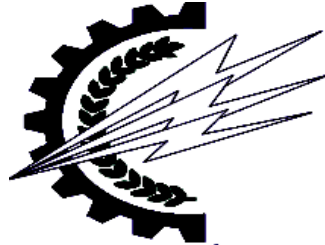


# **M.P. MADHYA KSHETRA VIDYUT VITARAN CO. LTD., BHOPAL**

*(A Wholly Owned Govt. of M.P. Undertaking)*



**प्रकाश एवं विकास**

## **TENDER SPECIFICATION NO. CMD/MK/04/243 (Due for Opening on 03.01.2012) FOR SUPPLY OF 33/11KV, 8 MVA POWER TRANSFORMERS**

**Chief General Manager (Purchase)**  
Office of the Chairman and Managing Director,  
M.P. Madhya Kshetra Vidyut Vitaran Co. Ltd.,  
Nishtha Parisar, Bijlee Nagar, Govindpura, Bhopal-462023  
*Phone No. – (0755) 2602033-36*  
*Fax No. – (0755) 2589821*  
*Website – [www.madhyavitaran.nic.in](http://www.madhyavitaran.nic.in)*

# **TENDER SPECIFICATION NO.CMD/MK/04/243**

## **ITEM: 33/11 KV, 8 MVA POWER TRANSFORMER**

**DUE FOR OPENING ON 03.01.12 AT 1.00 PM**

### **INDEX**

<b>S. No.</b>	<b>Particulars</b>	<b>Page No.</b>
1	<b>Tender Form -</b>	3
2	<b>Tender Notice -</b>	4-6
3	<b>Important Instructions to Bidders for Submitting Tender</b>	7-13
4	<b>Annexure I -</b> General Instructions to Bidders	14-20
5	<b>Annexure II -</b> General Terms and Conditions of Purchase	21-31
6	<b>Annexure III -</b> Technical Specifications for Power Transformer	32-44
7	<b>Annexure IV -</b> List of Consignee Area Stores & Sr./ Regional Accounts Officers	45
8	<b>Annexure V -</b> List of Scheduled Banks	45
9	<b>Annexure VI -</b> Quality Assurance – Inspection of Transformers	46
10	<b>Annexure VII -</b> Technical Particulars of Transformer Oil (New)	47-48
11	<b>Annexure VIII -</b> Price Variation Clause for Copper Wound Power Transformers Complete with all Accessories and Components	49-51
12	<b>Annexure IX -</b> Capitalization of Losses For 11/33 KV Power Transformer	52-53
13	<b>Annexure X -</b> Schedule of Fittings	54-55
14	<b>Schedule I -</b> Price & Quantity for 8 MVA, Power Transformer	56
15	<b>Schedule II -</b> Details of Type Tests Carriedout	57
16	<b>Schedule II -</b> Source of Procurement of Material Place of Manufacture, Testing & Inspection	58
17	<b>Schedule IV -</b> Questionnaire	
	<b>Part – A -</b> General Information	59
	<b>Part – B -</b> Commercial Information	60-62
	<b>Part – C -</b> Technical Information	63
18	<b>Undertaking</b>	64
19	<b>Schedule V</b>	
	<b>Part – A -</b> Performance/ Past Experience	65
	<b>Part – B -</b> Commercial Deviation	66
	<b>Part – C -</b> Technical Deviation	67
	<b>Part – D -</b> Supply During Last Five Years	68
20	<b>Schedule VI -</b> Guaranteed Technical Particulars of Power Transformers offered	69-74
21	<b>Schedule VII -</b> Declaration	75
22	<b>Schedule VIII -</b> Details of Quantity offered	76
23	<b>Schedule IX -</b> Details of Drawings Submitted with the Tender	77



OFFICE OF THE CHAIRMAN AND MANAGING DIRECTOR  
M.P.MADHYA KSHETRA VIDYUT VITARAN CO. LTD.,  
(A Wholly Owned Government of M.P. Undertaking)  
NISHTHA PARISAR, BIJALEE NAGAR, GOVINDPURA, BHOPAL-462023  
Phone: 2678325, Fax No.: 2589821

**To be issued only after On-line payment of Tender Fee**

**Tender issued to M/s .....**

## **TENDER FORM**

The undersigned hereby tender and offer (subject to the Company's conditions of tendering) the MP Madhya Kshetra Vidyut Vitaran Co. Ltd., Bhopal to supply the plant, machinery and materials and execute and do the several works and things which are described or referred to in the Details of Technical Particulars attached to tender document no. **CMD/MK/04/243** and its enclosure and in Schedules to the side Details of Technical Particular copies of which are annexed here to and which under the terms thereof are to be supplied, executed and done by the contractor and to perform and observe the provisions and agreements or the part of the contract contained in or reasonable to be referred from the said tender documents for the sums and at the rates sets out in Schedule-I annexed here to.

The questionnaire enclosed with this tender document has been fully answered and is enclosed herewith (if the questionnaire is not answered in full, the answer to such unanswered question(s) may be taken so as to be advantageous to the Company unless contrary is mentioned in the body of the tender).

Date the ..... Day of ..... 2011

TENDERER'S SIGNATURE  
(Seal)



OFFICE OF THE CHAIRMAN AND MANAGING DIRECTOR  
M.P.MADHYA KSHETRA VIDYUT VITARAN CO. LTD.,  
(A Wholly Owned Government of M.P. Undertaking)  
NISHTHA PARISAR, BIJALEE NAGAR, GOVINDPURA, BHOPAL-462023  
Phone: (0755) 2602033-36, Fax No.: (0755) 2589821

**OFFICE OF THE CHAIRMAN & MANAGING DIRECTOR  
M.P. MADHYA KSHETRA VIDYUT VITARAN CO. LTD.  
(A Wholly Owned Govt. of M.P. Undertaking)  
Nishtha Parisar, Bijlinagar, Govindpura, Bhopal-23  
Phone; 0755-2602033-36. FAX; 0755-2589821**

No.CMD/MK/04/TS-243/2994

Bhopal; 09.12.11

**TENDER – NOTICE**

MPMKVVCL, Bhopal, invites online bids from manufacturers only through e-Procurement for following items:-

Tender Specification Number	Particulars	Approx. Value (Rs. In Lakh)	Tender fee (Rs.)	Date of pre-bid conference	Date Of Opening of Tender (1:00 PM)
CMD/MK/ 04/243	33/11 KV, 8 MVA Power Transformer	930.93	2000.00	22.12.11 at 3.30 PM	03.01.12

The details are available on our website '[www.madhyavitrان.nic.in](http://www.madhyavitrان.nic.in)' & '<http://mpmkvvc.mpeprocurement.gov.in>'.

//save electricity//

(SANJEEV P. PURANIK)  
**CHIEF GENERAL MANAGER (PUR)**

**IMPORTANT NOTE TO ABOVE TENDER – NOTICE :-**

**Key Dates – TS-243 (Supply of 33/11 KV, 8 MVA Power Transformers)**

Seq No	MPMKVVC Stage	Contractor Stage	Start Date & Time	Expiry Date & Time
1	Tender Preparation And Release of NIT	-	09-12-2011 17:30	16-12-2011 17:30
2	-	Tender Purchase-Online	16-12-2011 17:31	29-12-2011 17:30
3	-	Tender Download	16-12-2011 17:31	29-12-2011 17:30
4	-	Submit Bid-Hash Online	16-12-2011 17:31	30-12-2011 17:30
5	Close for Bidding - Generation of Super Hash	-	30-12-2011 17:31	31-12-2011 16:00
6	-	Submit Bids Online - Re-encryption	31-12-2011 16:01	03-01-2012 12:00
7	Open EMD & Technical/ PQ bid	-	03-01-2012 13:00	03-01-2012 17:30
8	Open Financial / Price-Bid	-	12-01-2012 15:00	12-01-2012 18:00

- 1) Through the above TENDER NOTICE 'Online Tenders' have been invited for supply of items mentioned therein from manufacturers only as per Tender Specifications. The Bids Seals (Hashes) will be received online on the portal

<http://mpmkvvc.mpeprocurement.gov.in> up to the date & time indicated in the tender notice.

- 2) The tenders will be opened in the Purchase Section of the office of the CMD (CZ), Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Limited, Nishtha Parisar, Bijalee Nagar, Govindpura, Bhopl-462023, on the date & time as mentioned in tender time schedule (key date). The bidder or his duly authorized representative may remain present at the time of opening of tender. Please note that if any of the above key date(s) is declared a holiday/ local holiday then that key date will automatically get shifted to the next working day.
- 3) The complete tender documents will be available on company website [www.madhyavitran.nic.in](http://www.madhyavitran.nic.in) by 16.12.2011 only for the purpose of single **Hard Copy** submission (duly hard bounded) of tender and going into the details of tender.
- 4) Tender documents can be purchased only online and downloaded from <http://mpmkvvc.mpeprocurement.gov.in> by making online payment for the prescribed tender fee. Manual purchase of tender is not allowed.
- 5) The bid data should be filled in and the bid seals (Hashes) of all the envelopes and the documents which are to be uploaded by the bidders should be submitted online upto prescribed key dates as per time schedule (Key Dates).
- 6) The bidders shall have to submit their bids online (decrypt the bids and re-encrypt the bids) and upload the relevant documents forms as per time schedule (key dates). Original Earnest Money Deposit Instrument of amount Rs. 50,000/- should reach the office of the undersigned by opening date of tender.
- 7) Since the online bidders are required to sign their bids online using Class III - **Digital Certificates** only, hence they are advised to obtain the same at the earliest. For further information, bidders are requested to contact M/s **Nex Tenders (India) Pvt. Ltd.**, A-6 Sahyog Parisar, E-8 Shahpura, Opp. Maakhanlal University, Bhopal-462039, Tel No.0755-4075010, Email Address:[bhopal@nextenders.com](mailto:bhopal@nextenders.com). Shri Pawan Nema, mob. No 9754965249 of M/s Nex Tenders could be contacted for this.  
(Note : It may take upto 4 working days for issue of Digital Certificates)
- 8) **Bidders intending to participate in the Tender are required to get themselves trained on the e-Procurement System.** The Bidders are required to contact the Service Provider - Wipro – Nex Tenders to confirm their session in advance.
- 9) The Bid Security of Rs. 50,000/- in favour of Sr. A.O. (HOAU), MPMKVV Co. Ltd. payable at Bhopal, along with HARD COPY of tender & supporting documents duly filled up excluding **Price & Quantity schedule**, shall be *dropped* in the tender box of Purchase Section, O/o CMD (CZ), Bhopal on or before opening date of tender by 12.00 pm.
- 10) **Bids not accompanied with an acceptable bid security as specified in bidding documents, in a separate cover or bids accompanied with bid security of inadequate value shall be rejected by the procurer and in such cases bids shall be returned to the bidders unopened.**
- 11) The corrigendum or addendum to the bidding documents if any will be published on the Company's website [www.madhyavitaran.in](http://www.madhyavitaran.in). Hence participant bidders are **advised to regularly visit the website** for any amendment to the bidding documents until the last

date of bid submission. This office shall not in any way be responsible for any ignorance of the bidders about the corrigendum or addendum.

- 12) The Company reserves the right to reject any or all the tenders or accept any tender in full or part as considered advantageous to the Company, whether it is lowest or not, without assigning any reason whatsoever it may be.

(Sanjeev P. Puranik)  
**Chief General Manager (Pur)**

**SAVE ELECTRICITY**

**IMPORTANT INSTRUCTIONS TO THE BIDDERS FOR SUBMITTING TENDER  
AGAINST T.S. NO. CMD/MK/04/243 DUE FOR OPENING ON 03.01.12.**

1. The tenderers should read carefully these important instructions for compliance before submitting the bid.
  - (a) The tender documents can be purchased only online from **<http://mpmkvvc.mpeprocurement.gov.in>** by making online payment for the prescribed tender fee. Manual purchase of tender will not be accepted.
  - (b) The bid data should be filled in and the bid seals (Hashes) of all the envelopes and the documents which are to be uploaded by the bidders should be submitted online upto its prescribed date as per time schedule (Key Dates).
  - (c) The bidders shall have to submit their bids online (decrypt the bids and re-encrypt the bids) and upload the relevant documents forms as per time schedule (key dates). Original Earnest Money Deposit Instrument of amount Rs. 50,000/- should reach the office of the undersigned by opening date of tender.

2. The tender is in three parts as explained below:-

- (a) **PART-I** : This part is about fulfilling the requirement of deposit towards Earnest Money. The tenderer in this envelope should put either the original money receipt in support of having deposited cash with Sr. Accounts Officer, MPMKV Co. Ltd., Bhopal towards Earnest Money OR the Bank Draft for the purpose OR the photocopy of the Permanent Registration of the firm with District Industries center as SSI Unit of M.P. for the items quoted duly attested by the General Manager of DIC of the area. Photo copy of valid registration certificate is issued by NSIC for small or medium scale unit, as the case may be. As the validity of certificate as per NSIC three years, therefore, certificate should be got re-validated, in case date of issue/last re-validation is more than three years old.
- (b) **PART-II** : Envelope for this part shall contain Technical and Commercial aspects of the Bid and documents supporting the same.
- (c) **PART-III** : The bidder shall have to submit the Price Bid online only.

3. **Method of Submission of Bids and their Opening**

- (a) There has to be two envelopes for each of the Parts of the Bid as explained in point-2 above. All the three envelopes shall then be put in one main envelope. The main envelope shall be superscribed as under:-

(I) T.S. NO.CMD/MK/04/243 DUE FOR OPENING ON 03.01.12.  
(II) "THIS ENVELOPE CONTAINS THREE ENVELOPES TOWARDS PART-I & II OF THE BID"  
(III) "IT IS CERTIFIED THAT:-  
WE CATEGORICALLY AGREE TO THE FOLLOWING CLAUSES OF THIS TENDER SPECIFICATION :-  
(a) PAYMENT TERM : AGREED  
(b) SECURITY DEPOSIT : AGREED  
(c) PENALTY : AGREED  
(d) PERFORMANCE GUARANTEE : AGREED

In absence of above certification on the main envelope itself, the same shall not be opened and the offer is liable for rejection.

- (b) Even, after certification on the body of the main envelope, if any ambiguity is found in any part upon opening of the main envelope or even after opening of the subsequent envelopes, the offer shall be rejected.
- (c) In addition to the super-script as detailed above on the main envelope, each of the envelopes towards Part-I, II are to be super scribed as under:-

**"Part-I/ II (as the case may be) of Tender Specification No. CMD/MK/04/243 due for opening on 03.01.12."**

(d) Upon successful verification of the fulfillment of the requirement of earnest money deposit on opening of envelope of Part-I, second envelope of Part- II shall be opened on the same day. The price bid i.e. Part-III shall be opened online at a later date for the tenderers who will fulfill the eligibility criteria of the tender. This date shall be intimated to all such eligible tenderers separately.

4. The Questionnaire appended in Schedule-IV should be very clearly answered.
5. The quoted prices should be "VARIABLE" and indicated strictly in the format appended with this tender specification in Schedule-I.
6. The Company (MPMKV Co. Ltd., Bhopal) may not entertain any deviation from commercial terms & conditions as specified in the Tender Specification and the offers showing deviations are likely to be rejected.
7. To enable quick and easy examination and evaluation of the bids, it is advised to follow the following instructions while submitting bids:-
  - (a) The tender copy purchased by the bidder need not be returned to this office.
  - (b) Photocopies of the orders/ performance reports received from other Electricity Boards/ Govt. undertakings/ DISCOMs engaged in distribution of power supply should be enclosed. However, the details of the past experience either of MPSEB or of other SEB/Utilities/ DISCOMs have to be given in Schedule-V(A).
  - (c) Following documents consisting part of Commercial and Technical bid i.e. Part-II should be put in the following sequence:-
    - (i) Tender Form in original
    - (ii) Schedule-II - Details of type tests carried out.
    - (iii) Schedule-III - Source of Material.
    - (iv) Schedule-IV(A),(B)&(C) - Questionnaire duly answered.
    - (v) Schedule-V(A) - Performance and past experience.
    - (vi) Schedule-V(B)&(C) - Commercial & Technical deviations.
    - (vii) Schedule-V(D) - Supply details of last five financial years.
    - (viii) Schedule-VI - Guaranteed Technical Particulars.
    - (ix) Schedule-VII - Declaration.
    - (x) Schedule-VIII - Details of Drawings submitted with the Tender.
    - (xi) Certificates towards Capacity, latest Sales tax clearance, latest Income tax clearance, Type test Reports of the tendered design (rating-wise) issued within last five years from the date of opening of tender.
    - (xii) Printed literatures towards Technical Specifications etc.
  - (d) In Part-III of the Bid, only price bid has to be submitted online, which should be strictly in the prescribed format (Schedule-I) separately for each rating.

**8. Pool Rates**

The bidders, specially the SSI Units of the State, are advised to quote their own individual rates. It may please be noted that if the same rate is quoted by more than one bidder, suggestive of a cartel, then such offers may not be considered by the Company. It may also please be noted that the competitive rate quoted by each tenderers may be one of the main criteria for quantity to be ordered on each successful bidders.

## **9. Factory Inspection Of New Firms**

In case of new firms/participants quoted for the first time, their factory inspection shall be carried out by the Company's representative(s) prior to execution of the trial order placed on them with a view to ascertain whether they are a qualified manufacturer and are having adequate facilities, technical knowhow for manufacturing the quoted item. The satisfactory report of factory inspection of such new firms shall be an essential requirement for them to get trial order against the instant tender.

## **10. Basic Qualification of Bidders**

Bid is invited from such firms only who are fulfilling basic qualifying eligibility criteria indicated in Clause-2 of Annexure-I. Apart from basic qualifying criteria, manufacturers should provide satisfactory evidence, that the offered rating of power transformer is Type Tested for Short Circuit and Lightning Impulse Voltage Withstand Test from NABL accredited Laboratory like CPRI, Bhopal/Bangalore, National Test House, Gaziabad, ERDA, Vadodara, etc. The Type Test Certificates from other than NABL accredited Laboratory shall not be accepted in any case. The Type Test Certificates should not be more than 5 years old on the date of opening of tender.

## **11. Qualifying Eligibility Criteria for Participating in Tender**

- (a) The State/Outstate firms who have supplied 33/11 KV Power Transformer to MPSEB/Discom of MP in the past, **Or**
- (b) The new state unit having minimum 5 years of experience of manufacturing of Distribution Transformers and have supplied at least 300 Distribution Transformers to the company/MPSEB/ any other Discom of MP after successful type test upto date of opening of tender during any 3 consecutive years in last 5 years and should have all the facilities for carrying out manufacturing of Power X'mer and routine test as per IS -2026, **Or**
- (c) New outside state firms, who have not executed orders for supply of 33/11KV Power Transformer of MPSEB/ Discoms of MP in the past but have supplied minimum 3 (three) Nos. 33/11KV Power Transformers of tendered rating or higher rating to any other Electricity Board/Power utility after successful type test during any 3 consecutive years in last 5 years.
- (d) the bidder may quote for part of tender quantity of one or more ratings of power transformer subject to minimum **30%** of tender quantity in respect of the rating(s) for which rate has been quoted with committed delivery as stipulated in clause-11 (Delivery) of 'Annexure-II; General Terms & Conditions of Purchase'. In case quoted quantity is less than 30% of tender quantity (in Schedule-I) his offer will be rejected outrightly which may be noted carefully.
- (e) The firm not having valid type test design but otherwise fulfilling all other eligibility criterion as per this tender specification, has to carry out type test as per tender specification within the period of two months allowed for commencement of supply from the date of receipt of order as given in Clause 9(a) of 'Annexure –II; General Terms & Conditions of Purchase'.

## **12. Financial Criteria**

For verification of the qualification of bidder the financial evaluation shall be done as under:-

### **(a) Financial Situation :-**

The audited financial statements of accounts for the last three (3) years submitted by bidder shall be evaluated. The bidder's balance statement for the last year of audited accounts should show that it has positive net worth. The bidders' income statement should show average annual sales in supply of material and equipments for the last three years that are more than 10% of the tender value.

(b) **Availability of Financial Resources:-**

The documents submitted by the bidder, including the audited financial accounts, must demonstrate that the bidder has adequate working capital available to undertake this contract, which will be equal to at least 7.5% of the tender value. If the bidder's working capital is inadequate, the bidder should supplement this with a Banker's letter confirming the availability of a line of credit such that the bidder's available working capital plus line of credit are in total at least 7.5% of the tender value and the issue date of the letter should not be more than 30 days old as on the date of opening of bid. Further, the bidder is also required to give details of all tenders awarded to him and are under execution on the date of opening of bid and how much amount out of total amount of the above working capital plus line of credit from Bank pertains to such ongoing/under execution tenders and how much clear balance is available for the instant tender. This clear balance amount of total working capital plus Bank's line of credit should be atleast 7.5% of the tender value. If any information/ detail submitted in the bid by bidder is found to be false/ incorrect, action as per Clause-18 given below will be taken.

**13. Distribution of Quantity Amongst Eligible Bidders**

(a) **In case where lowest acceptable F.O.R destination rate is from a regular firm -**

60% of the proposed quantity to L-1 bidder (limiting the same to offered quantity) and balance 40% quantity amongst L-2 & L-3 bidders falling within price consideration zone of 10% above L-1 and at the price of L-1. The order shall be placed to L-3 when the offered quantity by L-2 is less than the balance 40% and at the price of L-1.

*It may be very carefully noted that the L-2 and/ or L-3 bidder, while accepting the price of L-1, has to compulsorily accept the quantity offered by the company in full provided it is within 50% of the quantity offered by him in the bid or otherwise atleast upto this extent. In the event he does not accept this, the company may not place order on him on counter offer.*

(b) **In case where lowest acceptable F.O.R destination rate is from a New firm (not supplied material to Discoms of MP and whose supply performance is not known) and difference between L-1 and other eligible bidders is within price consideration zone of 10% -**

Capacity of the L-1 bidder or 50% of proposed quantity, whichever is lower, to L-1 bidder (subject to satisfactory inspection prior to placement of detailed order and limiting the same to offered quantity) and balance quantity amongst L-2 & L-3 bidders only falling within the price consideration zone of 10% above L-1 and at the price of L1. Order shall be placed to L-3 when the offered quantity by L-2 is less than the balance 50%, at the price of L-1.

*It may be very carefully noted that the L-2 and/ or L-3 bidder, while accepting the price of L-1, has to compulsorily accept the quantity offered by the company in full provided it is within 50% of the quantity offered by him in the bid or otherwise atleast upto this extent. In the event he does not accept this, the company may not place order on him on counter offer.*

(c) **In any of the cases of para 13 (a) & (b) above where L-2 & L-3 do not accept the counter offers -**

If L-2 & L-3 bidders do not accept the counter offer for the quantity and price offered by the utility, the balance quantity shall be procured through retendering or by enhancement of the quantity of the order placed/ to be placed on L-1 against instant tender. *In case the enhanced quantity on L-1 is more than its offered quantity the L-1 will be required to accept the enhanced quantity atleast to such extent which is within its offered quantity,*

*otherwise the company may not place order on him against instant tender and besides forfeiting earnest money deposit, any other action, as may be decided by the company, shall be taken against him including debarring/ blacklisting him from future business with the company for a period certain as deemed fit.*

#### **14. Unsatisfactory Performance**

Even on fulfillment of all the criteria, it may be noted that :-

- (a) Offer of those bidders who have been debarred/ black listed for future business with our company/ MPSEB / Other Discom of M.P, shall be summarily rejected.
- (b) In case of those bidders whose past performance has not been found to be satisfactory against previous tenders of MPSEB/ Companies formed on restructuring MPSEB, they may not be considered for order. Following shall attribute to poor performance of a bidder :-
  - Non-execution of previous order(s)/ inordinate delay in supply of material.
  - Failures of material in testing & non-replacement of the same by the supplier.
  - Failure of material enmass as reported by the field officers.

#### **15. Conflicting Interest**

Bidder shall not have a conflict of interest with one or more parties. Participation by bidder(s) with a conflict of interest situation will result in the disqualification of all bids in which it is involved. MP MK VV Co. Ltd., Bhopal considers a conflict of interest to be a situation in which a party has interest that would improperly influence that party's performance of official duties or responsibilities, contractual obligations or compliance with applicable laws and regulations, and that such conflict of interest may contribute to or constitute a prohibited corrupt practice. A bidder may be considered to be in a conflict of interest with one or more parties if including but not limited to:-

- a) Have controlling share holders as his/her family members viz spouse, son, daughter, father, mother or brother etc. in common or
- b) Have a relationship with each other, directly or through common third parties that puts them in a position to have access to information about or influence on the bid of another bidder.

The bidders are requested to furnish following documents in this regard :-

- i) Copy to latest *Income Tax return/Permanent Account Numbers (PAN)* of all the partners/Directors (in case of company) alongwith *names, addresses and telephone Nos./ Mobile Nos.* of each Partner/Director.
- ii) Certified true copy of *latest partnership/ownership deed* of the firm quoting the tender- self attested with the certificate that such deed is still in effect without any change whatsoever.
- iii) Copy of *list of Directors (in case of a company) with names, addresses and telephone Nos./ Mobile Nos.* of each Director.
- iv) Valid *power of attorney* to sign the tender documents and all correspondence before and after placement of order.
- v) Copy of *Sales Tax Clearance Certificate*.

#### **16. Requirement for Opening of Price Bids**

The price bids of such offers of **manufactures** shall be opened who have:-

- (a) Accepted all Commercial terms & Conditions and Technical Specifications.
- (b) Submitted detailed valid Short Circuit, Lightning Impulse Voltage Withstand tests reports and temperature rise test of Power Transformer, offered for supply.

- (c) Type test reports should not be more than **five years** old on the date of opening of tender.
- (d) Fulfilling the pre qualifying eligibility criteria, basic qualification of bidder, minimum quantity to be quoted, conflicting interest clauses etc. as mentioned above.
- (e) Having satisfactorily performance as mentioned in Clause-14 above.
- (f) The firm fulfilling all eligibility criteria except submission of valid type test report shall also be considered for opening of price bid however they have to submit valid type test report within 2 months from the date of order, including period allowed for commencement of supply as specified under this tender.

### **17. Acceptance of Lot**

Inspection of material before dispatch or waiver of inspection will not relieve the supplier from his responsibility to supply the material strictly in accordance with the specification. The Company shall have option to test the samples selected at random from the supplies effected and subject it to routine/ type test as per relevant ISS and Technical Specifications. The bidders may, therefore, please note carefully the following:-

- (a) One sample transformer shall be selected randomly from the entire quantity of a lot supplied to Area Store(s) against one Dispatch Instruction (D.I.) of this office and shall be subjected to routine testing as per IS:1180 & 2026 at CPRI, Bhopal.
- (b) It is only after the result of randomly selected transformer is found satisfactory, the MRC shall be issued and the transformers of the lot shall be accepted/ issued to field units.
- (c) Serial number, name of inspecting officer and his designation shall have to be embossed by the manufacturer on the tank of every transformer.
- (d) In case the sample fails to withstand the required test, the entire lot against that particular D.I. will be rejected and the supplier will have to remit the test charges thereof, after inspection. The rejected lot shall be removed by the supplier and replaced in full at his own cost. Company will not be responsible for levy of taxes on such rejected material".

### **18. Debarring/ Blacklisting of Firms**

That in the event of violation of any of the terms and condition of this tender or the terms and conditions of the subsequent supply order/ work contract so issued, either partly or completely, and if any detail/ information/ document submitted is lateron found to be false/ incorrect then in such event the MPMKVCL Co. reserves every right to take penal actions which may, inter alia, include termination of the contract and/ or blacklisting and debarring the tenderer from participating in future tender/ tenders for upto 3 years along with the other penalties as stated in the tender document. Before debarring/ blacklisting or contract termination, the concerned firm would be first served a notice to the effect, so that it gets an opportunity to represent it's point of view.

### **19. Submission of Offer**

The commercial and technical bid as mentioned in above para 7 (c) should be put-up in the sequence mentioned there in i.e. all schedule should be filled up and submitted in sequence and their related enclosures shall be submitted after all schedules in same order as per the order of schedules. The complete offers shall be page numbered and index should be affixed on top indicating page no. of all Schedules and Enclosures & should be hard bonded, so that it cannot be opened. Two sets of hard copy of such offers should be submitted indicating original

and duplicate offer. If both the hard copies of offers submitted by tenderers are not found hard-bounded, the offer will be rejected and price bid will not be opened.

**20. Pre Bid Conference**

The Company shall hold a pre-bid conference of bidders on 22.12.11 at 3:30 PM in the Conference Hall of the office of CMD, MPMKV Co. Ltd., Nishtha Parisar, Bijlinagar, Govindpura, Bhopal to clarify various clauses of the bid documents to ensure uniformity in understanding the bid documents. The Company reserves the right to change the clauses as emerging after pre-bid conference and attendees agrees on it. In this case the changes shall be notified through publication to get the other informed.

(Sanjeev P. Puranik)  
**Chief General Manager (Pur)**

# **ANNEXURE - I**

## **General Instructions To Bidders**

### **1. General**

The Chief General Manager (Purchase) on behalf of the 'Madhya Pradesh Madhya Kshetra Vidyut Vitaran Co. Ltd.' herein-after referred to as "Company", will receive sealed tenders/ bids for supply of materials/equipments in accordance with the attached specifications for supply to Area Stores at **Bhopal, Gwalior and Guna** and Depot. Store at Itarsi only in Madhya Pradesh.

### **2. Basic Qualification of Bidders**

This bidding is open for **manufacturers** only who provide satisfactory evidence that:-

- (a) that they are qualified manufacturers who regularly manufacture the materials/ equipments of the type specified and have adequate technical knowledge and practical experience.
- (b) that they do not anticipate change in the ownership during the proposed period of contract (if such a change is anticipated, the scope and effect thereof shall be defined).
- (c) that they have adequate financial stability and status to meet the financial obligations pursuant to the scope of the assignments (the tenderer should submit at least two copies of their Profit & Loss Account and Balance Sheet for the last two years including turnover).
- (d) that they have adequate plant and manufacturing capacity available to perform the assignment properly and expeditiously within the time period specified. The evidence shall consist of written details of the installed manufacturing capacities and present commitments (excluding the assignment under this specification) of the Bidder or his Principal. If the present commitments are that the installed capacity results in inadequacy of the manufacturing capacities to meet the requirement of equipment/material corresponding to this bid, then the details of alternative arrangements to be organized by the Bidder for this purpose shall also be furnished.
- (e) that tendered design of their make of distribution transformers are type tested for short circuit & impulse voltage withstand tests at Govt./Govt. approved NABL accredited testing Laboratory. The test certificates should not be more than five years old on the date of opening of tender. Further, photocopy of type test reports shall be subsequently matched with the original reports at the time of placing order. In case the offered transformers are not exactly as per type tested design their offer for opening of price bids shall be considered if firm fulfill other eligibility criteria. The supplier shall require to carry out the short circuit test and impulse voltage test at his own cost before commencement of supplies and supplies shall be accepted only after such tests are done successfully.
- (g) that they have all the facilities for carrying out manufacturing and routine tests as per ISS:1180 & 2026.
- (h) that they have established quality assurance systems and organizations designed to achieve high level of quality assurance and reliability during manufacturing activities.

### **3. Earnest Money**

- (a) The tenderer shall deposit the prescribed Earnest Money amount of Rs.50,000/-.
- (b) The Earnest Money can be deposited only by Bank Draft drawn in favour of the **Senior Account Officer (HOAU), MPMKV Co. Ltd.** payable at Bhopal.

**No offer will be accepted without valid Earnest Money Deposit, unless exempted by the Company. If on opening of tender, it is revealed that EMD amount is inadequate/any other discrepancy is noticed, the tender shall be rejected and returned to the tenderer.**

- (c) The following are exempted from payment of Earnest Money Deposit :-
- i) S.S.I. Units of Madhya Pradesh Permanently registered with DIC/Ancillary Units of MPSEB. **The registration should be permanent and should be specifically for the items quoted in the tender and valid on the date of opening of tender.**
  - ii) **Small Scale Units registered with NSIC** :- The Small Scale Unit permanently registered with NSIC, whose registration certificate is valid for the item quoted on due date of opening of commercial and technical bid shall be entitled for exemption from EMD. (The renewal/ amendment of certificate should not be more than 3 years old from the due date of opening of tender) otherwise EMD has to be furnished by the tenderer.
  - iii) The Medium/ Large Scale Manufacturing Units, located in Madhya Pradesh (other than SSI/ Ancillary Units to MPSEB and Govt. undertakings) are permitted to furnish the EMD @ 50% (Half) of the rates prescribed above. Here also permanent registration is a must in respect of specified item against this tender.
  - iv) Fully owned State/ Central Govt. manufacturing Units, if 100% shares are held by the respective Govt. for which documentary evidence must be furnished with the offer.
  - v) The photocopy of the NSIC/ SSI Registration Certificate for the tendered items duly notarized/ attested by G.M. / Manager, DIC of the Area/ any officer of Company not below the rank of E.E. shall be furnished with the offer. In case of unattested/ un-notarized copy, the original certificate should be produced at the time of tender opening for verification.
- (d) All the SSI/ NSIC units should quote/offer the material only to the extent they are registered for respective items with the SSI/NSIC organization.
- (e) In case, the tenderer withdraws his offer during the validity period, after placement of order, the EMD amount shall be forfeited.
- (f) **Return of Earnest Money to Bidders**
- i) EMD shall be returned to the un-successful bidders, as soon as possible, after the tender is decided. No interest shall be paid on EMD amounts.
  - ii) EMD of bidders on whom the orders have been placed, shall be returned on acceptance of security deposit. No, interest shall be paid on EMD amount.

#### **4. Taxes and Duties**

- (a) All taxes and duties should be included in the prices quoted. Any kind of taxes and duties shall not be paid extra. However, the break-up of taxes & duties must be indicated separately in the Schedule-IV, Part-B Commercial Information.
- (b) M.P. Madhya Kshetra Vidyut Vitaran Company Ltd., Bhopal is a Registered Dealer and TIN Number is 23263605361. Therefore necessary declaration form, wherever applicable, shall be issued after receipt of material at destination, by the M.P. Madhya Kshetra Vidyut Vitaran Company Ltd., Bhopal. Any other applicable 'Declaration Form' for concessional rate of Sales Tax/ Commercial Tax as may be in force shall be given only after the legal position is verified at company's end.

- (c) Excise duty and Sales Tax/Commercial Tax are payable for the contractual delivery period only at the prevailing rates wherever applicable. No upward variation shall be payable beyond the contractual delivery period, where the supplier is responsible for the delays.
- (d) Wherever applicable tenderers outside the State of M.P. should also quote the prevailing rate of Sales Tax/ Commercial Tax in the state of origin so that the concessional rate of CST payable against "C" form may be limited to the Sales Tax applicable for state of origin, from where the material move, in case, these are lower than the concessional rate of CST.

**5. Amendment in Specifications**

The Company may revise or amend the specification and drawing, prior to the date notified for opening of Price Bid of tender. Such revision/ amendment, if any, will be communicated to all those who have bought the tender documents as Amendment/ Addendum to the invitation of tender.

**6. Bids Received by Messenger**

When tenders are delivered by special messenger, the same should be dropped in the Tender Box, kept in the office of CMD (CZ), MPMKVV Co. Ltd., Nishtha Parisar, Bijalinagar, Govindpura, Bhopal (MP)-462023, on all working days during working hours indicated in tender notice. **Nobody is authorized to receive or grant receipt for tender delivered by hand.**

**7. Bids in Open Form**

Open bids through Telegram/Fax will not be considered under any circumstances.

**8. Delayed/ Late Bids**

The Company shall not assume any responsibility for any postal delays either for the late receipt of documents by tenderer or late receipt of bids by the Board/Company. No extension in time shall be granted on such grounds.

**9. Alternative Bids**

Bid should be submitted as per intent of tender documents; any alternative offers are liable for rejection.

**10. Mistakes In Bids**

Rates should be quoted in both; figures and words. In case of ambiguity between rates quoted in figures and words, lower of the two beneficial to the Company shall be considered. Such offers can also be rejected.

**11. Lumpsum Based Bids**

In case prices for some items or all items are given as a lump sum, instead of unit prices as required in the tender specifications, Company can summarily reject such incomplete tender.

**12. Printed Terms And Conditions In Bids**

Supplier's printed terms and conditions will not be considered as forming part of the tender under any circumstances whatsoever.

**13. Alterations/Corrections in Bids**

Any alteration/correction in the tender document should be counter-signed. Further, no post tender alteration/correction shall be entertained.

**14. Incomplete Bids**

Tender which is incomplete or obscure is liable for rejection.

**15. Acceptance of Part/ Whole Bids - Rights Thereof**

Company reserves the right to accept/ reject any tender wholly or partly without assigning any reason whatsoever. The Company in this regard shall not entertain any correspondence.

**16. Ambiguities in Conditions of Bids**

In case of ambiguous or self-contradictory terms/ conditions mentioned in the bid, interpretation as may be advantageous to the Company shall be taken without any reference to the tender.

**17. Disqualification of Bids**

A Bid which gets opened before the due date as a result of improper or no indication having been given on the cover to indicate that it is a tender, will be disqualified.

Tenderers will not be permitted to change the substance of his tender on post interpretation/ improper understanding grounds. This includes post tender price changes/ modifications etc. after opening of Price Bid and any such requests in this regard shall not be entertained/ considered and the original price bid opened shall only prevail.

**18. Language of Bids**

All tenders should be made in English only.

**19. Income Tax/ Sales Tax Clearance Certificate**

The tenderer shall furnish Income Tax/Sales Tax clearance certificates from competent authority. Alternatively, the tenderer shall give reasons for his inability to furnish such a clearance certificate. The Company reserves the right to reject any tender if Income Tax & Sales Tax clearance certificates or the reason for the tenderer's inability to furnish such a certificate are not furnished.

**20. Filling of Questionnaire/ Schedules**

All the Questionnaire /Schedules along with specification are enclosed for technical/ commercial terms & conditions. It is compulsory on the part of the bidder to furnish all details as sought in these. In case, these are not filled in and enclosed with the offer, the Bid will be rejected.

**21. Deviations from Terms & Conditions**

Offers with deviations in the terms of payment, liquidated damages, security deposit and performance guarantee are liable to be rejected outrightly.

Should the tenderer desire to depart from other conditions and/or technical specifications in any respect, he shall draw attention to such deviations as per Schedule-V Part "B" and "C" stating fully the reasons thereof. Unless this is done, these conditions and specified specifications will hold good, as acceptable to the tenderer.

**22. Past Experience**

Supplier having past experience in manufacture and supply of materials should furnish the list of supplies made during the last three years for the materials supplied by them, as per enclosed Schedule-V Part "A" and "D" failing which the tender may not get any preference for his past experience.

**23. Submission of Bids**

(a) **The tender shall be submitted in three (3) parts :-**

**Part-I shall contain "EARNEST MONEY DEPOSIT/ DOCUMENT WHICH ENTITLE FOR EXEMPTION FROM EMD".**

**Part-II** shall contain "**COMMERCIAL BID AND THE TECHNICAL BID**". The details about this Part-I & Part-II of bids are discussed in Annexure-II & III. Relevant information that the tenderers are liable to submit, comprises of duly filled-in questionnaire, all the schedules and any other information that is sought in the tender.

**Part-III** shall contain "**PRICE BID**" and **shall be submitted online only**. The tenderer shall ensure that the prices/ rates are filled in accordance with the proforma for "Price and Quantity" as per Schedule-I **which will be opened online only**. **The tenderer has to necessarily quote for minimum of 30% of tender quantity otherwise their offer shall be rejected outrightly.**

- (b) Tender being submitted must be signed by a person holding a valid Power of Attorney authorizing him to do so, certified copies of which shall be enclosed.
- (c) Tender submitted on behalf of companies registered with the Indian Companies Act, for the time being in force, shall be signed by persons duly authorized to submit the Tender on behalf of the Company and shall be accompanied by certified true copies of the resolutions, extracts of Articles of Association, special or general Power of Attorney etc. to show clearly the title, authority and designation of persons signing the Tender on behalf of the Company.
- (d) **Part-I & Part-II shall be submitted in two separate sealed envelopes and these envelopes shall be properly superscribed as Part-I "Earnest Money Deposit", Part-II "Commercial Bid and Technical Bid"**. Each envelope shall also be superscribed with name of item and T.S. No. for which the tender is submitted, the name of the said tenderer and the date of opening, as advertised. **The Part-I & Part-II shall be submitted each in duplicate.**
- (e) **The above two envelopes of Part-I & Part-II duly sealed are to be kept again in one envelope called main envelope and sealed.** This envelope should be properly superscribed stating that this envelope contains two separate envelopes for Part-I "EARNEST MONEY DEPOSIT", Part-II "COMMERCIAL AND TECHNICAL BID", in addition to Tender Specification No., Name of Item, Name of Tenderer, details of Earnest Money Deposit and Due Date of Opening should be superscribed on this common envelope also. Beside this, it shall be certified on the main envelope itself that Company's PAYMENT TERMS, PENALTY, SECURITY DEPOSIT and PERFORMANCE GUARANTEE & PRICE VARIATION (WHEREVER APPLICABLE) CLAUSES, as mentioned in tender specification, are acceptable to the tenderer. This certification shall be in the following manner:-

**TENDER SPECIFICATION NO.CMD/MK/04/243**

**DUE FOR OPENING ON \_\_\_\_\_**

**FOR PROCUREMENT OF \_\_\_\_\_**

THIS ENVELOPE CONTAINS 3 SEPARATE ENVELOPES FOR:-

- (i) PART-I : "EARNEST MONEY DEPOSIT"
- (ii) PART-II : "COMMERCIAL AND TECHNICAL BID"
- (iii) PART-III : "PRICE BID"

**TO,**

The Chief General Manager (Pur)  
M. P. Madhya Kshetra Vidyut Vitaran Co. Ltd.,  
Nishtha Parisar, Bijali Nagar, Govindpura, Bhopal (M.P.) - 462023

**IT IS CERTIFIED THAT WE AGREE THE FOLLOWING CLAUSES OF TENDER SPECIFICATION:-**

- (i) PAYMENT TERMS : AGREED
- (ii) SECURITY DEPOSIT : AGREED

- (iii) PENALTY : AGREED  
(iv) PERFORMANCE GUARANTEE : AGREED

**SIGNATURE OF TENDERER  
STATUS & COMPANY'S SEAL**

In absence of above certification on the main envelope itself, the same shall not be opened and the offer shall stand rejected.

- (f) Even after certification on the body of the main envelope, if any ambiguity is found upon opening of the main envelope or after opening of the Price Bid, the offer shall be liable for rejection.

**24. Date and Time of Opening of Bids - Changes**

Tender shall be opened on the due date and time as notified, in the presence of the tenderers or their authorized representatives who may be present. If the due date of opening/ submission of tender documents are declared a holiday by the Central/ State Government or Local Administration, it will automatically get shifted to the next working day for which no prior intimation shall be given.

It may please be noted that the due date/ time of opening of bid can be altered/ extended, if felt necessary by the purchaser, without assigning any reason thereof. However, due intimation shall be communicated in such a case.

**25. Opening of 'E.M.D.' & 'Commercial and Technical Bid'**

The first envelope of 'Part-I; Earnest Money Deposit' shall be opened on the due date and time, as notified in the Notice Inviting Tenders. The requirement for EMD shall be verified and thereafter, the second part i.e. 'Part-II; Commercial & Technical Bid' shall be opened on the same date in respect of eligible tenderers.

**26. Opening of Price Bid**

Opening of Price Bid on subsequent date:-

- (a) After opening of first two parts (i.e. Part-I and Part-II), the deviations from the Company's terms & conditions, if any, proposed by the tenderer in regard to Commercial and technical Bid, as per prescribed schedules, given alongwith the tender documents, shall be notified and clarifications, if required by Company, shall be submitted by the tenderers, either at the time of scrutiny of tender or within the time prescribed. **Any deviations from payment terms, penalty, security deposit and performance guarantee clauses of tender specification shall not be acceptable, in any case and the offer shall be liable for rejection out-rightly.**
- (b) As a result of discussions and clarifications obtained in writing on Commercial & technical matter, the tenderer shall be free to indicate the effect of such changes on their prices and submit a sealed "Supplementary Price Bid", within the specified time to take care of any deviations/ alterations on account of changes in Commercial & Technical matters.
- (c) The bidder shall not be allowed to change their original price bids. In case deviations and clarification on Commercial and Technical matters are not submitted by the tenderer within the time prescribed by the Company then the Company reserves the right to refuse to open the original price bids Part-III. Thus, the tenderer should ensure that his tender is strictly in conformity with the specifications.

- (d) The date of opening of "Part-III" i.e. "PRICE BIDS" shall be notified to the tenderers, whose bids are found to be commercially & technically acceptable.
- (e) The decision of the Company in this respect shall be final and acceptable to the tenderer.

**27. Canvassing of Bids**

Tenders shall be deemed to be under consideration, after opening of tender/ bid, till placement of order. During this period, the tenderers or their authorized representatives or other interested parties are advised strongly, in their own interest, to refrain from contacting by any means any of the Company's personnel or Representative, on matters relating to tender under process.

**28. Validity of Bids**

The offers shall be **valid for 180 days**. Validity of the offer shall be counted from the date of opening of bids. Those who do not agree for a validity of 180 days will do so at their own risk and their offers are liable to be rejected.

**29. Authorization/ Local Representative**

Only authorized representative, possessing necessary authority letter from the tenderer who have participated in the tender shall be allowed to attend the tender opening.

**30. Acceptance of Tender**

The Company may reject any or all tenders or to accept any tender considering advantageous to Company whether it is the lowest offer or not.

**31. Change of Quantity**

The quantity indicated the Schedule-I is tentative and purchaser reserves the right to vary the quantities of any or all items as specified in the technical specification/schedules as may be necessary, based on Purchaser's judgment and vendor rating (wherever carried out). No correspondence shall be entered into, neither discussed regarding quantity variation, nor any reason will be assigned thereof.

**32. Pool Rates**

The tenderers are advised to quote their own individual rates. It may please be noted that if more than one tenderer quotes the same rate, suggestive of a cartel, then such offers may not be considered by the Company. It may also please be noted that the competitive rate quoted by each tenderer may be one of the main criteria for quantity to be ordered on each successful tenderers.

**33. Declaration**

A declaration form as in Schedule-VII to the effect that no serving or retired officers or employee(s) of the Company is/are partner of the firm or having shares or has any interest in the firm. It may also be confirmed that no any partner of the firm has any relationship with any serving/retired officers of the Company is to be summoned alongwith the tender offer.

(Sanjeev P. Puranik)  
**Chief General Manager (Pur)**

## **ANNEXURE - II**

### **General Terms and Conditions of Purchase**

#### **1. Prices and Statutory Levies**

- (a) It is obligatory that FOR destination prices (for supply to Area Stores, Bhopal/ Gwalior/ Guna and Depot. Store, Itarsi) are quoted clearly, giving break-up of prices in the following elements in the Price Schedule-I, enclosed with this document:-
- (i) Unit Ex-works Price including packing & forwarding.
  - (ii) Excise Duty applicable on Ex-works Price as on the date of Bid Opening.
  - (iii) Sales Tax: - C.S.T. / M.P. Commercial Tax/VAT.
  - (iv) Freight Charges.
  - (v) Any other levies/ taxes.
- (b) The price should be quoted after taking into account the MODVAT benefit.
- (c) Words like etc., will not be entertained.
- (d) Any charges as maybe applicable as per law in force must be clearly specified otherwise any such silent charges even if statutory charges, shall not be payable in the event of an order.
- (e) Excise duty will be paid only on Ex-Factory price and Sales Tax as applicable, shall be paid on Ex-works price plus Excise duty only.
- (f) Forwarding and Freight charges will not be included for claiming either Excise duty or Sales tax.
- (g) The prices shall be quoted exactly as per the price schedule enclosed with the tender specification, indicating all elements clearly. In absence of this, the offer shall be liable for rejection.
- (h) In case of exemption from excise duty / or sales tax/VAT, documentary evidence shall be furnished with the offer.
- (i) No revision on any account shall be allowed during execution of the order.

#### **2. Price Variation**

The tenderers are advised to quote their 'VARIABLE' Price as per the Price Variation formula enclosed with the Tender Specification.

While claiming the Price Variation, the suppliers shall furnish the Govt. Notification/ Published indices/ relevant price circulars/invoices issued by prime producers/ any other agency as per Price Variation formula enclosed with the Tender Specification. The claims towards Price Variation if any, shall be submitted directly to paying authorities along with the relevant indices and other required documents.

#### **3. Taxes and Duties**

- (a) Prices are to be quoted by the bidder only after accounting for MODVAT credit (this is a must) and even if not separately specified, it will be presumed that MODVAT credit has been accounted for.
- (b) Element of applicable excise duty and sales tax on finished product as presently applicable to the tenderer and as shall be charged against the contract, if any, placed against this tender shall be clearly indicated.
- (c) Documentary evidence regarding exemption of excise duty and sales tax, if applicable should be furnished with the offer.

- (d) M.P. Madhya Kshetra Vidyut Vitaran Company Ltd., Bhopal is a Registered Dealer and TIN Number is 23263605361. Therefore, necessary declaration form, wherever applicable, shall be issued after receipt of material at destination, by the M.P. Madhya Kshetra Vidyut Vitaran Company Ltd., Bhopal. Any other applicable declaration form for concessional rate of Sales tax/ Commercial tax as may be in force shall be given only after the legal position is verified at our end.
- (e) Payments of statutory levies i.e. excise duty and sales tax will be made at the rates indicated by the bidder in his bid for the contract if placed against this tender specification. No upward variation than such indicated rate shall be payable beyond contractual delivery period. If, however, after expiry of contractual delivery period, the rates of excise duty or sales tax due to Govt. Notification comes down then the payment will be made on the reduced rates for the delayed supplies.
- (f) Tenderers outside the State of MP should also quote the prevailing rate of sales tax/ commercial tax in the state of origin so that the concessional rate of CST payable against declaration form, may be limited to the sales tax applicable for the state of origin from where the material move in case these are lower than the concessional rate of CST.

#### **4. Transit Risk**

- (a) Responsibility regarding covering of risks during transit of material shall entirely be on the supplier. The Company shall not, in any case, bear the transit risks/ transit insurance charges.
- (b) Transit damages/ shortages/ losses shall be reported by the consignees within 30 days from the receipt of the consignments. Such damages/ shortages/ losses shall be repaired/ replaced by the suppliers, free of cost within one month from the date of intimation by the consignee without awaiting for its settlement from carrier or Insurance Company etc. If the supplier fails to do so the consignee(s) shall be free to get the repair work done from other sources and they shall be free to recover the cost of such material/ expenses of repairs either from the supplier's balance bills or from the security deposit as deemed fit.
- (c) While the necessary assistance shall be rendered by the consignee in lodging and processing the claims with carriers and the supplier's insurance underwriters, the responsibility shall rest with the supplier to immediately make good the shortages/ losses/ damages, without any extra cost and without waiting for the settlement of the claim.
- (d) **Replacement of goods lost/ broken or damaged including loss due to fire**  
Notwithstanding anything here-in contained, the supplier shall undertake responsibility for the safe arrival of the material in good condition and without any loss or damage at the final destination and until the same is actually delivered to/ received by the Company at its stores or other places of final destination. For this purpose, material carried by Railway or Road transport or other carriers shall be deemed to be so carried at the risk of the suppliers. In the case of transport damages/ shortages, the payment shall be made only for the quantity received in good and working condition and consignee shall lodge claim with the suppliers/ carrier with all necessary documents for settlements of the same with the carriers at supplier's end.

#### **5. Packing and Forwarding**

- (a) The supplier shall be responsible for the Stores being sufficiently and properly packed at his expense for transport by rail, road or sea, so as to ensure them being free from loss/damage due to handling and transport to the destination.

- (b) Each package shall be prominently and distinctly marked on at least two faces, indicating the full address of the consignee, destination station, name of material, purchaser's order number, weight and volume of the package etc.
- (c) Each package shall contain in a water proof cover, detailed description indicating the order reference and date and list of the contents. Each item contained in the package or box shall be described sufficiently to enable easy identification. The quantity, weight etc. shall also be given.
- (d) The packing shall conform to the specification, rules and regulations prescribed by the underwriters, railways, Transport Agencies. In case of any loss/ damage to the consign-ment due to non-standard packing, the same shall be made good free of all charges to Purchaser by the supplier. All provisions of this clause shall apply whether the disrupting cause is total or partial in its effects upon the ability of supplier to perform.

## **6. Mode of Dispatch**

The tenderer should clearly indicate mode of dispatch for the material. In case of dispatch through rail, the material is to be booked for respective destination railway station. In case of dispatch through road transport, the material should be dispatched through bank approved road transporter on door delivery basis only.

## **7. Submission of Drawing and Literature**

All the relevant drawings shall be submitted immediately after placement of order for approval. One set of drawing, Descriptive Literature and instructions Manual for Erection, Commissioning and maintenance of the equipments ordered, shall be supplied to each consignee.

## **8(a) Inspection and Test Certificate**

- i) Each lot of offered material shall be inspected by the Company's inspecting officer before dispatch. The supplier shall extend all reasonable and necessary testing help to the inspecting officer of the Board/Company to carry out testing of material at his works.
- ii) An intimation about the date, by which material shall be ready for inspection, indicating quantity, be given to the Order Placing Authority by the supplier, so as to reach him sufficiently in advance, failing which the suppliers himself shall be responsible for delay in delivery on account of inspection. On receipt of such intimation, the material shall be inspected normally within 15 days.
- iii) The supplier shall not dispatch the material unless specific dispatch instructions are issued by the Purchase Section of Company or any other authorized officer of the Company.
- iv) In case the inspector deputed for inspection does not find the offered lot ready, the Company reserves the right to recover from the supplier, such charges as may have been incurred towards arranging such inspection. These charges have been mentioned in clause 8 below.

## **(b) Right to Carryout Inspection during Manufacturing**

The Company, at its option, will inspect the material on order during its process of manufacturing including the inspection of raw material and will request the supplier to carry out such tests as may be necessary to ensure proper quality check. Samples of components of the material shall be subjected to quality check by the inspecting officer during manufacturing. In the event of stage inspection, if any discrepancy is noticed, the supplier

shall be given immediate notice to suspend further manufacturing until corrective measures are taken and the process cleared.

**(c) Factory Inspection :-**

- i) The factory inspection of the tenderers, who have not executed any order of Company, may be carried out before placing detailed order or during pendency of the order, the factory inspection may be conducted by Company's authorized officers as and when felt necessary for ensuring production of quality material.
- ii) The supplier shall extend all reasonable and necessary assistance to the inspecting officer of the Company to carry-out testing of equipment/ material at his works.

**(d) Fake Inspection Call**

All such firms, who after giving inspection call, do not offer materials to Inspecting Officer for inspection due to one or the other reasons, shall be required to remit a sum of Rs. 5,000/- per officer.

**9. Delivery**

(a) The supply shall be commenced within two months from the date of receipt of order and to be completed within six (6) months in equal monthly installments thereafter. **However, the delivery schedule for transformers (quantity/ month) to be supplied by L-2 and/ or L-3 bidder, as the case may be, on counter offer shall be atleast equal to the rate of supply (quantity/ month) corresponding to the entire quantity offered in the bid.**

(b) The material should be delivered to the consignees within 15 days from the date of issuance of dispatch instructions/ clearance. Any delay in delivery beyond this period shall attract penalty even though offer for pre-delivery inspection is made timely within the terminal date of delivery.

**(c) Deferment of deliveries**

Company reserves the right to defer or reschedule the delivery. In case of Variable prices, the Price Variation and any other statutory levies will be payable as applicable, however, in case of FIRM prices, no variation in price and any other statutory levies will be payable.

**10. Force Majeure**

Force majeure condition is herein defined as:-

- (a) Natural phenomena, such as floods, draughts, earth-quakes and epidemics.
- (b) Act of any Government Authority, domestic or foreign, such as war, quarantines, embargoes, licensing control or production or Power restrictions.
- (c) Accident and disruptions such as fires, explosions, increase in power cut with respect to date of tender opening, break-down of essential machinery or equipments etc.
- (d) Strikes, slow down, lockouts continuing for more than three (3) weeks.
- (e) Failure or delay in the supplier's source of supply due to force majeure causes enumerated at (a) to (d) above, provided the supplier produces documentary evidence to show that there were no other alternative sources of supply available to him or if available, the lead time required was likely to be longer than the duration of the Force Majeure at the normal source of supply.
- (f) Any cause which is beyond the reasonable control of the supplier or purchaser as the case may be.

All the provisions of this clause shall apply whether the disrupting cause is total or partial in its effect upon the ability of the supplier to perform.

**NOTE:** - The cause of force majeure condition will be taken into consideration only if the supplier within 15 days from the occurrence of such delay notifies. The Company shall verify the facts and grant such extension as the facts justify. For extension of delivery period on account of force majeure conditions, the supplier shall submit his representation with documentary evidence for scrutiny by the purchaser and decision of the Company shall be binding on the firm.

## **11 Terms of Payment**

**11.1** Subject to completion of all contractual formalities, 100% payment along with excise duty and taxes corresponding to the consignment would be generally made within 45 days from the date of receipt of material at consignee Area Stores in good condition against MATERIAL RECEIPT CERTIFICATE (MRC) issued by the consignee or from the date of receipt of original bill by the paying authority whichever is later, subject to successful sample testing of the lot. The Company shall not be liable for payment of any interest on delayed payment.

The supplier shall forward the original RR/MTR and Excise gate pass directly to consignee along with copies of following documents :-

- (i) A copy of bill.
- (ii) Delivery Challan.
- (iii) Original copy of excise duty gate pass (wherever applicable) along with a photocopy.
- (iv) The inspection and/ or T.C. approval.
- (v) Detailed packing list, if required.

**11.2** The original bills should be forwarded to the paying authority and should be marked "**ORIGINAL**". The bill should indicate Sales Tax Registration Number and date allotted to him under Sales Tax Act.

**11.3** The following documents will have to be forwarded to the paying authority along with bills in triplicate :-

- (i) Bill/ Invoice.
- (ii) Xerox copy of dispatch documents i.e. RR/ MTR etc.
- (iii) Dispatch clearance/instructions.
- (iv) Photo-copy of Excise Duty gate pass (wherever applicable).

**11.4** For payment, the invoice in triplicate with relevant documents such as Material Receipt in good condition etc. should be submitted to the Director (Finance), O/o CMD, MPMKV Co. Ltd, Bhopal for value more than Rs.2.50 lakh. The bills valued upto Rs.2.50 lakh, should be submitted to concerned Sr. Accounts Officer/ Regional Accounts Officer.

**11.5** The Material Receipt Certificate will be forwarded by the consignee to the paying authority for payment, as well as to the suppliers towards acknowledgement of receipt of material including part consignment to the extent it is received in good condition and is serviceable.

## **12. Penalty**

The time for and the date of delivery of the material stipulated in the order shall be deemed to be the essence of the contract. In case of delay in execution or non-execution of the

order, the Company at its option shall either recover from the supplier/ contractor as agreed towards liquidated damages a sum of ½ % of the FOR destination (landed cost) price of any stores not delivered per week or part there of subject to a maximum of 10%.

For this purpose, the date of offer of material in the office of Order Placing Authority shall be considered as the date of delivery, subject to the condition that offer has been made 7 days in advance of terminal date of scheduled delivery and material is delivered at stores within 15 days of clearance. For early inspections, offer may be sent telegraphically or by fax. Company will not be responsible for delays for ordinary/ registered post inspection offers. In case material is not received within 15 days from the date of issuance of dispatch instructions, even though the delivery period exists, penalty shall be reckoned from the original delivery period and the period of 15 days allowed for dispatch shall not be permitted and shall be taken into account for calculation of penalty, which may please be noted.

### **13. Performance Guarantee**

- (a) If during the course of 36 months from the date of receipt of consignment at Area Stores, any of the goods found to be defective in materials or workmanship or develops defects during service, they will have to be replaced/ repaired by the supplier free of all charges. All necessary arrangements on this account will be made by the suppliers.
- (b) The said material if required to be replaced/ repaired, shall be collected by the supplier/ firm from Area Stores/ Works site at their own cost and at their own responsibility within 30 days from the date of intimation. The intimation of failure of transformer shall be given by the concerned field office. Further, on receipt of failed transformer in the Area Stores, the consignee shall intimate the supplier about the availability of the transformer in his Area Stores by registered post. This material will like-wise be returned duly repaired/ replaced and tested subsequently by the supplier to the destination indicated on freight paid basis at their cost in a reasonable time of 30 days from the date of its lifting. Otherwise, the cost of failed transformers will be withheld, if in case failed unit is not returned in Area Store duly repaired within 60 days from the date of intimation. Penalty as per above 'Clause-12; Penalty' shall be levied for any delay beyond this stipulated period of 60 days.
- (c) Unit once failed within guarantee period and returned to Area Stores duly repaired free of charges, shall be guaranteed for a minimum of 12 months or un-expired guarantee period left as on the date of failure of the unit, whichever is later.
- (d) In case unit is subsequently failed within 12 months and the total period of service given by the unit is more than 24 months but less than 36 months, then unit shall have to be repaired again free of charges, by the supplier. In case the unit further fails within 12 months of its last return duly repaired, then the unit shall be repaired again free of charges by the supplier but the guarantee for the repaired unit, in this case, shall be for the un-expired period out of 12 months.
- (e) The outage period i.e. period from the date of failure till unit is repaired, shall not be counted for arriving at the guarantee period of 36 months. The period of failure and repairs, thus, shall be excluded from the guaranteed service of 36 months.
- (f) Further, it is clarified that all the charges towards carrying out repairs including packing/ forwarding, loading/ unloading shall be borne by the supplier. The amount deposited under security deposit clause shall also cover the performance guarantee of repaired/ replaced units.
- (g) The actual cost of dismantling and replacement of the equipments with new one may be charged to the supplier's account.

- (h) To & Fro transportation cost of such failed equipments shall be borne by the supplier.
- (i) In the event of the supplier's inability to adhere to the aforesaid provisions, suitable penal action will be taken against them which may inter-alia include black listing of the firm for future business with the Company for a certain period.

#### **14. Security Deposit**

- 14.1** On acceptance of offer, the supplier will have to deposit an amount of 10% of the total value of the order in cash or Demand Draft or Bank Guarantee as Security Deposit.
- 14.2** Cash to be deposited with Senior Accounts officer (HOAU), MPMKV Co. Ltd., Bhopal and original receipt produced to this office shall be returned after conveying the acceptance of Security Deposit.
- 14.3** Demand Draft to be drawn in favour of Senior Accounts officer, MPMKV Co. Ltd., Bhopal drawn on any nationalized/scheduled Bank and payable at Bhopal.
- 14.4** Bank Guarantee in lieu of cash deposit on any nationalized/ scheduled bank strictly as per Company's proforma (to be supplied along with the order) valid sufficiently to cover the guarantee period.
- 14.5** All SSI Units registered with Industries Department of MP shall be required to pay Security Deposit for only 5% (five percent) value of the order, subject to maximum of Rs.20,000/- in cash or DD. This concession is for such SSI Units of M.P. who are doing annual business up to Rs.50 lakh only.
- 14.6** The Security Deposit shall have to be deposited within 30 days of issue of order.
- 14.7** The Company shall forfeit the security deposit in the event of non-execution/ part execution of the orders/poor performance of supplier/contractor besides invoking the Penalty Clauses.
- 14.8** The Security deposit shall be returned to the successful tenderer only after due and faithful performance of the order as per terms and conditions of the order and on expiry of guarantee period provided there are no claims outstanding to be recovered against the tenderers/ suppliers.
- 14.9** No interest shall be paid by the Company on security deposit furnished by the suppliers.

#### **15. Completeness of Equipments**

The equipment/material shall be completed in every respect with all minor fittings and accessories, even though these may not be specifically mentioned in the purchaser's specifications or the tenderer's offer. The supplier shall not be eligible for any extra price in respect of such minor fitting and accessories which can be considered as an essential part of the basic equipment even though not specifically mentioned in the specification or in the offer.

#### **16. Extension Order**

The Company reserves the right to place the extension order(s) for any additional quantity to the extent of 50% quantity of the original order on the same rates, terms and conditions within six months from the date of original order.

#### **17. Design and Inter-Changeability**

All similar material and removable parts of similar equipments shall be uniform and interchangeable with each other.

**18. Testing Facility & Tests to be Conducted**

The tenderer must give their production capacity, all about testing lab. and line testing facilities available with them in details for the tendered material. The tenderer should also give the details of Tests proposed to be conducted in their labs in the event of order, with details of Indian Standard Specifications/codes.

**19. Material Test Certificate**

Each item of the lot should be tested by the supplier and routine test certificate in duplicate giving the result of all tests prescribed in the relevant ISS (as mentioned in the Technical Specification Schedule) for ordered items shall be submitted to the office of the Order placing Authority for approval along with the letter/ offer for inspection of the material. Please note that each lot will be inspected at your works, which includes witnessing of all tests prescribed in ISS.

**20. Type Test Certificates**

Wherever applicable or called for photocopies of Type Test Certificates from the Govt. Standard Test Laboratories in India or from Laboratories of International repute duly attested by "Competent Testing Authority" should be submitted.

Type Test Reports/ Certificates for the tests conducted as per latest applicable ISS on the tendered item/ material shall not be older than 5 years on the date of opening of technical/ commercial bid.

**21. Recoveries for Liabilities against other Contracts**

All amount recoverable from the successful tenderers against earlier contracts including orders on sister concern with the Company will be adjusted from payment due against the contract that may be awarded under this specification.

**22. Royalties and Patents**

All royalties for patents or any charges for usage or infringement thereof that may be involved in the supply shall be included in the offered price and the supplier shall protect Purchaser against any claim thereof. Supplier is fully responsible for such contractual dealing and purchaser shall not be called upon to bear any such charges.

**23. Compliance of Regulations**

The supplier shall warranty that all Goods covered under procurement, shall have been produced, sold, dispatched, delivered, tested, in strict compliance with all applicable Rules, Regulations including Industries (Development and Regulations) Act 1951 and any amendment there under, labour agreements, working conditions and technical codes and requirements, as applicable from time to time.

The supplier should execute and deliver such documents, as may be needed, by the purchaser in evidence of compliance. All laws, Rules and Regulations are required to be incorporated in this reference. Any liability arising out of contravention of any of the laws shall be the sole responsibility of the vendor and the purchaser shall not be responsible in any manner whatsoever.

**24. Cancellation of Order**

**24.1** The Company may upon written notice of default, terminate contract in the circumstances detailed hereunder :-

- (a) If in the opinion of the Company, the supplier fails to deliver the material within the time specified or during the period for which extension has been granted by the Company.
- (b) If in the opinion of the Company, the supplier fails to comply with any of the other provisions of this contract or material is found not in accordance with prescribed specifications and or the approved samples.
- (c) If as a result of stage inspection, it is revealed that material and/ or, workmanship is substandard which is likely to affect the performance of the finished product, a notice would be served by the Company to the supplier to suspend further activities and to take urgent steps towards corrective measures, failing which the entire order would be cancelled.

**24.2** In the event of such termination, Company shall exercise its discretionary power as :-

- (a) To recover from the supplier the agreed liquidated damages as approved in the Clause-12 above, **OR**
- (b) To purchase from elsewhere after giving due notice to the supplier on account and at the risk of the supplier such stores/ material not so delivered or others of similar description in respect of consignment not yet delivered, **OR**
- (c) To cancel the contract reserving Company's right to recover damages.

**24.3** Notwithstanding that the powers under clause (24.2 a, b & c) referred to above, are in addition to the rights and remedy available to the Company under the general law of India relating to Contract.

**24.4** In the event of risk purchase of stores of similar description, the opinion of the Company shall be final. In the event of action taken under clause 24.2 (a) or (b) above, the supplier shall be liable to pay for any loss, which the Company may sustain on that account but the supplier shall not be entitled to any saving on such purchases made against the default.

**24.5** The decision of the Company shall be final regarding the acceptability of the stores supplied by supplier and the Company shall not be required to give any reason in writing or otherwise at any time for the rejection of the stores/ material.

**24.6** In the event, Company does not terminate the order as provided in clause 24.1 & 24.2 above, the supplier shall continue execution of this order, in which case he shall be liable to the Company for liquidated damages for the delay as per Clause-12 above, until supplies are accepted.

## **25. Arbitration**

If, at any time, any question, dispute or difference, whatsoever shall arise between the purchaser and the supplier, upon, or in relation to or in connection with the Contract, either party may forthwith give to the other, notice in writing of the existence of such question, dispute or difference, and the same shall be referred to the adjudication of two arbitrators, one to be nominated by the Purchaser and the other to be nominated by the Supplier or in the case of said arbitrators not agreeing, then to the adjudication of the Umpire to be appointed by the arbitrators, whose decision shall be final and binding on the parties and the provisions of the Indian Arbitrator Act 1940, and of the rules there under and any statutory modification thereof shall be deemed to apply. The arbitrators or the Umpire, as the case may be, are bound to give a detailed speaking award assigning reasons for the findings.

Supplies under the Contract shall be continued by the supplier during the arbitration proceedings, unless otherwise, directed in writing by the Purchaser or unless the matter is such that the work cannot possibly be continued until the decision of the arbitrators or of the Umpire, as the case may be, is issued.

**26. Jurisdiction**

Any dispute or difference, arising under, out of, or in connection with this tender/ contract order shall be subject to exclusive jurisdiction of competent court at Bhopal only.

**27. Random Testing**

**27.1** Sample testing of material before acceptance of supplied lot and issue of MRC will not relieve the supplier from his responsibility to supply the material strictly in accordance with the specification. The Company shall have option of post-acceptance testing of the samples selected at random from such supplies effected and subject it to routine/ type test as per relevant ISS and Technical Specifications.

**27.2**In case, the samples fail to withstand the required test, the entire lot shall be rejected (i.e. unused material so supplied) and the supplier will have to refund the amount paid, including all taxes and duties, as well as the test charges thereof, after inspection. Such quantities or rejected material as identified, shall be removed by the supplier and replaced in full at his own cost. **Company will not be responsible for levy of taxes on such rejected material and deduction shall be in totality.**

**27.3** In case of random checking of the supplies, if any deviation is noticed, a notice shall be given to the supplier, who shall arrange to depute his representative within 15 days for joint inspection. If during joint inspection any deviation is observed and material supplied is found not conforming to standards laid down in the relevant ISS, the Company reserves the right to impose any appropriate penalty for full quantity of material supplied against the order. The decision of the Company in this respect shall be final and binding on the supplier.

**28. Variation in the Ordered Quantity**

A tolerance in the ordered quantity will be allowed to the extent of  $\pm 2\%$  (plus minus two percent) and not for each consignment. MRCs shall be issued for actual receipt of quantity only.

**29. Submission of Dispatch Details**

On completion of supplies, a statement showing details of offer and supplies made shall be furnished to this office promptly i.e. in first week of following month in following proforma:-

Page 1

S. No.	Particulars	Qty. offered	Date of offer	Date of D.I.

Page 2

Qty. for which D.I. is given	Bill No. & Date	Qty. Supplied	Name of Consignee

Page 3

Liability intimated by consignee	Details of remittance of liability	Addl. information, if any	Remarks

Similar information for supplies made during each month shall be submitted by the first week of subsequent month.

**31. Correspondence**

Copies of all important correspondence on subject should be sent to the CGM (Purchase) and the Director (Finance), O/o CMD (CZ), MPMKWV Co. Ltd., Bhopal as well as to the concerned consignees. In addition to the above, one statement showing the details of dispatches made should be submitted to this office after completion of order.

(Sanjeev P. Puranik)  
**Chief General Manager (Pur)**

# ANNEXURE –III

## Technical Specifications for Three Phase 33/11 KV Step Down Power Transformers of 8 MVA rating

### 1. Scope

The specification covers the design, manufacture testing and inspection before dispatch and delivery at places anywhere in the jurisdiction of the MP MK VV Co. Ltd. as per list of consignee Area stores/ Depot. Store. The specification covers oil immersed, naturally air cooled (type ON), outdoors type, three phase, 50 Hz, 33/11 KV step down power transformers of 8 MVA capacity.

### 2. Applicable Standards

- (A) Unless otherwise modified in the specification, the transformers shall comply with the requirement of ISS: 2026 (latest issue) or any equivalent International Standards and REC specification 2/1973 and ISS: 2099 (latest issue) or any equivalent International Standards. The bushings used shall conform to ISS: 2099 (latest issue) or any equivalent International Standards except as modified herein.
- (B) **Type:** - The transformers shall be double wound, three phase oil immersed, oil natural cooled (type 'ON'), core type suitable for outdoor installation in tropical climate and shall be insulated with minimum TPC insulation on HV & LV windings. Insulation should be of temperature class as per the temperature rise stipulated in this specification.

#### Climatic Conditions

i)	Peak outdoor temperature:	50°C
ii)	Maximum oil temperature Attainable:	(50°C + 45°C) 95°C under max temperature & Max. Load condition
iii)	Maximum relative humidity:	95% (sometime approaches saturation point)
iv)	Minimum relative humidity:	10%
v)	Average No. Of thunderstorm	40 days
vi)	Average number of rainy days per annum	90 days
vii)	Number of months of tropical Monsoon conditions	3 months
viii)	Average annual rainfall	125 cm
ix)	Wind pressure	100 Kg/m <sup>2</sup>
x)	Altitudes not exceeding	1000 meters.

### (C) Design and standardization

- i) The transformers and accessories shall be designed to facilitate operation, inspection, maintenance and repairs. All apparatus shall also be designed to ensure satisfactory operation under such sudden variations of load and voltage as may be met with under working conditions on the system, including those due to short circuits.

- ii) The design shall incorporate every reasonable precaution and provision for the safety of all those concerned in the operation and maintenance of the equipment keeping in view the requirement of Indian Electricity Rules.
- iii) All material including bought out items like bushings, oil radiators, conductor and insulating materials used shall be of the best quality and of the class most suitable for working under the conditions specified and shall withstand the variation of temperature and atmospheric conditions arising under working conditions without undue distortion or deterioration or setting up of undue stresses in any part and also without affecting the strength and suitability of the various parts for the work which they have to perform.
- iv) Corresponding parts liable to replacement shall be interchangeable.
- v) Cast iron shall not be used for chambers of oil filled apparatus or for any part of the equipment, which is in tension or subject to impact, stresses or where corrosion due to acidity or sludging is likely to occur. This clause is not intended to prohibit the use of suitable grades of cast iron for parts where service experience has shown it to be satisfactory e.g. large valve bodies.
- vi) All outdoor apparatus, including bushing insulators with their mounting shall be designed so as to avoid external pockets in which water can collect and internally air could trap.
- vi) All taper pins used in any mechanism shall be of the split type complying with IS:2593 or any equivalent International Standards for these items.
- viii) All connections and contacts shall be of ample section and surface for carrying continuously the specified currents without heating and fixed connection shall be secured by bolts or set screw of common size adequately locked against vibration. Lock nuts shall be used on stud connections carrying current.
- ix) All apparatus shall be designed to minimize the risk of accidental short circuit caused by animals, birds or vermin.

### **3. Standard Ratings**

The standard ratings shall be 8000 KVA with off load taps.

### **4. Continuous Maximum Rating**

The transformers shall have a continuous maximum rating at the specified normal ratio, frequency and temperature rises.

- (a) All transformers shall be capable of operation continuously in accordance with IS loading guide at their continuous maximum rating and at any ratio without exceeding temperature rise.
- (b) Transformers with tapping ranges extending more than 9% below normal voltage shall meet the temperature rise limits specified in IS: 2026 or any equivalent International Standards. On other tapings, they shall operate continuously without injurious heating. The loading of the transformers is to be in accordance with IS: 6600 - guide for loading of oil immersed transformers natural cooled units or any equivalent International Standards.
- (c) The transformers shall be capable of operation without danger at other than rated voltage and frequency in accordance with clause 4.3 and 4.4 of IS: 2026 (Part I) 1977 or any equivalent International Standards.

5. **Maximum Temperature Rise**

The maximum temperature rise in each transformer tested at its continuous maximum rating shall not exceed the following limit with reference to ambient air temperature.

- a) Temperature of oil by thermometer: 45°C
- b) Temperature of winding by test resistance: 50°C

6. **No Load Voltage Ratio**

The no load voltage ratio corresponding to the principal tapping shall be 33,000/11,000 volts.

7. **Maximum Current Density**

The current density for HV and LV winding should not exceed 2.5 Amps/mm<sup>2</sup>.

8. **Flux Density: Over Fluxing**

- a) **Flux density** should not be more than 1.55 Tesla at the rated voltage and frequency.
- b) **Over fluxing** – Requirement in this regard shall be governed by the provision contained in clause 3.1.7 of manual on transformer Section ‘A’ (Revised 1987) of CBIP. According to this, over fluxing the transformer continuously for over fluxing factor up to 1.1. In addition to this requirement, operation of power transformer without any danger/damage up to 60 Sec. for over fluxing factor of 1.25.

9. **Maximum Guaranteed No Load And Load Losses**

The losses shall not exceed the value given below:

Rating (MVA)	No Load Losses (KW)	Load Losses at 75°C (KW)
8.0 MVA	6.50	46.00

The losses specified above are maximum permissible value and no plus tolerance would be allowed. One unit will be required to undergo for loss measurement by independent agency like ERDA Baroda etc. before commencement of supply.

**9.1 Capitalization of cost of Transformer Losses for performance and productivity of equipment shall be as per Annexure-IX.**

10. **Oil**

Transformer oil to be used for first filling shall comply with the specification indicated hereunder. Generally as per IS: 335-1993 (4<sup>th</sup> revision) or any equivalent International Standards & REC specification No.39/1985 except in so far as values indicated separately as per Board’s specification for EHV Grade Oil as per enclosed Annexure-VII.

11. **Taps**

**11.1** Off-load tap transformers shall have taps ranging from +3% to -9% in steps of 3% each on HV winding for HV variation, to give normal 11 KV on LV side.

**11.2** The tap changing switch shall be located in a convenient position so that it can be operated from ground level. The switch handle will be provided with a locking arrangement along with tap position, indication and direction for operation, thus enabling the switch to be operated and locked in position. Tap operation shall result in simultaneous positive change on all three phase, with spring loaded snap action and ensure positive pressure contact.

## 12. Winding Connections & Vectors

12.1 The primary winding shall be connected delta and secondary winding star as per vector symbol Dy.11 (IS: 2026) or any equivalent International Standards so as to produce positive displacement of 30° from the primary to the secondary vector of the same phase (vector rotation assumed counter-clock wise).

12.2 The neutral point of the secondary (LV winding) is intended for solidly earthed system and should be brought out to a separate insulated terminal, enabling external insertion of a current transformer in the earth lead to be connected wherever required.

12.3 All windings of transformers shall have uniform insulation when tested in accordance with ISS: 2026/1977 or any equivalent International Standards. The minimum basic impulse withstands level of windings for 1.2/50 micro sec. full wave shall be as given below:-

- i) 11 KV - 75 KV Peak
- ii) 33 KV - 170 KV Peak

## 13. Percentage Impedance And Tolerance (Other Than No Load And Load Losses)

a) Percentage Impedances – Percentages impedance value for power transformers at 75°C on principal tap shall be as follows:

Rating	Percentage impedance value at 75°C
8000 KVA	8.35

b) Tolerance –

Item	Tolerance
Voltage ratio at no load on principal tapping	the lower of the following values: a) (+ / - ) 0.5% of the declared ratio b) A percentage of the declared ratio equal to 1/10 of actual percentage impedance voltage at rated current
Impedance voltage at rated current (principal tapping & other tappings)	Requirement in this regard shall be governed by the provision indicated in IS:2026 (Part-IV) – 1977 Para 3.1.4.1 for principal tapping and as per Provisions contained in Para 3.1.4.2 for other tapping or any equivalent International Standard.
No load current	(+) 30% of the declared no load current

## 14. Transformer Tank

The main tank of the transformer shall be made of good quality steel sheet of adequate thickness (minimum 8mm for top & bottom and 6mm for side walls) to provide sturdy and robust construction to withstand extreme pressure conditions. The internal and external surfaces including oil filled chambers and structural steel work to be painted shall be shot or sand blasted to remove all rust and scale of foreign adhering matter or grease. All steel surfaces in contact with insulating oil shall be painted with two coats of heat resistant, oil insoluble, insulating varnish. Steel surfaces exposed to weather shall be given a primary coat of zinc chromate, second coat of oil and weather resistant varnish of color distinct from primary and final two coats of glossy oil and weather resisting paint in accordance with the color shade as specified.

All paints shall be carefully selected to withstand extremes of weather. The paint shall not scale off or crinkle or be removed by abrasion due to normal handling. The minimum thickness of outside painting of tank shall be 20 microns and the total thickness shall be minimum 80 microns. The main tank exclusive of all accessories but with radiators shall be suitable to withstand application of vacuum up to 760 mm of HG. Adequate reinforcement shall be provided for this purpose and to withstand vibration.

#### **14.1 Pressure Test**

One transformer tank shall be subjected to a pressure corresponding to twice the normal head of oil or to the normal pressure plus 35 KN/m<sup>2</sup> (5lb/sq.in) whichever is lower, measured at the base of the tank and will be maintained for one hour during stage inspection. The permanent deflection of flat plates, after the excess pressure has been released shall not exceed the figure specified below:

<b>Horizontal length of flat Plate (mm)</b>	<b>Permanent deflection (mm)</b>
Up to and including 750	5
751 to 1250	6.5
1251 to 1750	8
1751 to 2000	9.5
2001 to 2250	11
2251 to 2500	12.5
2501 to 3000	16
Above 3000	19

#### **14.2 Conservator**

- (a) A conservator of atleast 10% of tank size filled with at least 3% tank size of Transformer Oil complete with sump and drain valve shall be provided in such a position so as not to obstruct the electrical connections of the transformer having a capacity between highest and lowest visible levels to meet the requirement of expansion of the total oil volume in the transformer and cooling equipment from the minimum ambient temperature of (-) 5°C to 95°C. The minimum indicated oil level shall be with the feed pipe from the tank covered with not less than 15 mm depth of oil and the indicated range of oil level shall be minimum to maximum.
- (b) If the sump is formed by extending the feed pipe inside the conservator, this extension shall be for at least 25 mm.
- (c) One oil gauge magnetic type with provision for low levels alarm shall be mounted on conservator to indicate the minimum normal and maximum level as given below:

Minimum	(-) 5°C
Normal	30°C
Maximum	100°C
- (d) One prismatic type oil indicator should also be provided on the conservator.
- (e) One end flange of the conservator shall be bolted into position so that it can be removed for cleaning purpose.

- (f) The oil connection from transformer tank to the conservator vessel shall be arranged at a rising angle of 3 to 9° to the horizontal up to gas and oil actuated relay.
- (g) Each conservator vessel shall be fitted with a aluminum die cast breather in which Silica gel (at least three Kg.) is the dehydrating agent and designed so that:
  - (i) The passage of air is through silica gel.
  - (ii) The external atmosphere is continuously in contact with silica gel.
  - (iii) The moisture absorption indicated by a change in color of the tinted crystals can be observed from distance.

Breathers shall be mounted at approximately 1400 mm. Above ground level.

### **14.3 Radiators**

Arrangement for good quality sufficient number of radiators should be made to meet out the requirement of temperature rise. Following should also be given due consideration:

- (a) Belting of radiators to avoid vibration
- (b) The neoprene cork gasket of minimum 12mm thickness should be square in shape with holes for fixing radiators to avoid leakage of transformer oil. Round shape gasket may be avoided.
- (c) Radiator valve must indicate open and close direction clearly.
- (d) Radiators must be supplied in separate packing with radiator end should be covered with gasket and steel cover to avoid accommodation of water with serial number of transformer clearly indicated on packing with paint.
- (e) Air release valve provided on radiator should not be of PVC material. It must be of cast iron duly cut in with thread for easy release of air.

### **14.4 Galvanizing**

- (a) Galvanizing where specified should be applied by the hot dipped process or by electro-galvanizing process, for all the parts other than steel, which shall consist of a thickness of 610 gram Zinc per square meter of surface. The zinc coating shall be smooth, clean and of uniform thickness and free from defects or sharp edge. The preparation of galvanizing and the galvanizing itself shall not adversely affect the mechanical properties of the coated material. The quality will be established by tests as per IS: 2633 or any equivalent International Standards. Alternative to galvanizing, aluminizing shall also be considered.
- (b) All drilling, punching, cutting and bending and welding of parts shall be completed and all burrs shall be removed before the galvanizing process is applied.
- (c) Surface, which is in contact with oil, shall not be galvanized or Cadmium plated.

### **15. Finish**

- (a) Before painting or filling with oil, all un-galvanized parts shall be completely clean and free from rust, scale and grease and all external surface cavities on castings shall be filled by metal deposition.
- (b) The interior of all transformer tanks and other oil filled chambers and internal structural steel works shall be cleaned and all scale and rust by shot blasting or other approved methods. This should be read along with clause 14 regarding requirement of painting of transformer tank.

- (c) Except for nuts, bolts and washers, which may have to be removed for maintenance purposes, all external surfaces shall receive a minimum of three coats of paint.
- (d) The primary coat shall be applied immediately after cleaning. The second coat shall be of oil, heat and weather resisting nature and preferable of a shade or color easily distinguishable from the primary and final coats shall be applied after the primary coat has been touched up where necessary. The final coat shall be of a glossy oil, heat and weather resisting non-fading, **BATTLE SHIP GREY** paint of shade No.631 of IS: 5. Primer paint shall be red oxide zinc chrome as per IS: 104, intermediate and final coats of grey paint shall be as per IS: 2032 or any equivalent International Standards.
- (e) Nuts, bolts and washers, which may have to be removed for maintenance purposes, shall receive minimum of one coat of paint after erection.
- (f) The spacing of the bolt centers on the tank and its cover should be so designed that the gaskets when pressed after bolting leave no room for either ingress of moisture or leakage of oil during transportation or normal service or full load and guaranteed temperature rise conditions.

## **16. Core**

The core shall be constructed from high grade, non-ageing, low loss cold rolled super grain oriented silicon steel lamination of CM-4 or better grade ensuring that boxes should not exceed the specified work grade steel or better. All stipulations under clause-8 be considered while selecting material of core. The manufacturer test report of CRGO Core showing Watt loss per KG and thickness of core plate to be used by the tenderers should be provided with the offer.

### **(A) Magnetic Circuit**

- (a) The design of the magnetic circuit shall be such as to avoid static discharges, development of short circuit paths within itself or of the earth clamping structure and the production of flux components at right angles to the plane of the laminations, which may cause local heating.
- (b) Every care shall be exercised in selection, treatment and handling of core steel to ensure that so far as is practicable from distortion, burrs or sharp edge.
- (c) Although the oxide/silicate coating given on the core steel is generally adequate, laminations can be insulated by the manufacturers if considered necessary.
- (d) All ducts shall be provided wherever necessary to ensure adequate cooling and efficient heat transfer. The winding structure and major insulation shall not obstruct the free flow of oil through such ducts nor permit local hot spots. Where the magnetic circuit is divided into pockets by cooling ducts parallel to the planes of the lamination or by insulating material above 0.25 mm thick tinned copper strip bridging pieces shall be inserted to maintain electrical continuity conductivity between pockets.
- (e) The framework and clamping arrangement shall be earthed in accordance with Clause-19 (II) of this Technical Specification.

### **(B) Construction of Cores**

- (a) All parts of the cores shall be of robust design capable of withstanding any shocks to which they may be subjected to during lifting, transport, installation and service.
- (b) All steel sections used for supporting the core shall be thoroughly sand blasted and shot blasted after cutting, drilling and welding.

- (c) Adequate provision shall be made to prevent movement of the core and winding relative to the tank during transport and installation or while in service.
- (d) The supporting framework of the cores shall be so designed as to avoid the pressure of pockets, which would prevent complete emptying of the tank through the drain valve or cause trappings of air during oil filling.

**17. Terminal Arrangement**

**17.1** The transformers shall be fitted with shaded porcelain bushings of outdoor type suitable for solder less connectors on HV as well as LV side. The HV/LV bushing shall not be provided with arcing horns. Aluminum bushing stems and aluminum metal parts will not be accepted.

**17.2** The bushings shall be filled with transformer oil, EHV grade, which shall be of non-oil communicating type with small aperture of 2 mm diameter. The HV/LV bushings shall have the characteristics as per IS: 2099 (latest issue) or any equivalent International Standards. LV neutral bushing requirement is identical to LV line bushing in all respect.

The electrical characteristics of bushing insulators shall be in accordance with IS: 2099 (latest issue) or any equivalent International Standards as amended from time to time. All type and routine tests shall be carried out in accordance with IS:2099-1986 or any equivalent International Standards. The test voltages for various tests as stipulated in IS:2099-1986 are reproduced below:-

Nominal System Voltage	Rated Voltage of the Bushing	Visible discharge test	One minute wet & dry withstand (Impulse Voltage)	Lightning impulse withstand test
KV	KV	KV	KV	KV
11	12	9	28	75
33	36	27	70	170

**17.3** Dimensions of the LV 12 KV bushings including the neutral (11 KV side) shall conform to IS:3347 (Part-III) or any equivalent International Standards and those of the 36 KV bushing (33KV side) shall conform to IS:3347 (Part-V) or any equivalent International Standards. Requirement of creepage distance of minimum 23 mm. Per KV of rated voltage of bushing as per provision contained in Para 7 of IS: 2099-1993 or any equivalent International Standards.

**17.4** Terminal connector shall be provided both for HV and LV terminal suitable for holding Dog/Panther conductor for 8 MVA transformers. It should be flat in shape. Its current capacity should be 600 Amps.

**17.5** Bushing studs of 33 & 11KV should be of copper of minimum 20mm dia and conforming to IS: 3347 or any equivalent International Standards.

**18. Vibrations and Noise**

Every care shall be taken to ensure that the design and manufacture of all transformers and accessories shall be such as to reduce noise and vibration to the level obtained in good modern practice. The manufacturers will ensure that the noise level shall not be more than 3 Db above the NEMA standard publication TR-1.

## 19. Internal Earthing Arrangement

### (a) General

All metal parts of the transformer with the exception of the individual core laminations, core bolts and associated individual clamping plates shall be maintained at some fixed potential.

### (b) Earthing of core clamping structure

The top main core clamping structure shall be connected to the tank body by a copper strip. The bottom clamping structure shall be earthed by one or more of the following methods:

- (a) By connection through vertical tie rods to the top structures.
- (b) By direct metal-to-metal contact with the tank base maintained by the weight of the core and the windings.
- (c) By a connection to the top structures on the same side of the core as the main earth connection to the tank.

### (c) Earthing of magnetic circuit

- (a) The magnetic circuit shall be earthed to the clamping structure at one point only through a disconnect able link placed in an accessible position beneath an inspection opening in the tank core. The connection to the link shall be on the same side of that core and the main earth connection.
- (b) Magnetic circuits having an insulated sectional construction shall be provided with separate link for each individual section. When oil ducts or insulating barriers parallel to the plane of the laminations divide one magnetic circuit into two or more electrically separate parts, the ducts on barriers shall be bridged in accordance with Clause-16 (ii) and the magnetic circuit shall not be regarded as being of sectional construction.

### (d) Size of earthing connections

All earthing connections with the exception of those from the individual cell clamping rings shall have a cross sectional area of not less than 0.8 sq.mm. Connections inserted between laminations of different section of core as per above (III) b shall have a cross sectional area of not less than 0.2 sq.mm.

### (e) Leads from winding to bushing and intercake connection

The leads from winding to bushing and intercake connection should be rigid enough to withstand normal vibration and transportation shocks and short circuit stresses. They should be spaced in such a way that necessary clearances are maintained not only in air but also with oil medium at the lowest permissive electrical strength as per relevant ISS over the period of normal service.

## 20. Electrical Clearance

The clearance in air between live conductive parts and live conductive part and earthed structure shall be as follows: -

Voltage	Medium	Clearance phase to phase	Clearance phase to earth
11000	Air	280 mm	205 mm
33000	Air	350 mm	320 mm

**21. Parallel Operation**

The transformers of the same service voltage shall be suitable for parallel operation, the load being shared in proportion to the capacities and percentage impedance volts, which will be within that specified in the ISS or any equivalent International Standards

**22. Over Load Capacity**

- (a) Each transformer shall be capable of carrying sustained over loads as stated in ISS: 6600 or any equivalent International Standards.
- (b) **Type of load:** - The transformer will supply a mixed power and lighting load with varying power factor from 0.6 lag to 0.8 lead due to capacitors.

**23. Performance Warranty**

The manufacturer shall among other things warranty the following: -

- (a) Quality and strength of material used, both electrical and mechanical.
- (b) Satisfactory operation during the warranty period of 36 months from the date of receipt at Stores. This period will be reckoned from the day all accessories are received enabling assembly testing, commissioning and commercial operation of transformers.
- (c) Performance figures are to be supplied by tenderer in the schedule of guaranteed particulars. In schedule of GUARANTEED TECHNICAL PARTICULARS, all details as required in IS:2026 or any equivalent International Standards shall be given.

**24. Tolerance**

The tolerance of guaranteed performance figures shall be as specified in the Clause 11.1 as per latest version of IS: 2026 or any equivalent International Standards, except for the no load and load losses which is firm and shall not exceed guaranteed values.

**25. Wheels and Axles**

The transformers of 8000 KVA rating shall be provided with 4 Nos. flanged wheels suitable for use on a 1435 mm gauge Rail track. These wheels shall be suitable for being turned through an angle of 90° and locked in that position when the tank is jacked up.

**26. Fittings & Accessories**

Unless otherwise specified in the order, the following standard fittings as detailed in Annexure X attached shall be provided. The fittings shall be in accordance with the details to the extent these are specified in IS: 2026 or any equivalent International Standards.

- (a) Inspection cover of 600 mm (Length) X 480 mm (Breath) is needed to inspect tapping connections of bushings, tapping connections of tap changer and to inspect core-earthing connection.
- (b) Rating plate.
- (c) Diagram plate with tap position and relative HV/LV voltage.
- (d) Two earthing terminals.
- (e) Lifting lugs.
- (f) 4 jacking pads
- (g) Conservator with top filled cap and bottom drain valve.

- (h) Dehydrating breather of required sizes in Aluminum Die Casting with minimum three Kg silica gel.
- (i) Connecting pipe with valve and Buchholz relay.
- (j) Radiator with top air release plug and connected valves and bottom for connection to main tank. Air release valve should not be of PVC material. It should be of cast iron duly cut in with thread for easy release of air.
- (k) HV - 3 bushings
- (l) LV - 4 bushings
- (m) Off circuit tap switch with lock and 2 keys.
- (n) Thermometer (dial type) with one contact for alarm pocket for sensor of thermometer (dial type) with one contact for alarm complete with provision for its mounting is needed.
- (o) Magnetic oil level gauge indicating three position of oil marked as follows:
  - Minimum - (-5<sup>0</sup>C)
  - Normal - (30<sup>0</sup>C)
  - Maximum - (100<sup>0</sup>C)
- (p) Oil filling hole and cap.
- (q) Air release device on tank top.
- (r) Pressure relief device through explosion vent diaphragm with fresh equalizer pipe air release plug. Please see foot note indicated in Schedule X "Schedule of Fittings".
- (s) Gas and oil actuated relay.
- (t) 2 filter valves (top valve, lower valve to be used also as drain valve). Locking arrangement should be provided on each valve to avoid theft of transformer oil by welding 'U' shape flat over each valve.
- (u) Tank mounted weather-proof marshalling box for housing control equipment and terminal connectors on neutral side of LV should be provided on same side of conservator tank. Wiring upto marshalling box with PVC SWA PVC copper cables 1100 volts grade should also be provided.

## **27. Tests and Inspection**

### **27.1 Type Test**

The Purchaser intends to procure transformers whose design is successfully type tested for short circuit, lightning impulse test, loss measurement test and heat run test from an independent agency of national/ international repute like CPRI, Bhopal/ Bangalore, National Test House, Ghaziabad, ERDA, Baroda or to any recognized and reputed International Laboratory and or Institution.

The tenderers are required to carry out type test. The expenses to be incurred towards the following tests shall be borne by them. This may be kept in mind while quoting the price.

#### **Type test includes following tests: -**

- (a) Short circuit withstand test as per clause 16.11 Part-I IS:2026 or any equivalent International Standards. The requirement with regard to ability to withstand short circuit shall be governed by clause-8 and demonstration of ability to withstand short circuit shall be governed by clause-9 of IS:2026(Part-I)1977 or any equivalent International Standards. Accordingly, the symmetrical short circuit current to be

used for the design and tests shall be governed by the Table-4 (IS:2026-Part-I 1977) or any equivalent International Standards and shall be 1000 MVA for the subject power transformers (highest system voltage 36 KV).

- (b) Lightning impulse withstand test as per Clause-13 Part-III IS:2026 or any equivalent International Standards.
- (c) Temperature rise test as per Clause-4 Part-II IS:2026 or any equivalent International Standards. One transformer of each rating shall be type tested at some independent laboratory of National/International repute like CPRI, ERDA etc. for temperature rise as per relevant ISS. However, the rise shall not be more than 50<sup>0</sup>C for winding and 45<sup>0</sup>C for oil above the ambient temperature.
- (d) Loss Measurement Test – With value of No Load and Load Losses obtained at 75<sup>0</sup>C.

27.2 **Stage inspection:** The purchaser intends to ensure the quality of raw material being used and workmanship during course of manufacturing of power transformers. At time of core coil assembly, representatives of purchaser will be deputed to carry out stage inspection. Only after clearance of stage inspection manufacturer will proceed further (tanking of core coil etc.) and will be required to offer transformer for pre-delivery final inspection.

27.3 **Routine Test:** The following tests in addition to those listed in IS:2026 or any equivalent International Standards shall be carried out for routine tests. These tests are required to be carried out by the supplier at the supplier's cost on each and every unit manufactured by them and report shall be forwarded to CGM (P), O/o CMD (CZ), MP MKVV Co. Ltd., Bhopal office at the time of offering transformer for pre-delivery final inspection.

- (a) **Oil leakage test** - All the tanks and oil filled compartments shall be tested for oil tightness by being completely filled with air/oil of a viscosity not greater than that of insulating oil conforming to IS: 335 or any equivalent International Standards at an ambient temperature and subjected to a pressure equal to the normal pressure plus 35 KN/m<sup>2</sup> (5lb/sq.in) measured at the base of the tank. This pressure shall be maintained for a period not less than 10 minutes during which time no leakage shall occur
- (b) Di-electric test on transformer oil.
- (c) Checking for pre-shrinkages - The transformer will be dried out for 16 hours at temperature between 80<sup>0</sup>C to 100<sup>0</sup>C. The active parts shall be tightened and height of assembled unit shall be measured. The difference between two measurements shall not be less than two percent as compared to height measured at normal temperature.
- (d) Measurement of magnetizing current at low voltage i.e. 440 V.

27.4 **Acceptance Test :** The purchaser's representative shall witness the following tests at the firm's works :-

- (a) All the routine tests as mentioned in 27.3 on each and every offered transformer.
- (b) Further, the Purchaser's Inspector reserves the right to carry out any other test for acceptance of offered transformers as per relevant specifications.

It is only after the results of all routine tests conducted on all the transformers are found satisfactory, the MRC shall be issued and the transformers of the lot shall be accepted/ issued to field units. **If any transformer fails in any of the tests conducted, the entire lot supplied to various stores against a particulars D.I. shall be rejected.**

27.5 **Inspection:** 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.

The Purchaser has all the rights to conduct the test including type tests at his own cost by an independent agency whenever there is dispute regarding the quality of supply or interpretation of test results. In the event of failure of transformers in such tests, the expenses incurred in testing and cost of transformer etc. shall be to the Supplier's account.

**28. Test Reports on the Analysis of Raw Materials**

The tenderer shall indicate the source(s) of raw materials(s) called for in Schedule-VI and enclose test certificates and report on the analysis of electrolytic copper used for the winding and the steel used for core insulation material as also bought out items from sub-suppliers.

The quality of material used in prototype transformer, which has passed the type tests, shall be the same in all the ordered transformers. In case it is found that inferior quality of material is used, the transformer shall not be accepted.

(Sanjeev P. Puranik)  
**Chief General Manager (Pur)**

## **ANNEXURE-IV**

### **List of Consignee Area Stores & Senior/ Regional Accounts Officers**

S. No.	Name of Consignee	Name of Station to which Materials are to be Dispatched, if by Railway	Concerned Sr.AO/ R.A.O.
1	GM/DGM(Stores), Area Store, MPMKVV Co. Ltd., <b>Bhopal</b> for supply to		
	i) Area Store, <b>Bhopal</b>	Bhopal (W-C.R.)	Bhopal
	ii) Depot. Store, <b>Itarsi</b>	Itarsi (W-C.R.)	Bhopal
2	GM/DGM (Stores), Area Store, MPMKVV Co. Ltd., <b>Gwalior</b>	Gwalior (W.R.)	Gwalior
3	GM/DGM( Stores), Area Store, MPMKVV Co. Ltd., <b>Guna</b>	Guna (W.R.)	Guna

## **ANNEXURE-V**

### **List of Scheduled Banks**

S. No.	Name of Sr. Accounts Officer/ Regional Accounts Officer	Name of Bank
1	BHOPAL	State Bank of India, Sultania Road, Bhopal
2	GWALIOR	State Bank of India, Jiwaji Chowk, Gwalior
3	GUNA	State Bank of India, Guna

## **ANNEXURE-VI**

### **Quality Assurance – Inspection of Transformers**

- 1.01** To ensure about the quality of transformers, the inspection shall be carried out by the Company's representative at following two stages:-
- (i) When raw material is received, and the assembly is in process on the shop floor.
  - (ii) At finished stage i.e. transformers are fully assembled and are ready for Dispatch.
- 1.02** After the main raw-materials i.e. core and coil materials and tanks, are arranged and transformers are taken for production on shop floor and core assembly of at least 50% of offered quantity have been completed and balance quantity is in different stages of manufacturing, the firm shall offer for stage inspection to the CGM (P), office of the CMD (CZ), MPMKVV Co. Ltd., Bhopal in this regard, so that a team of officers for carrying out such inspection could be deputed, as far as possible within fifteen days from the date of intimation. During the stage inspection a few assembled core shall be dismantled to ensure that the CRGO laminations used are of good quality and manufacturing is confirmed in line with approved Guaranteed Technical Particulars/ Drawings. The report of stage inspection is to be prepared in the prescribed proforma.
- 1.03** In case of any defect/ defective workmanship observed at any stage by the Company'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/ this office.
- 1.04** Quantity offered for stage inspection should be offered for final inspection within reasonable time from the date of issue of clearance for stage inspection, otherwise stage inspection already cleared shall be liable for cancellation.
- 1.05** As and when the transformers are ready for Dispatch, an offer intimating about the readiness of transformers for carrying out pre-dispatch inspection as per relevant I.S.S. and as in clause-27 of Annexure-III, shall be sent by the firm. The inspection shall normally be arranged by the Company at the earliest after receipt of offer for pre-delivery inspection.
- 1.06** During the pre-dispatch inspection, the acceptance tests as per I.S.2026 on all transformers and other test on transformers shall be carried out at the works of the firm any other testing agency as detailed in technical specification. One transformer of each ordered rating shall be subjected to heat run test from the first lot offered for pre delivery inspection
- 1.07** It may be ensured that reports of stage inspection and pre-dispatch inspection are prepared strictly in the prescribed proforma and no detail is left blank. Incomplete report may cause delay in supply of transformers which shall be to the supplier's account.

(Sanjeev P. Puranik)  
**Chief General Manager (Pur)**

## ANNEXURE-VII

### Technical Specifications and Guaranteed Technical Particulars of EHV Gr.II New Insulating Transformer Oil

Insulating oil for Transformers & Switchgears shall be as per ISS-335-1993 (4th revision) or any equivalent International Standards incorporating up to date amendment and additional characteristics as incorporated below. It will be pure hydrocarbon mineral oil, clean and sufficiently free from moisture and of other foreign matter likely to impair its properties.

The test results for the characteristics of the oil when tested in accordance with ISS 335-1993 (4th revision) or any equivalent International Standards incorporating up to date amendment and additional characteristic required by us shall be as hereunder: -

S. No	Schedule of Characteristics (Clause 5.1 & 9.1 of ISS)	Requirement of transformer oil	Reference to Test methods as per ISS-335-1993 read with latest amendment or Equivalent International Standard
1	Appearance	Oil shall be clear & transparent, Free from suspended matter or sediments.	A representative & sample of oil shall be examined In 100 mm thick Layer at 27°C
2	Density at 29.5°C (Max.)	0.89 g/cm <sup>3</sup>	IS:1448-1977
3	Kinematics Viscosity (Max.) at 27°C	27 cst	IS:1448-1976
4	Interfacial tension At 27°C (Min.)	0.04 N/m	IS:6104-1971
5	Pour point (Max.)	(-) 6°C	IS:1448-1970
6	Water Content (Max.)	50 ppm	IS:13567 – 1992
7	Flash Point Pensky Marten (Closed)(Min.)	140°C	IS:1448-1970
8	Neutralization value (a) Total acidity (Max.) (b) Inorganic acidity/ Alkalinity	0.03 mg KOH/gm NIL	IS:1448-1967 IS:1448-1967
9	Corrosive Sulphur	Non-corrosive	Annexure-B
10	Electric Strength (Break down voltage) (a) New unfiltered oil (Min.) (b) New oil after filtration (Min)	30 KV (rms) 60 KV (rms)	IS:6972-1972
11	Dielectric dissipation factor (Tan delta) at 90°C (Max)	0.002	IS:6262-1971
12	Specific resistance (resistivity) a) At 90°C (Min) b) At 27°C (Min)	35x10 <sup>12</sup> Ohm-cm 1500x10 <sup>12</sup> Ohm-cm	IS:6103-1971

13	Oxidation stability a) Neutralization value After oxidation (Max.) b) Total sludge after Oxidation (Max.)	0.40 mg KOH/gm.  0.10% by weight	Annexure-C of IS:335-1993
14	S.K.Value	under consideration	Annexure-C of IS:335-1993
15	AGEING CHARACTERISTICS Ageing characteristics after accelerated ageing (open beaker method with copper catalyst). a) Specific resistance (resistivity) i) At 27°C (Min.) ii) At 90°C (Min.) b) Dielectric dissipation factor (Tan Delta) at 90°C (Max.) c) Total acidity (Max.) d) Total sludge value (Max)	     2.5x10 <sup>12</sup> Ohm-cm 0.2x10 <sup>12</sup> Ohm-cm 0.20  0.05 mgKOH/gm. 0.05% by weight	IS:12177-1987 (Method – A)     IS:6103-1971 IS:6262-1971  IS:1448-1967 Annexure –A of IS:12177
16	Presence of oxidation Inhibitor	The oil shall contain anti oxidant additives	IS:13631: 1992

(B) **Characteristics of oil in the transformer**

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

S. No.	Characteristics	Specification
1	Electric strength (breakdown voltage)	40 KV (Min.)
2	Dielectric dissipation factor (tan delta at 90° C	0.01 (Max.)
3	Specific resistance (Resistivity) at 27° C	10 x 10 <sup>12</sup> Ohm.cm
4	Flash point, P.M. (closed)	140° C (Min.)
5	Interfacial tension at 27° C	0.03 N/m (Min.)
6	Neutralization value (total acidity)	0.05 mg KOH/g (Max.)
7	Water content PPM	35 (Max.)

(Sanjeev P. Puranik)  
**Chief General Manager (Pur)**

## ANNEXURE-VIII

**PRICE VARIATION CLAUSE FOR COPPER WOUND POWER TRANSFORMERS  
COMPLETE WITH ALL ACCESSORIES AND COMPONENTS  
SUPPLIED AGAINST DOMESTIC CONTRACTS  
(For ratings upto 10 MVA and voltage up to 33 KV)**

This price variation clause is applicable for ‘Copper Wound Power Transformers’, with rating upto 10 MVA and voltages upto 33 KV. The clause is to be used for domestic contracts. A separate price variation clause IEEMA/ PVC/DIST-CU/DE/2003 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 and index numbers, the price payable shall be subject to adjustment, up or down in accordance with the following formula:

$$P = \frac{P_o}{100} \left( 13 + 23 \frac{C}{C_o} + 27 \frac{ES}{ES_o} + 9 \frac{IS}{IS_o} + 5 \frac{IM}{IM_o} + 11 \frac{TO}{TO_o} + 12 \frac{W}{W_o} \right)$$

Wherein,

- P = Price payable as adjusted in accordance with above formula.
- P<sub>o</sub> = Price quoted/confirmed.
- C<sub>o</sub> = Average LME settlement price of copper wire bars.  
The price is as applicable for the month, one month prior to the date of tendering
- ES<sub>o</sub> = Average price of local CRGO Lamination and C&F price of CRGO Electricals Steel Sheets.  
This price is as applicable on the 1<sup>st</sup> working day of the month, one month prior to the date of tendering.
- IS<sub>o</sub> = Wholesale price index number for ‘Iron & Steel (Base: 1993-94=100)’  
This index number is as applicable for the week ending 1<sup>st</sup> Saturday of the month, three months prior to the date of tendering.
- IM<sub>o</sub> = Price of insulating Materials  
This price is as applicable on the 1<sup>st</sup> working day of the month, one month prior to the date of tendering.
- TO<sub>o</sub> = Price of Transformer Oil  
This price is as applicable on the 1<sup>st</sup> working day of the month, one month prior to the date of tendering.
- W<sub>o</sub> = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base 2001 = 100).  
This index number is as applicable on the first working day of the month, three months prior to the date of tendering.

For example, if date of tendering falls in May 2008, the applicable prices of Copper Wire Bars (C<sub>o</sub>), Transformer Oil (TO<sub>o</sub>) CRGO Steel sheets (ES<sub>o</sub>) and insulating material (IM<sub>o</sub>) should be as on 1<sup>st</sup> April’ 2008 and wholesale price index number for ‘Iron & Steel’ (IS<sub>o</sub>) should be for the week ending first Saturday of February 2008 and all India average consumer price index no. (W<sub>o</sub>) should be for the month of February 2008.

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

- C = Average LME settlement price of copper wire bars.  
The price is as applicable for the month, one month prior to the date of delivery.
- ES = C&F price of CRGO 'M4' grade Electricals Steel Sheets  
This price is as applicable on the 1<sup>st</sup> working day of the month, one month prior to the date of delivery.
- IS = Wholesale price index number for 'Iron & Steel (Base: 1993-94=100)'  
This index number is as applicable for the week ending 1<sup>st</sup> Saturday of the month, three months prior to the date of delivery.
- IM = Price of insulating Materials  
This price is as applicable on the 1<sup>st</sup> working day of the month, one month prior to the date of delivery.
- TO = Price of Transformer Oil  
This price is as applicable on the 1<sup>st</sup> working day of the month, one month prior to the date of 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 2001=100)

This index number is as applicable on the first working day of 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 2008, the applicable prices of Copper Wire Bars (C), Transformer Oil (TO), CRGO Steel Sheets (ES) and Insulating material (IM) should be as on 1<sup>st</sup> November 2008 and wholesale price index number for "Iron & Steel" (IS) should be for the week ending first Saturday of September 2008 and all India average consumer price index no. (W) should be for the month of September 2008.

The above prices and indices are as published by IEEMA vide Circular No. IEEMA(PVC)/TRF-(R-1)/\_/ \_ one month prior to the date of delivery.

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 of raw materials are exclusive of modvatable excise /CV duty amount and exclusive of any other central, state or local taxes, octroi etc. transformers manufacturers import major raw materials like Copper, CRGO Steel Sheets, TOBS and Insulating pressboard etc. The landed cost of these imported raw materials includes applicable custom duty but exclusive of modvatable CVD.
- (b) All prices are as on first working day of the month.
- (c) The details of prices are as under :-
  1. The LME price of Copper Wire Bars (in Rs./MT) is the LME average settlement price of copper Wire Bars converted into Indian Rupees with applicable exchange rates prevailing as on 1<sup>st</sup> working day of the subsequent month. This price is the landed cost, inclusive of applicable customs duty only but exclusive of countervailing duty.

2. The price of CRGO Electricals Steel suitable for transformer rating 10 MVA and voltage upto 33 KV (in Rs./MT) is the average price of as counted by local lamination suppliers, excluding value addition and C &F price (landed cost) in US \$ per MT converted into Indian Rupees with applicable exchange rate and inclusive of applicable customs duty only but exclusive of countervailing duty prevailing as on 1<sup>st</sup> working day of the month, as quoted by primary producers.
  3. The wholesale price index number for 'Iron & Steel' is as published by the Office of Economic Advisor, Ministry of Industry Govt. of India, New Delhi with base 1993-94=100. This wholesale price index number is being published weekly on provisional basis. However, the same gets finalized after eight weeks and is normally available after two months. Therefore, we are considering in our calculations this final index for the first Saturday of the months two months prior to the date of which the prices of other raw materials such as Al, IM are published for the corresponding month.
  4. The average price of Insulating materials (in Rs./Kg) of pre-compressed pressboards of size 3mm and 10mm 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 two manufacturers 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:-

$$P = \frac{P_o}{89} \left( 13 + 23 \frac{C}{C_o} + 27 \frac{ES}{E_{So}} + 9 \frac{IS}{I_{So}} + 5 \frac{IM}{I_{Mo}} + 12 \frac{W}{W_o} \right)$$

Where description of P, Po, C, ES, IS, IM, W etc. remains same as mentioned earlier.

## **ANNEXURE-IX**

### **Capitalization of Cost of Transformer Losses for Performance and Productivity of Equipment**

1. The Purchaser will take into account the cost of operating performance for power transformers for the purpose of bid evaluation and accordingly, transformer losses shall be guaranteed under penalty for each transformer.
2. Bidder may please note that the maximum ceiling limit for transformer losses for power transformers of various rating shall be as indicated in the following table which include necessary tolerances as may be applicable as per relevant Bureau of Indian Standard. No further tolerance in the ceiling limit for all losses shall therefore be permitted:-

Sl. No.	Rating of Power Transformer	No-load Losses in KW (Max)	Load-losses in KW (Max)
1	33/11 KV, 8 MVA	6.5	46.0

3. The no-load loss in kilowatts at rated voltage and rated frequency and the load-loss in kilowatts at rated output, rated voltage and rated frequency at 75<sup>0</sup>C shall be guaranteed under penalty for each transformer.
4. Bids offering power transformers with losses in excess of ceiling limits mentioned under clause no.2 shall be treated as non-responsive and rejected.
5. In respect of bids wherein offered transformer losses are below the ceiling limits specified under clause-2, capitalization for cost of transformer losses shall be done using the following formula:-

a)	No-load Loss in KW	At the rate of Rs.40,000/- per KW for the difference in offered no-loss and specified ceiling limit of no-load losses. For fraction of KW, the capitalization shall be applied pro-rata.
b)	Load Losses in KW	At the rate of Rs.16,000/- per KW for the difference in offered load losses and specified ceiling limit of load losses. For fraction of KW, the capitalization shall be applied pro-rata.

#### **6. Guaranteed Losses & Penalty**

- 6.1 The no-load loss in kilowatts at rated voltage and rated frequency and the load losses in kilowatts at rated output, rated voltage and rated frequency at 75<sup>0</sup>C shall be guaranteed. It may be noted that the guaranteed no-load losses shall not exceed during final testing of the transformer under any circumstances. However, if the same exceeds, penalty towards excess losses over and above the quoted losses shall be deducted from the main supply bill. For the purpose of penalty computation, the test figures of the no-load and the load losses will be compared with the corresponding guaranteed figures. If test figures exceed the guarantee figures beyond the permitted tolerance, penalty will be levied/recovered from the supplier at double the cost of losses which would be adopted for the purpose of evaluation of prices as per Clause.2 mentioned above.

Purchaser reserves the right to reject the transformer if the losses exceed guaranteed losses beyond tolerance limits or the temperature rise of oil and winding exceed guaranteed values or impedance values differ from guaranteed values including tolerance.

- Purchaser also reserves the right to retain the rejected transformer and take it into service until the supplier replaces it with a new transformer at no extra cost. Alternatively, supplier shall repair or replace the transformer within a reasonable period as decided by the purchaser at no extra cost.
- 6.2 The penalties shall be separately evaluated from (i) the excess of the test figures of the no-load kilowatts over the corresponding guaranteed value and (ii) the excess of the difference between the test value of the total losses and the no-load loss in kilowatts, over the differences of the corresponding guaranteed values. No tolerance shall be permitted over the guaranteed figures for computation of penalty, since as specified the losses on maximum basis are to be offered on which I.S. tolerances shall not be permitted.
- 6.3 The penalties (in case purchaser accepts the transformer exceeding guaranteed loss values) shall be calculated @ Rs.80,000/- per kilowatt for the excess of difference of no-load loss and @ Rs.32,000/- per kilowatt for the excess of difference in the load losses. For fraction of a kilowatt, the penalties shall be applied pro-rata.
- 6.4 The bidder should note that the values assigned for the capitalization of losses as given above are based on the present worth method and therefore, capitalization of investment will not be made separately.
- 6.5 The bidder must clearly specify that the offered losses are 'FIRM' and no tolerances as per I.S. shall be applicable on the offered values. In case of any ambiguity, loading as per I.S. tolerance shall be considered for price comparison.

(Sanjeev P. Puranik)  
**Chief General Manager (Pur)**

## ANNEXURE - X

### Schedule of Fittings

1. Rating and terminal marking plate
  - i) Purchase order number and date to be indicated on rating plate.
  - ii) Serial number of transformer to be indicated in rating plate.
  - iii) Mention copper winding to be made on the rating plate
2. H.V. Bushings oil filled bushings –  
(Non oil communicating type with 2 mm aperture in the base diaphragm and top air release device where applicable)
3. L.V. Bushings, Stud in 11KV Porcelain Bushing shall be provided with Arcing Horns
4. Earthing Terminals                      2 Nos.
5. Tank Lifting Lugs                         2 Nos.
6. Jacking Pads                                4 Nos.
7. Silica Gel Dehydrating Breather (with three Kg. minimum gel content in Aluminium Die Cast Container).
8. Conservator with oil filling cap drain valve with plug & magnetic oil level gauge with alarm contacts. The oil level gauge shall have three positions of oil marked as follows:
  - a) Minimum (-5°C)
  - b) Normal (30°C)
  - c) Maximum (100°C)
9. Pressure Relief Device through Explosion Vent Diaphragm.
10. Gas and oil actuated relay with 2 contacts.
11. Thermometer (dial type) with one contact for alarm. Pocket for sensor of thermometer (dial type) with one contact for alarm complete with provision for its mounting.
12. Filter valves top and bottom (lower valve to be used as drain valve which should be able to drain oil completely).
13. Air release device
14. Bi-metallic connecting clamps for
  - (i) HV Studs - 3 Nos.

- (ii) LV Studs - 4 Nos.
15. Axles and wheels : The transformers of 8000 KVA rating shall be provided with 4 Nos. flanged wheels suitable for use on a 1435 mm gauge Rail track. These wheels shall be suitable for being turned through an angle of 90° and locked in that position when the tank is jacked up.
  16. Thermometer pocket
  17. Detachable radiators with top and bottom shut off valves and air release plug on each radiator top.
  18. a) Winding temperature indicator : These shall be with one set of contacts with transformers for alarm and trip. : housed in M.B. box with flexible leads and require electrical connectors.
  - b) Oil temperature indicator with one contact for alarm
  19. Inspection cover to inspect tapping connections of bushings, tapping connections of tap changer and to inspect core earthing connection.
  20. W.P. Terminal box alarm and trip contacts with requisite connector.
  21. Off-Load circuit tap changing switch with indicator, handle and locking device with taps ranging from (+) 3% to (-) 9% in steps of 3% on HV side for HV variation. Direction for rotation marked limit stopper on extreme position.

**NOTE FOR Sl. No. 9; PRESSURE RELIEF DEVICE**

A safety valve of the chimney type with an equalizer Pipe interconnecting the top of the conservator and upper most Part of the safety valve shall be provided to prevent rise of oil in the safety valve pipe. A stop cork should also be provided in the interconnecting pipe. An air release cork shall also be fitted in a convenient position. The safety valve pipe shall preferably take off from the side of the transformer near to the tank cover and not from the top of the tank cover. This is with a view to prevent the gases forming in the tank from rising into the safety valve pipe and thereby passing the gas and oil actuated relay (defeating its purpose) and for avoiding the necessity for providing a bottom diaphragm from the safety valve pipe which would be necessary in case it takes off from the tank cover. In case explosion vent is taken out from the top of transformer cover plate, an oil level gauge at the lower portion of explosion vent is to be provided to ensure that diaphragm fixed at lower portion of explosion vent is intact.

**PRICE SCHEDULE - I**  
**PRICES ARE TO BE QUOTED STRICTLY AS PER THIS FORMAT**

S. No.	Particulars	Qty. on Tender Specification (in Nos.)	Qty. Offered (in Nos.)	Ex-works Price per Transformer (Base date on 01.12.11) (Rs.)	Unit Freight Charges For delivery any-Where in MP MKVV Co. Ltd. (Rs.)	ED on Ex-works Price (indicating Amount & % both) (Rs.)	Sales Tax on ex-works Price + ED (indicating amount & % both) (Rs.)	Any Other Levy/ Tax (indicating amount & % both) (Rs.)	Total F.O.R. Destination Price per Transformer inclusive of all duties & taxes for delivery anywhere in MP MKVV Co. Ltd. (in figures & words both) <b>5+6+7+8+9</b>	Entry Tax @ 1% on MP State Unit & @ 5% on Out State unit (On column No. 10)	Guaranteed No Load Loss (KW)	Guaranteed Load Loss (KW)	Value of capitalization of losses (Rs) (column 12 x 40,000 + column 13 x 16,000)	Unit FOR destination Price including capitalization of losses <b>(10+11+14) (Rs)</b>
1	2	3	4	5	6	7	8	9	10.	11	12	13	14	15
1	33/11 KV, 8 MVA Copper Wound Power Transformer	25												

**NOTE:-**

- (1) Quantities mentioned above are purely tentative and are subject to change at the discretion of the Board to any extent.
- (2) Prices are to be filled in strictly in this format.
- (3) **No. column shall be left blank.** Please note that the words “exclusive of charges/taxes/duties, inclusive of charges/taxes, duties, Dash, N.A. Do,” etc. will not be taken cognizance of.
- (4) **The amount should be indicated in figures & words both.**

Signature with Seal of Tenderer  
Name  
Designation

## **SCHEDULE - II**

(Details of Type Tests Carriedout)

### **Details of Type Test successfully conducted during last Five Years in respect of 8 MVA rating of 33/11 KV Power Transformer**

(Separate Schedule Should be furnish for Transformers Type Tested as per Tender Specifications  
and for Specification other than Tender Specification).

Tap range & tap size of the transformer tested	Place and Institution where tested with date				Remark
	Short Circuit Test	Lightning Impulse Test as per clause 13 of part III of IS	Loss Measurement Test with value of no load & load losses obtained (at 75°C) (KW)	Heat Run Test {Max. oil temp. (°C) Max winding temp. (°C)}	Whether type tested reports are as per tender specifications or not.
1	2	3	4	5	6

**Note: -** You are advised to furnish detailed report of above tests along with the tender including details of active part verification after test. The reports shall be issued by Government an independent Agency of National repute like CPRI Bangalore/ Bhopal, National test House, Ghaziabad, ERDA Baroda. In the absence of test report, it will be presumed that no test has been carried out and tender will be evaluated accordingly. Above table must be filled indicating Report No., Date and place where type test have been carried out.

Date

Signature with Seal of Tenderer

Place

Name

Status

## SCHEDULE-III

### Source of Materials/ Places of Manufacture Testing & Inspection

S. No.	Item	Reference of specification	Source of material	Place of manufacture	Place of testing & inspection
1	Transformers Core				
2	Copper wire/Strip				
3	Core plates.				
4	Steel structure & Channel etc.				
5	Transformer Tanks				
6	Radiators				
7	Insulating/Press Board Cylinders IS:15/6				
8	Insulating paper				
9	Porcelain Busing IS:2099/3347.				
10	Transformer Oil of EHV Gr.II.IS:335				
11	Insulated winding wire				
12	D.B.P.C. Powder				
13	Bimetallic Terminal Connectors suitable for copper stud				
14	Relays IS:3637/3638				
15	Silicagel breather				
16	Magnetic type oil indicator				
17	Thermometer dial type				
18	Paint IS:109/104.IS:5				
<b>Place:</b>		<b>Signature of the Tenderer</b>			
<b>Date :</b>		<b>Name</b>			
		<b>Status in the Company</b>			

**SCHEDULE – IV**  
**Schedule of Questionnaire**  
**PART “A”: General Information**

(To be kept in the Envelope of PART-II; COMMERCIAL/ TECHICAL BID)”

- (i) Strike off, whichever is not applicable.  
(ii) Separate sheets should be used, wherever necessary.

1	Name & Address of the Bidder	
2	(a) Name & Address of the firm/Company etc	
	(b) Registered office	
	(c) Factory/ works address	
	(d) Telegraphic address	
	(e) Telephone Nos.	
	(f) Fax Nos.	
3	Confirm whether bidder is a Manufacturer of Power Transformers	Yes/ No.
4	(a) Only Manufacturer to give following particulars:-	
	(b) Address of factory	
	(c) Year of starting manufacture	
	(d) Whether same/similar materials Manufactured earlier, (if yes, give reference)	
	(e) Yearly/monthly production Capacity	
	(f) Maximum yearly production achieved so far	
5	(a) Whether the firm is an MP SSI Unit	Yes/ No
	(b) If yes, write registration No.	
	(c) Whether documentary evidence regarding registration enclosed	
	(d) Items of registration	
	(e) Period of Registration	
	(f) Furnish latest copy of competency certificate	
6	(a) Whether the bidder has supplied Power Transformers to MPSEB/MPMKVVCL/Discom of M.P in past.	Yes/ No
	(b) If yes, whether documentary evidence with details of orders received & executed during last 5 years, enclosed.	
7	Whether Power Transformers supplied to other SEBs/NTPC & other Power Utilities. Give details of orders received and executed during last 5 years.	
8	Indicate capacity-wise no. for which orders are already available with you as on date of submission of bid. Furnish SEB/Utility wise details.	
9	Any other information that bidder may like to give in order to highlight his bid.	

Place:  
Date

Signature Of Tenderer  
Name In Full  
Designation/ Status In The Firm  
Company Seal

## SCHEDULE – IV

### PART “B” : Commercial Information

(To be kept in the Envelope of PART-II; COMMERCIAL/ TECHNICAL BID)”

(i) Strike off, whichever is not applicable.

(ii) Separate sheets should be used, wherever necessary.

1	i	Earnest Money details	Bank draft/ Bankers cheque/ in favour of Sr.A.O.(HOAU), MPMKVV Co. Ltd., Bhopal
	ii	(a) Amount of EMD	Rs.
		(b) Particulars/details	
	iii	If exempted, state whether the bidder is	SSI Unit of M.P./ Small Scale unit registered with NSIC/ Fully owned State/ Central Govt. Unit.
	iv	Whether reference of documentary evidence regarding exemption enclosed.	Yes/ No
2		Whether the offer is valid for 180 days from the date of opening of commercial/ technical bid	Yes/ No (If No, state validity period).
3		State whether the quoted prices are:-	
	(a)	Variable	Yes/No
	(b)	And are according to P.V. Clause of Annexure-VIII (Prices have to be Variable and based on IEEMA p.v. formula and indices as in Annexure-VIII)	
4		Whether break-up of prices i.e. ex-works, freight, excise duty, sales tax and any other tax is applicable has been filled up in Price Schedule-I appended.	
5		Whether freight charges mentioned separately in the Price Bid i.e. Schedule-I.	
6		Indicate the present rate of excise duty applicable to you.	
7		If excise duty presently not leviable, then indicate the turn over upto which it is applicable.	
8		In case of lower slab of excise duty is presently applicable, then indicate the turn over upto which it is applicable.	
9		Confirm how will excise duty be charged from the Company against contract if placed, in case excise duty become payable at higher rate than the presently applicable to you due to increase in annual turn over of your Company.	
10		Indicate clearly the rate at which ED for the contract against this TS shall be charged by you.	
11		Whether agreeable charging excise duty on ex-works price only (Please note that ED on forwarding & freight charge is not payable by the Company).	
12		Confirm that prices quoted after accounting MODVAT credit (The prices are to be quoted by you only after accounting for MODVAT credit)	

13	Whether rate quoted are exclusive of Central Sales Tax/MP Commercial Tax/VAT.	
14	What is the concessional rate of Sales Tax/VAT in the State from where the material are to be moved.	
15	Indicate the rate at which Sales Tax shall be charged against the contract if placed against instant TS.	
16	Indicate your Sales Tax Registration No.	
17	Whether agreeable to charge sales tax on ex-works price plus excise duty (Please note that ST on forwarding & freight charge is not payable by the Company).	
18	(a) Who will pay for upward revision of the sales tax during contractual delivery period.	
	(b) How will the sales tax difference be regulated in case sales tax goes down during contractual delivery period.	
19	Any other tax applicable like Municipal Tax, Octroi, Entry Tax etc. should be specified (Please clearly mention on what element of quoted price, these taxes are applicable).	
20	NOTE:- The bidder has to be very clear about the rate and amount of excise duty and sales tax given in the Price Bid and as applicable at the time of award of contract. The following documentary evidence should be enclosed with the offer:- (i) Photocopy of relevant abstract of notification regarding excise duty and sales tax as applicable. (ii) For exemption in excise duty/sales tax.	
21	i Whether any rebate/ discount is offered	Yes/No
	ii If yes, whether the rebate is unconditional /conditional	
	ii Rate/ amount of rebate/ discount	
	i	
	I Whether rate is applicable on:- v a) Own quoted price. (b) Counter offer price (other than own quoted). v If conditional state condition	
22	<b>Mode of Despatch</b> Despatch by Road is acceptable to the Company only when the tenderer agrees:- (a) to supply the material on door delivery basis and through Bank approved Road Transporter and (b) for payment after receipt of material in good condition.	
23	<b>Payment Terms</b> Whether Company's terms of payment (Clause-11 of Annexure-II) is acceptable to the tenderer (If no state conditions)	Yes/ No
24	<b>Delivery Period</b>	
	(a) Whether agreeable for commencement & completion of supply as per tender specification of Annexure-II i.e. commencement within two month from the date of receipt of order and completion in 6 (six) equal monthly installments thereafter.	
	(b) In case Company desires deliveries earlier than indicated in 24(a) above, please indicate:- (i) Commencement period. (ii) Rate of supply per month (assorted ratings).	
25	<b>Penalty Clause</b>	

	Whether agreeable to Company's penalty clause (Clause-12 of Annexure-II)	
26	<b>Performance Guarantee Period</b>	
	Whether agreeable to Company's Performance Guarantee clause (Clause-13 of Annexure-II).	
27	<b>Security Deposit</b>	
	Whether agreeable to furnish Company's Security deposit @10% of value of order for satisfactory execution of the order and to cover guarantee period (Clause-14 of Annexure-II).	Yes/No
28	Indicate State, Central Sales Tax Registration Number (Please note that in case of non-registration with Sales Tax Department Purchase Tax as admissible shall be deducted by the Purchaser from the bills of the supplier.	State/Central
29	<b>Extension Order</b>	Yes/ No
	Whether you are agreeable to accept extension order for 50% quantity on the same rates, terms & condition, if any extension order is placed within 6 months from the date of placement of detailed order (Clause-16 of Annexure-II).	
30	Whether rates offered are applicable for part quantities also.	Yes/ No
31	Have you noted that you have quoted prices in the desired format	

PLACE:

SIGNATURE OF TENDERER

DATE

NAME IN FULL  
DESIGNATION/ STATUS IN THE FIRM  
COMPANY SEAL

## **SCHEDULE - IV**

### **PART “C” : Technical Information**

(To be kept in the Envelope of PART-II; COMMERCIAL/ TECHICAL BID)”

- (i) Strike off, whichever is not applicable.
- (ii) Separate sheets should be used, wherever necessary.

1	i	Whether material offered is exactly as per the technical specification.	
	ii	If not, give details of technical deviation (Information may be given in deviation schedule given with documents for this purpose.	
2		Whether the list of orders received during last 5 years from other State Electricity Board/NTPC & from other organization for similar materials is furnished.	
3		Whether the tenderer has furnished details of manufacturing equipments and short history of plant.	
4		Whether pamphlets/technical details literature along with drawing etc. furnished with the offer	
5		Whether the tender agrees to furnish material test certificates in respect of chemical composition and physical properties, wherever required, from Govt./Govt. approved Lab. With each bath of supplies.	
6		Whether details of manufacturing process furnished with offer.	
7	i.	Whether all testing facilities are available. If so, give details and in case of non-availability of facilities indicate approved lab. available in surrounding areas where tests are proposed to be conducted.	
	ii	Whether you agree for inspection by Company's representative prior to dispatch and bear the testing charges for all tests as per relevant standard.	Yes/No
8		Please furnish/indicate the quality assurance programme /plan of your product being followed in your works.	
9		Whether type test reports of the ratings quoted for are for tendered design.	
10		Whether copy of both the type test reports as in Sl. No. 9 above have been enclosed.	
11		In case reports in Sl. No. 9 are not for tendered design, whether agreeable to carry out fresh tests on tendered design of Power Transformers, at your cost.	
12		Whether you are agreeable to clause-27 "Sample Testing of Transformer" of Annexure-II.	
13		Whether clause-4 of Annexure-II i.e. "Transit Risk" is acceptable to you (Please note that responsibility to cover transit risk is entirely of the supplier).	

PLACE:

SIGNATURE OF TENDERER  
NAME IN FULL

DATE

DESIGNATION/ STATUS IN THE FIRM  
COMPANY SEAL

**UNDERTAKING**

I, ..... Sole proprietor/ partner of M/s. ....  
is giving undertaking that details given are correct to the best of my knowledge and I  
agree to abide by all your tender/order terms and conditions.

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

## SCHEDULE - V

### PART "A"

#### Schedule of Past Experience

Bidder's Name & Address:

To,

The Chief General Manager (Purchase)  
Office of the CMD (CZ), MPMKVV Co. Ltd.,  
Nishtha Parisar, Bijlinagar,  
Govindpura, Bhopal-23

Dear Sir,

Sub: - **Performance/ past experience.**

We furnish herewith the record of our performance and experience of quoted items as follows:-

Sl. No.	Purchaser's Name and Address	Order Number and Date	Ordered Quantity (Rating-wise) (nos.)	Quantity supplied (Rating-wise) (nos.)	Value of Order (lakh Rs)
1	2	3	4	5	6

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

Note: - Photocopy of the orders & performance reports received from other State Electricity Boards/ Govt. undertakings etc. should be enclosed.

## SCHEDULE-V

### PART "B"

#### Schedule of Commercial Deviations

Bidder's Name & Address:

To,

The Chief General Manager (Purchase)  
Office of the CMD (CZ), MPMKVV Co. Ltd.,  
Nishtha Parisar, Bijlinagar,  
Govindpura, BHOPAL-23

Dear Sir,

Sub: - **Commercial Deviations.**

The commercial Deviations & variations to the specifications stipulated in the tender, for the item quoted are, as under:-

Sl. No.	Condition	Clause No. of tender document	Page No. of Tender document	Statement of deviations And variations
1	2	3	4	5

2. Except aforesaid deviations, the entire order, if placed, on us shall be executed in accordance with your specifications and any other conditions, variations/deviations etc. if found, elsewhere in our offer should not be given any considerations while finalizing the tender.

Place:

Signature Of Tenderer

Name In Full

Date

Designation/ Status In The Firm

Company Seal

Note: - Continuation sheet of like size & format may be used as per bidder's requirements and shall be annexed to this schedule.

## SCHEDULE-V

### PART "C"

#### Schedule Of Technical Deviations

Bidder's Name & Address:

To,

The Chief General Manager (Purchase)  
Office of the CMD (CZ), MPMKVV Co. Ltd.,  
Nishtha Parisar, Bijlinagar,  
Govindpura, BHOPAL-23

Dear Sir,

Sub: - **Technical Deviations.**

The Technical Deviations & variations to the specifications stipulated in the tender, for the item quoted are, as under:-

Sl. No.	Condition	Clause No. of tender document	Page No. of tender document	Statement of deviations and variations
1	2	3	4	5

2. Except aforesaid deviations, the entire order, if placed, on us shall be executed in accordance with your specifications and any other conditions, variations/deviations etc. if found, elsewhere in our offer should not be given any considerations while finalizing the tender.

Place:

Signature Of Tenderer

Name In Full

Date

Designation/ Status In The Firm

Company Seal

Note :- Continuation sheet of like size & format may be used as per bidder's requirements and shall be annexed to this.

## **SCHEDULE - V**

### **PART "D"**

#### **Schedule Of Supply During Last Five Financial Years**

(To be kept in the Envelope PART-II i.e." COMMERCIAL / TECHNICAL BID")

Bidder's Name & Address:

To,

The Chief General Manager (Purchase)  
Office of the CMD (CZ), MPMKVV Co. Ltd.,  
Nishtha Parisar, Bijlinagar,  
Govindpura, Bhopal-23

Sub:- Details of supply of power transformers during last five financial years.

Dear Sir,

Details of supplies of power transformers made by us during last five financial years,  
as under:-

S. No.	Financial year	Rating	Quantity supplied	Agency to whom Supplied	No. & date of MRC issued by Consignee
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
1	2006-2007				
2	2007-2008				
3	2008-2009				
4	2009-2010				
5	2010-2011				

Place :

Date :

Signature of Tenderer

Seal of Firm

Name in Full

Designation/ Status

## SCHEDULE – VI

### Schedule of Guaranteed Technical Particulars for 33/11 KV, 8 MVA Power Transformer

S. No.	Particulars	33/11 KV, 8 MVA
1.	Continuous Max. Rating (MVA)	
2.	Normal Ratio of transformation	
3.	Method of Connection (Vector Group)	
4.	Max. Hot Spot Temp. (Ambient air temp. shall be taken as 50°C).	
5.	Max. Oil Temp. (Ambient air temp. shall be taken as 50°C).	
6.	Max. winding Temp. (Ambient air temp. shall be taken as 50°C). (1.55 Tesla)	
7.	Maximum flux density in iron at normal voltage & frequency. (a) Cores - Kilo lines per Sqcm. (b) Yoke - -do- (c) Grade of core lamination	
8.	Type of transformer	
9.	Core: - (a) Core Material (i) Grade (ii) Thickness of lamination used (b) No. of steps (c) Dimensions of each core steps. (i) Breadth of step (ii) Thickness of step (d) Core diameter (e) Core length (leg center) (f) Window height (g) Details of insulation between bottom of core & Base Channel (h) Core height (inclusive of Base Channel and insulation in between (i) Gross core area (j) Effective core area (k) Nos. & Dimensions of steel channel used for clamping of core (l) Size & No. of	

- (i) Core bolts
  - (ii) Tie rods
  - (m) Painting of core channel
  - (n) Whether yoke is cut or holes are made for LV connections. If yes, whether enforcement is done. Also indicate details of reinforcement.
  - (o) Size of support channel for Core base (cut channels are not acceptable).
10. Magnetizing current (% of rated current and at -9% tap).
11. Maximum current density in windings (2.5 A/mm<sup>2</sup>)
- (a) Higher voltage  
(Amps per sqmm.)
  - (b) Lower voltage  
(Amps per sqmm.)
12. Windings
- (a) Material and type -
    - (i) H.V.
    - (ii) L.V.
  - (b) Size and cross section of winding wires without insulation for
    - (i) H.V.
    - (ii) L.V.
  - (c) Size and cross section of winding wires with insulation
    - (i) H.V.
    - (ii) L.V.
  - (d) Type of insulation of
    - (i) H.V. Winding
    - (ii) L.V. winding
  - (e) Internal & external diameter of
    - (i) H.V. Coil
    - (ii) L.V. Coil
  - (f) No. of coils/phase
    - (i) H.V.
    - (ii) L.V.
  - (g) Total No. of turns per coil
    - (i) H.V. Coil
    - (ii) L.V. Coil

- (h) Method of connection of winding ends to bushing terminals
  - (i) LV winding to bushing
  - (ii) HV winding to bushing
  - (iii) Formation of Star point
  - (iv) Star point to bushing
  - (v) Formation of delta
- (i) Resistance/phase at 75°C
  - (i) H.V.
  - (ii) L.V.
- (j) Height of H.V. Coil
- (k) Height of L.V. Coil
- (l) Turn Ratio H.V / L.V
  - For Tap I (+3)
  - II Normal
  - III (-3)
  - IV (-6)
  - V (-9)
- 13. Fixed No Load losses at normal ratio at 75°C (KW) (Max.)
- 14. Fixed Load losses at normal ratio at 75°C (KW) (Max.)
- 15. Total losses at normal ratio at 75°C (KW) (Max.)
- 16. Whether above losses are maximum without any tolerance
- 17. Impedance voltage at normal ratio between HV & LV windings at 75°C.
- 18. Impulse test level of HV & LV windings
- 19. Efficiency at normal ratio (at 75°C).
  - (i) Unit power factor and
  - (ii) 0.8 Power Factor at 50%, 75% and full load
- 20. Regulation as percentage of normal voltage (at 75°C) at Unity P.F. and at 0.8 P.F.
- 21. Maximum out of balance force in winding on short circuit with external reactance as zero.
- 22. Insulation material:
  - Insulation material used & its thickness:
  - a) Between core & LV
  - b) Spacers
  - c) Inter layer

- d) Between HV & LV winding
  - e) Between phase
  - f) End insulation
23. Clearance in mm.:
- a) L.V. to core (Radial)
  - b) Between HV & LV (Radial)
  - c) Phase to phase between HV conductors (with min. of 2x1 mm Press Board to cover the rods).
  - d) Between winding & body
  - e) End insulation
  - f) Thickness of locking spacers between HV coils.
  - g) Axial wedges between H.V and L.V coils
  - h) Clearance between top cover and top yoke.
  - i) No. of radial spacers/phase
    - (i) H.V.
    - (ii) L.V.
  - j) Size of duct between L.V & H.V
24. Method of clamping of core & also whether clamping arrangements by steel sections or by wooden block.
25. Type of quality of steel/wood used in the transformer for insulation purpose.
26. Tank
- (a) Shape
  - (b) Thickness of tank sheets in mm.:
    - (i) Top & Bottom
    - (ii) Side walls
    - (iii) Collar
  - (c) External dimensions of tank in mm.
    - (i) Length (l)
    - (ii) Breadth (b)
    - (iii) Height at middle
27. Bushing:
- (a) Characteristics:
    - (i) Dry withstand voltage
      - H.V.
      - L.V.

- (ii) Wet withstand voltage
    - H.V.
    - L.V.
  - (iii) Impulse flash over voltage
    - H.V.
    - L.V.
- (b) Material of bushing rods
  - H.V.
  - L.V.
- (c) Size of bushing rods
  - H.V.
  - L.V.
- (d) Bushing clearance shortest on both HV & LV side
  - (i) Phase to phase
  - (ii) Phase to earth
- 28. Conservator
  - (a) Dimensions
  - (b) Volume of oil
  - (c) Thickness of sheet in mm.
- 29. Radiators:
  - (a) No. of Radiator
  - (b) No. of fins per radiator
  - (c) Size of fin
  - (d) Thickness in mm.
- 30. Oil to be filled in:
  - (a) Grade characteristics as per Specification
  - (b) Transformer tank
    - (i) Volume (Ltr)
    - (ii) Weight (Kg)
  - (c) Conservator
    - (i) Volume (Ltr)
    - (ii) Weight (Kg)
  - (d) Total oil filled in transformer
    - (i) Volume (Ltr)
    - (ii) Weight (Kg)
- 31. Overall dimension of transformer (mm)
  - (a) Length
  - (b) Breadth
  - (c) Height
- 32. Dimension of transformer arranged for transport (mm.)

- (a) Length
  - (b) Breadth
  - (c) Height
33. Engraving of S. No. & Name of firm
    - (a) On bottom of core clamping channel
    - (b) Side wall & top cover of tank
    - (c) Date of dispatch on the tank
  34. Weight of bare windings in Kg.
    - (a) H.V.
    - (b) L.V.
  35. Weight of insulated winding in Kg.
    - (a) H.V.
    - (b) L.V.
  36. Weight of core & windings assembly
  37. Weight of core only
  38. Weight of tank & fittings including radiators but without oil.
  39. Weight of complete transformer including all fitting & oil.
  40. Weight of detachable accessories/ fittings.
  41. Weight of complete transformers arranged for transportation (MT).
  42. Colour of transformer
  43. Reference to type test reports for tendered rating of Transformer with tapping with place and date where tested
    - (a) Short circuit test report No. & Date
    - (b) Lightning impulse test report no. & Date and place
    - (c) Loss measurement with place, date etc.
    - (d) Temperature rise test with place, date etc.
  44. Whether tap range of Off Load tap changer is from (+) 3% to (-) 9% in steps of 3% on HV side of transformer.
  45. Size of contact of tap changers
  46. Material of contact of tap changer

Date :  
Place :

Signature with Seal of Tenderer  
Name  
Status in the Company

## **SCHEDULE-VII**

### **Declaration**

We confirm that no Service or Retired Officer(s) or employee(s) of the MP MK VV Co. Ltd., Bhopal is/ are partner(s) of the firm or having shares or has any interest in the firm. It is also confirmed that no any partner of the firm has any relationship with any/serving/retired Officer(s) or employee(s) of the MP MK VV Co. Ltd., Bhopal.

Date:

(Authorized Signatory)

Place:

Name :

Designation :

Seal Of The Firm :



## SCHEDULE-IX

### Details of Drawings Of 33/11 KV, 8 MVA Power Transformer Submitted with the Tender

<b>PARTICULARS</b>	<b>ITEMS</b>
i) Name Plate Details	
ii) Tap Changers on 33 KV	
iii) Outline General Arrangement	
iv) Core Coil Assembly	

Date:

(Authorized Signatory)

Place:

Name:

Designation:

Seal of the Firm: