailed instruction, procedures, precautions for all the equipment supplied by him to the Engineer. The Manuals shall be specific to the equipment

(3)

supplied and not of general nature. One set of this manual shall also be packed with each set of equipment.

**2.6 RAW MATERIAL:**

The contractor shall be responsible for timely arrangement/procurement of all the raw materials required for the manufacture of all tendered items and shall furnish their test certificate to the purchaser. However depending on the policy of the Govt. of India, Purchaser may issue essentiality, certificates for arrangement of such raw materials through CEN, DOE, DGTD or other, who may allot the same to the Contractor at their discretion directly from any of the produces of such raw material or other source but without any financial liability to the affecting/linking the delivery of the equipment with the availability of raw material against such certificate or recommendation.

**2.7 INSPECTION & TESTING:**

As per clause 14 of General Condition of Contract Form 'B' the Contractors shall give 15 days notice to Discom Quality Cell CONCERNED DISOM OF UPPCL- under intimation to SE(MM) CONCERNED DISOM OF UPPCL- and the purchase of every lot of material being ready duly packed for dispatch along with routine test result of the material offered and details of dispatches made against last authorization for dispatch in addition to the test specified in the Technical Specification. The purchaser reserves the right of carrying out at site such test as he may decide upon. Such additional tests will be carried out at the Purchaser's expenses.

The contractor shall also render necessary assistance to the inspecting Officer (s) in making random sampling. Whether considered necessary, the material shall be marked, embossed or sealed by the inspection Officer after inspection has been carried out and the material approved for dispatch.

The purchaser shall reserve the right to draw required number of samples of other Major items of raw material. These samples shall however, be drawn and sealed in the presence of Contractor or his authorised representative. The purchaser further reserves the right to get these samples tested form any Govt. recognized Test house/Laboratory as specified in PQR.

The Contractor shall record either of the following certificates on the invoice/packing list (Challan) as the case may be.

Certified that the consignment (lot) of material supplied through this invoice/packing list (Challan) has been inspected and tested by representative (s) of DQC of CONCERNED DISOM OF UPPCL- and has been approved for dispatch.

OR

Certified that the inspection and testing of consignment (lot) of material supplied through this invoice packing list (Challan) has been waived off by the purchaser vide his letter No. . Dated it is further certified that the material have been tested and results have

(4)

been found to be with in values specified in the relevant ISS/Contract as per copies of test certificates enclosed.

Not withstanding the inspection carried out by the Officers of CONCERNED DISOM OF UPPCL- , in case of any short/defective supply of material detected by the consignee the contractor shall be liable to make good such shortage/rectify the defects. The consignment shall also be subjected to joint inspection by Representative of the contractor and the purchaser in the stores of CONCERNED DISOM OF UPPCL in case of any dispute regarding quantity and/or quality of the material supplied.

In case the material offered for inspection is not found ready when the inspection party reaches to the works of the contractor, the cost incurred by the CONCERNED DISOM OF UPPCL- on this account will become payable by the Contractor on demand by M.D., CONCERNED DISOM OF UPPCL- with in 30 days but prior to next inspection.

## **2.8 PRODUCTION SCHEDULE & PROGRESS REPORT:**

The contractor shall furnish detailed production schedules for major components to be supplied.

The schedule shall include dates of completion of:

- a. Engineering work.
- b. Different phase of material procurement manufacture of fabrication.
- c. Delivery.

A report on actual progress in percentage and date of completion of each of the above item shall be sent to the purchaser every month, starting two months from the date of letter of indent o date of purchase order.

## **2.9 PACKING & DISPATCH OF EQUIPMENT:**

- 2.9.1 All equipment/material shall be suitably packed for transport cartage to site and outdoor storage during transit. The contractor shall be responsible for any damage to the equipment during transit due to improper and inadequate packing. The case containing fragile or material easily prone to damage shall be very carefully packed and marked with appropriate caution symbol i.e.. 'Fragile' Handle with care' use no Hook etc. The contents of each package shall bear/packing list. Packing shall provide complete protection from moisture, termites and mechanical shocks etc. Whenever necessary, proper arrangement of attaching slings, for lifting shall be provided. All packaged shall be clearly marked with gross weight sign showing 'UP and down side of boxes content of each packages orders No. and date, name of plane/equipment of which the material in package form part and any handling and unpacking instruction considered necessary. Any material found short inside the packing case shall be supplied by the contractor without any extra cost. Contractor shall ascertain prior to shipment from concerned authorities, the transport limitation, like within and maximum allowable package size of transportation. All packing cases and packing material shall become the property of the Purchaser.

(5)

- 2.9.2 The equipment/material shall be dispatched, as per advance dispatch instruction issued by MD, CONCERNED DISOM OF UPPCL-. A telegraphic intimation shall also be given to the consignee (s) immediately after the dispatch of equipment mentioning the specification number, name of equipment, R/R number, Date of dispatch, No. of packages, wagon number and approximate weight of each package to enable him to take the delivery and unload the material in case the dispatch documents are not received by him in time.
- 2.9.3 Packing list containing details of equipment for verification at site shall be placed inside each package and shall correspond with the advice note and approved bill of materials, One set of manual as required in 2.5.5 shall also be placed inside the package.
- 2.9.4 Bill (s) dully pre-receipted in triplicate in accordance with approved terms of payment and together with all necessary dispatch document, shall be sent to consignee (s) under registered cover with additional copy to Engineer of the contract, as also to M.D., CONCERNED DISOM OF UPPCL- . Supplier's code and items as prescribed shall be marked on every bill/invoice/challan.
- 2.9.5 Any demurrage and wharfage or other charges payable due to non-implementation of any of the above instruction shall be to Contractor's account.
- 2.9.6 The material shall be dispatched within 3 days of completion of inspection in presence of the representative of purchaser to ensure that only inspected material is being dispatched. Supplier cannot pass on the responsibility of poor packing in case of damaged packing found at destination.

## **2.10 REJECTION:**

- 2.10.1 Purchaser reserves the right to reject any equipment if during the tests at work or at site. If the values achieved do not comply with the respective standard/specification and exceed the tolerable limits.
- 2.10.2 Contractor shall replace a rejected equipment with a new equipment, complying with the guaranteed value as promptly as possible and at no extra cost to the purchaser, purchaser reserve the right to take any rejected equipment in to service until the Contractor supplies the new equipment.
- 2.10.3 Rejection to any equipment will not be held as valid reason for delay in timely completion of the work.

## **2.11 DISPATCH INSTRUCTION:**

- 2.11.1 Detailed dispatch instructions shall be issued by the M.D. of CONCERNED DISOM OF UPPCL- for the quantities authorized for dispatch who however reserve the right to amend the dispatch instructions at any time before the actual dispatch of the material. It may be noted that no materials is to be dispatched without satisfactory testing inspections and clearance by Representative of Superintending Engineer(DQC) & M.D. of CONCERNED DISOM OF UPPCL- .

2.11.2 Telegraphic intimation shall be sent to consignee immediately after the goods are booked and following documents shall be sent by the Contractor to the bankers and additional copy each shall also be sent directly to the Purchaser and to the consignee by registered mail on the same day.

- a. Evidence of dispatch i.e. Railway Receipt
- b. Packing list (3 copies)
- c. Invoice (3 copies)
- d. Test Certification (3 copies)

2.11.3 In case of transport by Road, the Contractor shall deliver the material/equipment to the consignee at the specified place of delivery with the following documents and one additional copy of each sent directly to the purchaser.

- a. Delivery Challan (2 Copies)
- b. Invoice (2 Copies)
- c. Test Certificate (2 Copies)

2.11.4 A statement of dispatches shall be sent by the Contractor on the first day of every month of dispatch made by him during preceding Month on the following proforma.

No. & Dt.	Name of Consignee	Name of material	Quantity	
			Allotted	Dispatched
1	2	3	4	5

GR/RR No & Dt.	Bill No & Dt.	Amount	Remarks
6	7	8	9

## 2.12 **INSURANCE:**

2.12.1 The Contractor shall arrange, secure and maintain insurance that may be necessary to protect his own interest and the interest of the Purchaser, against all risks that are to be covered under the insurance shall include, but not be limited to the loss of damage in transit, theft pilferage/not civil commotion, weather conditions, accident of all kinds, fire war risks during ocean transportation only etc.

2.12.2 Insurance is to be taken for the F.O.R. destination value of the equipment for transit from manufacture's warehouse to Purchaser's warehouse plus 30 days storage there after.

2.12.3 All damages and shortages of the equipment after its delivery, destination Railway station and transportation to stores and storage there after shall be notified by the consignee by registered post to contractor or his authorized representative within 30 days of making good the damage or loss by way of replacement of the equipment damaged or lost.

2.12.4 The Contractor shall take up the matter with insurance company for finalization of claim and purchaser shall provide required information. All further action in connection with making and setting of claims, if any, will be carried out by the contractor for which no extra payment will be made.

The contractor shall be responsible to make good the damage or loss by way of repairs and/or replacement of equipment free of cost irrespective of fact whether claims are accepted by the insurance company or not. without waiting for claims settlement.

2.12.5 The scope of such insurance shall cover the entire value of the contract from time to time.

### **2.13 TERMS OF PAYMENT:**

2.13.1 The terms of payment shall be as per clause-21 of Form 'B'

2.13.2 "For equipment to be dispatched by road transport the payment will be made after the receipt of goods at site. For equipment dispatched by Rail, the Contractor can claim 90% of the contracted value of equipment (including price variation, if any) together with 100% of excise duty, sales/trade Tax against R/R through bank of Consignee choice provided that :

- a. The Contractor submits a certificate along with invoice to the effect that the material detailed in the said advice note which has actually been dispatched is under the said Railway receipt and the value of the material as dispatched is not less than the amount entered in the invoice.
- b. The bank commission shall be borne by the Contractor.
- c. The Contractor shall be responsible for timely intimation to the consignee about R.R. etc. and in the event of this lapse, the damage/wharfage shall be responsibility of the contractor.

### **2.14 DELIVERY:**

2.14.1 The commencement of delivery period shall be counted from the date of letter of indent or as per detailed order as the case may be.

2.14.2 Date of R/R shall be deemed to be the date of delivery for dispatch by rail, the date of receipt of materials in purchaser's store shall be deemed to be date of delivery for dispatch by Road. In the case of supply of PCC Poles 8.5 M, long transportation is required to be done by the purchaser. In this case, the date of clearance of Material by Discom Quality Cell or purchaser M.D., of CONCERNED DISCOM OF UPPCL- shall be deemed to be the date of delivery provided the payment or Excise Duty for the poles authorized for dispatch shall be deposited by the supplier within 15 days from the date of issue of dispatch authorization, failing which actual date of depositing of Excise duty shall be treated as the date of delivery.

2.14.3 The delivery should be affected in serviceable lots/sets of equipment, in case of part dispatch the delivery shall be deemed to have been affected when last component part of the equipment of serviceable lot/set has been delivered.



**2.15. SECURITY:**

The contractor shall deposit security as required under Clause-3 of the "General Condition of the Contract" Form "B" minimum @10% (Ten percent) of the F.O.R. destination price of material in the form of Bank draft, FDR/CDR or Govt interest bearing security duly pledged in favour of the MD, PVVNL, Meerut or guarantee bond from a schedule Bank of India duly executed on on judicial stamp paper of requisite value (at present Rs. 100/-) in the enclosed Performa.

The above security shall be sent within 30 days of the award of contract. The validity of the security deposit in any of the above form shall be for a period of 18 months from the date of receipt of last lot of material with a claim period of six months thereafter, in case the supplies are delayed beyond the delivery schedule mentioned in the order, the contractor shall extend the validity of the security deposit so as to cover a period of 18 months for the day by which he anticipates to complete the supplies, failing which the Purchaser shall have the right to en-cash the bank Guarantee without making any reference to him. This order is liable to be cancelled if security is not deposited within the time specified and in the event Earnest Money shall be forfeited. The contractor shall not commence the supply of material till such time he deposits security as above and the intimation regarding receipt and correctness of the same is received by him in writing from Engineer of Contract.

The security will be released to the contractor after expiry of consignment against the contract.

**2.16. TRAINING OF ENGINEERS:**

2.16.1 The Purchaser may depute his engineer for a period as mutually agreed, at the manufacture's works for a purpose of familiarization with equipment and techniques covered under the specification, including training in commissioning, operation, maintenance and trouble shooting aspect etc. The contractor shall provide the necessary training facilities free of cost to the purchaser and also indicate/suggest training programmes etc. In case, this training course is being run regularly by the manufacturer or his principles, this may be indicated in the tender, along with details of training duration, schedules date, course content etc. The traveling expenses from U.P. to their place of training and back and maintenance of the deputed trainees shall be borne by the purchaser.

2.16.2 The Contractor shall depute his Senior Engineer/Specialists to the Training Institute/Staff colleges of the purchasers for training familiarization course when requested by the purchaser.

**2.17. JUDICIAL JURISDICTION:**

All the disputes arising out of and touching or relating to subject matter of agreement/contract shall be subject to jurisdiction of local courts of and High Court of Judicature at Allahabad only.

**2.18 PRICE VARIATION:**

Where the contracted ex- works prices are variable the contractor shall immediately after dispatch submit to engineer detailed calculation supported by photocopy of the relevant indexes of applicable price variation formula. The engineer will check these calculations and notify within 15 days of receipt of information, the revised prices to contractor as well as to consignees.

In principal, price variation shall be payable as determined on the basis of the date of offer or contractual delivery whichever is earlier.

In case of delivery (date of R/R) for dispatch by rail or date of receipt at purchaser's warehouse for dispatched by road) falling after the contractual delivery schedule, the price variation shall be payable for applicable contractual / amended delivery schedule notified for price variation purposes.

**2.19 ARBITRATION CLAUSE 31 OF FORM 'B':**

The following is deemed to be added at the of the Part-I in the Arbitration Clause 31 of Form 'B' " In case of refusal/neglect by such nominee, Chairman, Cum M.D. U.P. Power Corporation Ltd. may nominate another person in his place"

# **IMPORTANT CHECK POINTS**

**The bidder shall ensure to upload following documents in the tender on E-tendering website [www.etender.up.nic.in](http://www.etender.up.nic.in)**

1. Pay in slip/UTR no. or any others online transactions statement as a proof of depositing tender cost.
2. Pay in slip/UTR no. or any others online transactions statement/scan copy of Bank Guarantee as a proof of depositing Earnest Money Deposit.
3. Requisite documents in support of fulfilling the criteria of all the clauses of **“Pre-Qualifying Requirements”** of the tender in sequential order.
4. Scan copy of affidavit on Rs. 100.00 stamp paper regarding the firm is not black listed by any govt. utility anywhere in India.
5. Scan copy of declaration regarding validity of the tender offer on Rs. 100.00 Stamp paper. (Validity of offer should be minimum 180 days).
6. Schedule “A” to “N” duly stamped & signed.
7. Tender form containing 3 pages duly filled, stamped & signed.

**The bidders are requested to ensure that online fee towards tender cost/EMD has successfully been transferred to the PVVNL Account prior to the scheduled Bid Submission End Date. In case of any failure in transaction on due to Banking/any other reasons, the sole responsibility shall be of the bidder and tender of such bidders shall summarily be rejected.**

## IMPORTANT NOTE

1. Tender documents will not be sold manually. Detail tender document will be available on PVVNL website <http://www.pvvnl.org>, as well as on e-tender web portal [www.etender.up.nic.in](http://www.etender.up.nic.in). Price bid will be available online at [www.etender.up.nic.in](http://www.etender.up.nic.in).
2. Tenders are to be submitted in 3 Parts which shall be uploaded on e-tender web portal [www.etender.up.nic.in](http://www.etender.up.nic.in) upto 14.00 hrs. on the scheduled date of opening of the tender.
3. **The Part-I (Tender Cost+EMD):** - The tender cost & EMD will have to be deposited on-line through RTGS/NEFT in Account No. 3493639431 of SE, Head Quarter, PVVNL Meerut in Jail Chungi Branch Meerut of Central Bank of India having IFSC Code No. CBIN0282337. The Scanned copy of Pay in slip/UTR No., as a proof of depositing tender cost & EMD, has to be uploaded on the e-procurement portal of PVVNL [www.etender.up.nic.in](http://www.etender.up.nic.in). In case EMD is submitted in the form of Bank Guarantee, it will be in favour of MD PVVNL Meerut and the same has to be confirmed through SFMS on the above mentioned account & the scanned copy has to be uploaded on the e-procurement portal of PVVNL [www.etender.up.nic.in](http://www.etender.up.nic.in). The original BG will then be sent to this office within 7 days.  
**Note :-** The exemption from Tender Fee and EMD shall be applicable as per Clause No.-18(4) of “SPECIAL CONDITIONS FOR TENDER”.
4. **The Part-II (Techno-commercial):** -Each and every page of the tender documents submitted in Part-II (Techno-commercial bid), in support of fulfilling the Pre-qualifying requirement, should be duly signed, Stamped & scanned. The scanned copy of all the techno-commercial documents are compulsorily to be uploaded on the e-procurement portal of PVVNL i.e [www.etender.up.nic.in](http://www.etender.up.nic.in) & no hard copy of these documents are required to be submitted. Tender/Bids of firms who do not submit the techno-commercial bid along with Tender Fee and EMD, as mentioned above, shall not be considered for Price Bid Opening.
5. **Part-III (Price bid):-** The price bid is to be filled compulsorily online by visiting at [www.etender.up.nic.in](http://www.etender.up.nic.in) failing which the bid shall be treated as cancelled.
6. **Submission of Price Bid on E-tender:**
  - A. The Tender submission module of e-procurement website <http://etender.up.nic.in> enables the bidder to submit the e-tender online against this tender. Price bid may be submitted only during the period and time stipulated in tender. Tenderers are advised to start the tender submission process well in advance so that they can submit their tenders in time. The tenderers shall submit their tenders taking into account the server time displayed in the e-procurement website. This server time is the time by which the tender submission activity will be allowed till the permissible time on the last date of submission stipulated period. For delay in submission of tender, due to any reasons, the responsibility shall be of tenderers.
  - B. Financial Bid on e-tender web portal must be submitted by the tenderers at e-procurement website <http://e-tender.up.nic.in> not later than specified/notified date of opening of tender.
7. The price bid uploaded on E-tender website shall be considered for selection of the lowest bidder.
8. The Price Bid template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns and validating the sheet, else the bidder is liable to be rejected.
9. In case the bidder quotes for less than 100% of the tendered quantity as per the clause No. 1.2 of `Schedule of quantities, desired delivery & earnest money`, then he may deposit EMD proportionately along with the techno-commercial bid. However, on e-tender web portal, the bidder shall have to enter the full amount of EMD so that the web Portal will allow him for next step i.e. financial bidding on e-tender web portal [www.etender.up.nic.in](http://www.etender.up.nic.in), unless this issue is resolved by NIC.
10. **The Part-I & Part-II shall be opened on the same day.** If the date happens to be a public holiday then the tenders shall be opened on next working day on the same time. Please visit website [www.pvvnl.org](http://www.pvvnl.org) & [www.etender.up.nic.in](http://www.etender.up.nic.in) for details/downloads/ and for any other corrections/amendments/ modifications/extensions till the date of submission of bids.
11. The interested bidders are requested to get the digital signature registered with UP Government, e-procurement portal <http://etender.up.nic.in>. In this regard the bidders may contact UP Electronics Corporation Ltd., Lucknow website : [www.upclko.org](http://www.upclko.org)  
For more queries the bidders may also contact on following details: -  
E-Mail : [etender.up@nic.in](mailto:etender.up@nic.in), [upclko@gmail.com](mailto:upclko@gmail.com)  
PH: 0522-2286809, 4130303, 09235567201, 09721451211, 2298831.
12. **The above terms & conditions are final** hence if any terms & conditions, in respect of above, are found contrary to the above at any other place in the tender, that conditions will be treated as cancelled.
13. **Material shall be delivered in various Store Center of all Discom of UPPCL i.e. PVVNL, PuVVNL, DVVNL, MVVNL.**

**TENDER FORM**

Sl. No.	Particulars	Schedule	
1	2	3	4
1	Name & Address of Tenderer.		
2	Draft No./Date/ Amount/ Name of Bank of tender document cost		
3	Earnest Money	'A'	
4	Validity on stamp paper or not	'C'	
5	Name of Manufacturer	'B'	
6	Manufacturer/Accredited representative/Collaborator	'B'	
	(a) Registration Certificate of manufacturer enclosed or not		
	(b) Schedule 'D' on stamp paper enclosed or not	'D'	
7	Operation Experience		
	(a) Qty. Ordered	'B'	
	(b) Period of Supply		
8	Manufacturing Experience		
	(a) Qty. Manufactured	'B'	
	(b) Period		
9	Details of Testing Facilities installed		
	(a) Routine Test	'B'	
	(b) Acceptance Test		
	(c) Type Test		
	(d) Place of Testing if Test Facility not installed		
10	Type Test Certificate Submitted or not	'B'	
11	Performance Certificate		
	(a) Quantity	'E'	
	(b) Period		
12	Guarantee	Form B/ Tech. Spec.	
13	Size of Manufacturing Facilities		
	(a) Total Space	'E'	
	(b) Constructed Area		
14	Name of Collaborator (Indian/Foreign)	'E'	
15	Type of Firm	'E'	
16	Authorized Capital of the company	'E'	
17	Total Turnover of the firm during last five years.	'E'	
18	Actual Production of Tender item during Last five Years	'E'	

19	Manufacturing Capacity per month of the quoted equipment		
20	Whether agreed to deposit 1% Security	'E'	
21	Whether price are firm or variable	'E'	
22	Whether Ex-works prices quoted or not	'E'	
23	Whether Transit & Insurance charges quoted or not	'E'	
24	Whether insurance provided or not	'E'	
25	Whether prices are applicable for reduced quantities or not.		
26	Our terms of payment acceptable or not	'E'	
27	Sales Tax Registration	'E'	
	(a)UPST No		
	(b) CST No.		
	(c) STCC of year		
28	ITCC (Year)	'E'	
29	Agreed to supply or not if deviations are not acceptable to purchaser	'E'	
	(a) Sample Submitted or not	'E'	
	(b) Sample acceptable or not		
30	Rebate/D is count	'E'	
31	Drawing & Literature enclosed or not	'F'	
32	Deviation from Technical Specification	'G'	
33	Deviation from instructions to tenderer	'H'	
34	Deviation from General Requirement of Spec.	'I'	
35	Deviation from General Conditions of Form 'B'	'J'	
36	Whether Quoted for full Quantities	'K'	
37	Delivery Period	'K'	
38	Name of Proprietor/ Partners/Managing Director/ President/ Secretary/ chairman etc.	'M'	
39	Name of authorized signatory	'M'	
40	Authorization letter from owner enclosed or not	'M'	
41	Additional documents enclosed		
42	Documentary evidence of financial capability provided or not.	'N'	
43	Certificate of reasonability provided or not.	'L'	

Seal of Company :

Signature -----

Name-----

Designation-----

Date-----

**SCHEDULE 'A'****PART-I  
TENDER FORM**

From : **Tender Specification No. PV VNL-MT/**

To,  
The Managing Director  
Pashchimanchal Vidyut Vitran Nigam Ltd.  
Victoria Park, MEERUT.

Sir,

With reference to your invitation to tender for the above I/We hereby offer to the Pashchimanchal Vidyut Vitran Nigam Ltd.-Meerut the items in the schedule of the prices and delivery annexed or such portion thereof as you determine in strict accordance with the annexed condition of contract Form 'B' Specification and Schedule of rate, to the satisfaction of the purchaser or in default thereof to forfeit and pay to the Pashchimanchal Vidyut Vitran Nigam Ltd.-Meerut, the sum of money mentioned in the said conditions.

The rates quoted are inclusive prorata and in full satisfaction of all claims.

I/We agree to abide by this tender for the period of 180 days from the date fixed for opening of the same.

A sum of Rs. \_\_\_\_\_ in the form of \_\_\_\_\_

In favour of the M.D., Pashchimanchal Vidyut Vitran Nigam Ltd.-Meerut is enclosed with Part-I of the offer as earnest money.

I/We hereby undertake and agree to execute a contract in accordance with the conditions of the contract.

Encl : As above

Date: \_\_\_\_\_ day of \_\_\_\_\_ 200\_\_\_\_ Yours faithfully,

Witness

(Name & Signature)

(Signature of tender in full)

Address :

Name

Occupation

Seal

**SCHEDULE 'B'****PART-I****Tender Specn No :****PVVNL-MT/****Name of Material :****PREQUALIFICATION DETAILS OF THE TENDERER****1. Manufacturer or accredited representative**

- (a) For manufacturer, registration with industries Deptt. permitted manufacture is to be enclosed.
- (b) For accredited representative, letter of authorization from manufacturer of being accredited representative to be enclosed.

**2. Operational Experience:**

The following details are to be furnished ONLY in respect of Tendered item (s) for last five financial year.

- (a) Sl. No.
- (b) Complete postal address including designation of the authority placing order.
- (c) Order No. & Date
- (d) Quantity ordered
- (e) Period of Supply
- (f) Station where the equipment installed and the period from which in actual service.

**3. Manufacturing Experience**

The following details are to be furnished only in respect of Tendered item (s)

Sl. No.	Complete postal address including designation of authority placing order	Quantity ordered	Quantity manufactured during last five years
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(upto date of tender opening)

- \* In case the quantity manufactured in less than the qualifying figures, previous year may also be included.



## 4. Testing Facilities

Sl. No.	Name of Test	Details of testing equipments required and available	Range up to which tests can be performed	Place of testing
1	2	3	4	5

(1) Routine :

- (a)
- (b)
- (c)

(2) Acceptance :

- (a)
- (b)
- (c)

(3) Type :

- (a)
- (b)
- (c)

- Note: (i) In case facility of test not available at works place, where such test would be carried out, be specified.
- (ii) The tender is required to give the details of Testing facilities available in works Against Column 2, he is to essentially mention the name of test and corresponding in column 3 he is to specify the instruments which will be employed to perform that tests.

## 5. Type testing Product -

It is required that a Xerox copy of complete type test report of the product is enclosed with Part-I of the tender document failing which it will be presumed that the product is not type tested.

Seal of Company

Signature

Name

Designation

Date

**SCHEDULE 'C'**  
**PART-I**

**DECLARATION**

**Tender Specn No. PVVNL-MT/**

(To be executed on a non-judicial stamp paper of Rs. 100/- with a revenue stamp of Rs.1/- price affixed)

Tender invited by

The Managing Director  
Pashchimanchal Vidyut Vitran Nigam Ltd.  
Victoria Park, MEERUT.

Tender for

Name of Tenderer

Specification No. & date of opening

IN CONSIDERATION of the P.V.V.N.L.-Meerut having treated the Tenderer to be an eligible person whose tender may be considered, the Tenderer here by agrees to the condition that the proposal in response to the above invitation shall not be withdrawn with 180 days (or any extension there or) from the date of opening of the tender, also to the condition that if there after the Tenderer does, withdraw his proposal with in the said period, the Earnest Money deposited by them may be forfeited by the P.V.V.N.L.-Meerut and at the discretion of the Purchaser, the purchaser may debar the tenderer from tendering for a minimum period of one year reckoned from the date of opening of the tender.

Signed this

Day of                      200

Place

Signed by

State title (whether

Proprietor/Partner)

Witness:

Name of the firm

Address:

Address of the firm

Signature

Seal of the firm

**SCHEDULE 'D'**  
**PART – I**

**Tender Specn No. PVVNL-MT/**

**PROFORMA FOR JOINT UNDERTAKING BY THE COLLABORATOR/ASSOCIATE  
AND THE TENDERER**

(To be stamped in accordance with U.P. State Act)

To,

The Managing Director  
Pashchimanchal Vidyut Vitran Nigam Ltd.  
Victoria Park, MEERUT.

Dear Sir,

(In terms of "Instruction to Tenderers" in the specification on-.....  
for the design manufacture, testing delivery, erection & commissioning as specified)  
of.....  
.....(Name of Equipment).

It is a condition that tenderer as well as their collaborator/associate shall jointly and severally undertake the responsibility for the successful performance of the Contract (here inafter referred to as contract) which is qualified for the award on the basis of the expertise of collaborator/associate).

We.....having our  
registered office at.....(here in after referred to as a  
Collaborator/Associated) which in turn shall include our successor, administrator recuter  
and assign and we.....having our registered office at  
(hereinafter called as Tenderer or Contractor) are held jointly and severally liable and  
bound upto P.V.V.N.L. Ltd.-Meerut (here in after referred to as Purchaser) which  
expression shall include its successor administrator and assigns for successful  
performance of the contract including the overall responsibility for the design,  
manufacture, testing, delivery performance etc. of.....  
(Name of equipment) in accordance with the contract.

The Collaborator/Associated hereby agree to depute their technical experts from time to time to Contractor's works/project site as mutually agreed upon between the Purchaser and the contractor in order to discharge the contract obligations as stipulated in the contract. The Tenderer and the Collaborator/Associate hereby agree that this undertaking shall be irrevocable and it shall form an integral part of the contract.

In witness there of the Collaborator/Associate and the Tenderer have through their authorised representative, set their hand and seal on this.....day of.

Witness

**Collaborator/Associate**

1.

Signature

Name

(Official Address)

Designation

Seal

Witness

**Tenderer**

2.

Signature

Name

(Official Address)

Designation

Seal

Email:semmpvvn1@yahoo.co.in

## **SCHEDULE 'E'**

### **PART-I**

#### **SCHEDULE OF GENERAL PARTICULARS**

**Tender Specn. PVVNL-MT/**

1. Name of the Tenderer
  - (a) Head Office address
  - (b) Registered office address
  - (c) Postal address of tenderer
  - (d) Landline Phone/Mobile No.
  - (e) Fax No.
  - (f) Email address of the firm.
2. Name and address of manufacturer, if any
3. Works
  - (a) Location with full Postal Address
  - (b) Total Space occupied in sq. metres (approximate within 5%)
  - (c) Constructed area in sq. meters (approximate within 5%)
4. Name & Address of local representative and his Telephone Number.
5. Name & Address of the officer of the tenderer/manufacturer to whom all reference shall be made for expeditious coordination.
6. Whether the tenderer is sole proprietor/partnership concern Private Ltd. Company / Public Undertaking.
7. Name of foreign collaborator, if any.
8. Whether the designs are their own or obtained from other sources If from other sources, the same may be indicated.
9. The name, designation, qualification and experience of the engineer employed by the tenderer in design, development and manufacturing of the quoted equipment.
10. Authorised capital of the company.
11. Total annual turnover of the firm during last five financial years (year wise break up may be shown).
12. Actual production per year of the equipment quoted during last five financial years(year wise break up may be shown) giving quantity and bill value rounded off to two decimal place of Rs. Lacs excluding Central Excise.
13. Manufacturing capacity per month of the quoted equipment otherwise.

14. State the name and designation of your relative(s) if any, working in UPPCL/PV VNL-MT.
15. Requisite Security deposit in terms of clause - 3 of Form 'B'/ Special conditions is to be deposited within 30 days of placement of order. Whether or not willing to deposit. If no state reasons.
16. Whether certificates for satisfactory performance of offered enclosed / not enclosed equipment enclosed or not if yes, give the quantity to which it refers. Enclosed/not Enclosed.
17. (a) Whether quoted ex-works prices are firm/variable  
(b) In case of variable prices, have you noted.  
(i) The prices are variable as per IEEMA/Specified formula enclosed without any ceiling on either side.  
(ii) Have you mentioned base price indices prevailing as on the first day of one month before tender opening.
18. Whether ex-works prices quoted or not Yes/No
19. Whether packing, forwarding freight & insurance cover (for transit plus 30 days storage thereafter) has been quoted beside ex-works prices (All these charges are to be clubbed) Yes/No
20. Whether the quoted prices are also applicable for any reduced quantity of order. Yes/No
21. Terms of payments as mentioned in relevant clause are acceptable or not. Yes/No
22. Give Sales Tax Registration Number. (Enclose last clearance certificate)  
(i) Central  
(ii) State
23. Income Tax Clearance Certificate of current and the preceding year enclosed or not. Yes/No
24. Whether the Tenderer is agreeable to supply the equipment in case the deviations stipulated by him are not acceptable to the purchaser. Yes/No
25. Give two reference (Name, designation and complete-postal address) who can certify Tenders financial status and capacity to under-take such supply orders. One of the reference should be from any scheduled Nationalised bank in India.

26. Have you submitted a sealed sample(s) required in the specification (non-returnable) and delivered the same to the office of M.D. PVVNL-Meerut. Yes/No
27. Have you offered any discount and if so, then what is the rebate/discount in Rs. per unit. Yes/No

Seal of Company

Full Signature

Name

Designation

Date

**SCHEDULE 'F'****PART-I****Tender Specn No. PVVNL-MT/****LIST OF DRAWINGS AND LITERATURE ENCLOSED WITH  
THE TENDER**

Sl.No.	Drawing/Literature No.	Title
--------	------------------------	-------

Seal of Company

Signature

Name

Designation

Date



**SCHEDULE 'G'****PART - I****Tender Spec No. PVVNL-MT/****DEVIATION FROM "TECHNICAL SPECIFICATION"**

All deviations from the "Technical Specification" shall be filled in Clause by clause, in this schedule. Compliance with the Specification will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviation(s) the "NIL" information should be furnished.

Sl. No.	Page No.	Clause No. and stipulation in P.V.V.N.L. specification	Deviation
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The tenderer hereby certifies that the above-mentioned details are the only deviations from the "Technical Specification."

Seal of Company

Full Signature

Name

Designation

Date

## **SCHEDULE 'H'**

**Tender Spec No. PVVNL-MT/**

### **PART-I**

#### **DEVIATION FROM INSTRUCTIONS TO TENDERERS**

ALL DEVIATIONS FROM "INSTRUCTION TO TENDERERS" shall be filled in clause by clause in this schedule. Compliance with the Specification will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviations (s), the 'NIL' information should be furnished.

Sl. No.	Page No.	Clause No. and stipulation in P.V.V.N.L. specification	Deviation
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The tenderer hereby certifies that the above-mentioned details are the only deviations from the "Instruction to Tenderers"

Seal of Company

Full Signature

Name

Designation

Date

**SCHEDULE 'I'****PART - I****Tender Spec. No. PVVNL-MT/****DEVIATIONS FROM 'GENERAL REQUIREMENTS OF SPECIFICATION'**

All deviations from the "GENERAL REQUIREMENTS OF SPECIFICATION" shall be filled in clause by clause, in this schedule. Compliance with the Specification will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviations (s) the 'NIL' information should be furnished.

Sl. No.	Page No.	Clause No. and stipulation in P.V.V.N.L. specification	Deviation
------------	----------	---	-----------

The tenderer hereby certifies that the above-mentioned details are the only deviations from the "General Requirements of specification."

Seal of Company

Full Signature

Name

Designation

Date

## **SCHEDULE 'J'**

### **PART - I**

**Tender Specn. PVVNL-MT/**

#### **DEVIATIONS FROM 'GENERAL CONDITIONS' OF CONTRACT FORM 'B'**

All deviations from the "General Conditions" of contract Form 'B' shall be filled in clause by clause, in this schedule. Compliance with the Specification will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviations (s) the 'NIL' information should be furnished.

Sl. No.	Page No.	Clause No. and stipulation in P.V.V.N.L. specification	Deviation
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The tenderer hereby certifies that the above-mentioned details are the only deviations from the "General Conditions" of Contract Form 'B'.

Seal of Company

Full Signature

Name

Designation

Date

## **SCHEDULE 'K'**

### **PART-I**

**Tender Specn. PVVNL-MT/**

### **SCHEDULE OF QUOTED GUARANTEED DELIVERY**

(Guaranteed delivery period will be reckoned from the date of issue of letter of intent or as specified in the order as the case may be)

(For transport by rail, the date of R/R and for transport by Road, the date of receipt of material at purchaser' warehouse shall be considered as date of delivery.

Sl. No.	Item	Offered quantity	Delivery Period (in months stating completion with monthly rate)
------------	------	---------------------	---

Seal of Company

Full Signature

Name

Designation

Date

**SCHEDULE - 'L'****PART- I****CERTIFICATE OF REASONABILITY OF RATES**

From,

**Tender Specification No. PV VNL-MT/**

To,  
The Managing Director  
Pashchimanchal Vidyut Vitran Nigam Ltd.,  
Victoria Park Meerut.

Sir,

With reference to your invitation of tender I/we here by certify that:

1. Our quoted rates are lowest, for the item mentioned, in comparison of all the rates quoted by us during last one yrs.  

or/and
2. Our quoted rates are -----% higher from our lowest rates during last one /three years the reasons of which are given in the enclosed annexure.

Encls: As above.

Your's Faithfully

Date:

(Signature of tenderer in full)

Witness:

(Name &amp; Signature)

Address:

Name:

Occupation:

Seal:

## **SCHEDULE 'M'**

### **PART-I**

### **STATEMENT**

**Tender Specn. PVVNL-MT/**

### **STATEMENT GIVING DETAILS OF PROPRIETOR/PARTNERS/DIRECTORS/ EXECUTIVES/PRESIDENT/SECRETARY OF TENDERING FIRM**

Tender invited by : Managing Director  
PVVNL, Meerut

Specification No. : PVVNL-MT/ -200

Tender for (Item) :

Due for opening on :

Sl. No.	Full Name	Designation	<u>Full Address</u>		Tele- phone No.	Full Specimen Signatures	Relationship with firm's Proprietor
			Permanent Home Address	Official			
1	2	3	4	5	6	7	8

#### **I. FOR PERSONS SIGNING TENDERS:**

1-

2-

3-

#### **II. PROPRIETOR:**

1-

2-

3-

**III PARTNERS :**

1-

2-

3-

---

**IV DIRECTORS:**

1-

2-

3-

---

**V. EXECUTIVES:**

1-

2-

3-

---



**VI. PRESIDENT/SECRETARY (AS THE CASE MAY BE)**

1-

2-

---

Note: In each case the persons who has signed the tender documents must enclose the attested photocopy of power of Attorney for signing, the tender (To be marked as Schedule-M)

Full Signature of Tenderer

Full Name of Tenderer

Address

Firms' Seal

**SCHEDULE - 'N'****PART- I****CERTIFICATE OF FINANCIAL CAPABILITY  
(To be provided by nationalized Bank/Bank of repute)**

From,

**Tender Specification No, P V N N L-MT/**

To,  
 The Managing Director  
 Pashchimanchal Vidyut Vitran Nigam Ltd.,  
 Victoria Park Meerut.

Sir,

We hereby certify that the tenderer M/s-----  
 ----- has the financial capability to execute the order up to  
 the value of Rs. ----- Lacs during the period of 3/6 months as per their bank  
 account with us.

Your's Faithfully

Dated. ....

Signature -----

Name-----

Designation-----

Name of Bank-----

Branch-----

City-----

State-----

## **SCHEDULE 'P<sub>2</sub>'**

### **PART-II**

**Tender Spec No. ....**

#### **FINANCIAL INCIDENCE OF DEVIATIONS FROM TECHNICAL SPECIFICATION**

In case the tenderer is not agreed to the standard clause of the specification then they may indicate the amount by which the tender price will thereby be increased or decreased.

Sl. No.	Page No.	Clause No and stipulation in P.V.V.N.L. specn.	Deviation	Price Incidence Increase/decrease
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-----

Seal of Company

Full Signature

Name

Designation

Date

## **FORM OF BANK GUARANTEE FOR EARNEST MONEY**

(For depositing earnest money in case the amount for deposit exceeds Rs. 5000/-)

To.  
Managing Director,  
Paschimanchal Vidyut Vitran Nigam Ltd.,  
Victoria Park,  
Meerut.

Sir,

WHEREAS, Messers ..... a company incorporated under the Indian Companies Act, its registered office at ..... a firm registered under the Indian Partnership Act and having its business office at son of----- resident of.....carrying on business under the firm's name and style of Messers.....at.....Sri..... son of..... resident of.....Sri.....son of.....resident of.....partners carrying on business under the firm's name and style of Messers.....at..... which is unregistered partnership (hereinafter called 'The Tenderer') has/have in response to your Tender Notice against Specification No. PVVNL-MT/ -200 for.....offered to supply and/or execute the works as contained in the Tenderer's letter No. dated.....

AND WHEREAS the Tenderer is required to furnish you a Bank Guarantee for the sum of Rs.....as earnest money against the tenderer's offer as aforesaid.

AND WHEREAS we.....(name of the Bank) have at the request of the tenderer agree to give you guarantee as hereinafter contained.

NOW THEREFORE, in consideration of the premises we, the undersigned, hereby convenient that the aforesaid tender of the tenderer shall remain open for acceptance by you, during the period of validity as mentioned in the tender or any extension thereof as you and tenderer may subsequently agree and if the tenderer shall, for any reason back out, whether expressly or impliedly, from his said tender during the period of its validity or any extension there of as aforesaid we hereby guarantee to you the payment of the sum of Rs.....on demand, not withstanding the existence of any dispute between the Paschimanchal Vidyut Vitran Nigam Ltd. and the tenderer in this regard AND we hereby further agree as follows:

- a) That you may without affecting this guarantee grant time or other indulgence to or negotiate further with the tenderer in regard to the conditions contained in the said tender and hereby modify these conditions or add there to any further conditions as may be mutually agreed upon between you and the tenderer.

- b) That the guarantee herein before contained shall not be affected by any change in the constitution of our Bank or in the constitution of the tenderer.
- c) That any account settled between you and the tenderer shall be conclusive evidence against us of the amount due hereunder and shall not be questioned by us.
- d) That this guarantee commences from the date hereof and shall remain in force till the tenderer, if his tender is accepted by you, furnishes the security as required under the said specification and executes a formal agreement as therein provided or till four months after the period of validity or the extended period of validity, as the case may be of the tender, which ever is earlier.
- e) Notwithstanding anything contained above the liability of the Guarantor here-under is restricted to the said sum of Rs.....and this guarantee shall expire on the day of.....200.....unless a claim under the guarantee is filed with the guarantor within six months of such date all claims shall lapse and the guarantor shall be discharge from the guarantee.
- f) That the expressions 'The Tenderer' and 'The Bank' and 'Paschimanchal Vidyut Vitran Nigam Ltd.' herein used shall, unless such interpretation is repugnant to the subject or context, include their respective successors and assigns.
- g) We .....(Name of Bank) lastly undertake to pay to the (PVVNL) any money (so demanded notwithstanding any dispute or disputes raised by the Contractor (S) / Supplier (S) in any suit or proceeding pending before any court or Tribunal relating arbitration there to of liability under the present being absolute and unequivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor (s) / supplier (s) shall have not claim against us for making such payment.

Yours faithfully,

**NOTE:-** The Bank guarantee should be exactly in this proforma without making any change or deletion.

## Form of Guarantee Bond for Security (To be used Approved Scheduled Bank)

1. In consideration of the Pashchimanchal Vidyut Vitran Nigam Ltd., Meerut (hereinafter called 'the Nigam') having agreed to exempt \_\_\_\_\_ (hereinafter called 'the contractor's) from the demand, under the terms and conditions of an Agreement dated \_\_\_\_\_ made between \_\_\_\_\_ and \_\_\_\_\_ for thereinafter called, 'the agreement') of security deposit for the due fulfillment by the said Contractor (s) of the terms and conditions in the said agreement, on production of a Bank Guarantee for Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only). We \_\_\_\_\_ Bank Ltd. (hereinafter referred to as "the Bank") do hereby undertake to pay to the Nigam an amount not exceeding Rs. \_\_\_\_\_ against any loss or damage caused to or suffered or would be caused to or suffered by the Nigam by the reason of any breach by said Contractor(s) of any of the terms and conditions contained in the said agreement.
2. We \_\_\_\_\_ Bank Ltd. do hereby undertake to pay the amount due and payable under this guarantee without any demur merely on demand from the Nigam stating that the amount claimed is due by way of loss or damage caused or would be caused to or suffered by the Nigam by reason of any breach by the said Contractor of any of the terms and conditions contained in the said Agreement or by reason of the Contractors failure to perform the said agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount no exceeding to Rs. \_\_\_\_\_.
3. We \_\_\_\_\_ Bank Ltd. further agree that the guarantee herein contained shall remain in full force, effect during the period that would be taken for the performance of the said agreement, and that it shall continue to be enforceable till all the dues of the Nigam under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till the Nigam or their only Authorized Officer certified that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor(s) and accordingly discharges the Guarantee.
4. We \_\_\_\_\_ Bank Ltd., further agree with the Nigam that the Nigam shall have the fullest liberty without our consent and without effecting in any manner of obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Nigam the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension or extension being granted to the said Contractor(s) or for and forbearance act or commission on the part of the Nigam or any indulgence by the Nigam to the said contractor(s) or by any

(2)

such matter or thing whatsoever which, under the law relating to sureties, would but for this provision have effect or so relating us.

5. We \_\_\_\_\_ Bank Ltd., lastly undertake not revoke this guarantee during its currency except with the previous consent of the Nigam in writing.
6. Notwithstanding anything contained above, the liability of the guarantee hereunder is restricted to the said sum of \_\_\_\_\_ Rs. \_\_\_\_\_ and this guarantee shall expire on the \_\_\_\_\_ day of \_\_\_\_\_ 200 \_\_\_\_\_ unless a claim under the guarantee is filed with the guarantee or within six months of such date, all claims shall lapse and the guarantor shall be discharged from the guarantee.
7. We \_\_\_\_\_ Bank Ltd. lastly undertake to pay to the Nigam any money so demanded notwithstanding any dispute or disputed raised by the Contractor(s) /supplier (s) in any suit or proceeding, pending before any Court or Tribunal relating to arbitration thereto or liability under this present being absolute and un-equivocal. The payment so made by us under this Bond shall be a valid discharge of our liability for payment there under and the Contractor (s) /supplier(s) shall have no claims against us for making such payment.

Date \_\_\_\_\_ -days of \_\_\_\_\_ 200 \_\_\_\_\_  
For \_\_\_\_\_ Bank Ltd.