

Standard Bidding Document

TENDER NO. 1395/26 RECLAMATION OF 25-KVA DAMAGED DISTRIBUTION TRANSFORMERS (REPAIRABLE) (Non-Consultancy Services)

National

Single Stage-One Envelope

CORRIGENDUM # 1	CORR-P111469-001
Initiation Date	September 09, 2026



September 09, 2026

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PROCUREMENT NOTICE

PROCUREMENT OF NON-CONSULTANCY SERVICES

1. The **Material Management Directorate/Department (Sukkur Power Electric Company (SEPCO))** has reserved Funds for the procurement planned for FY **2026-27**. The **Material Management Directorate/Department (Sukkur Power Electric Company (SEPCO))** intends to apply part of the proceeds of this Fund to cover eligible payments under the contract for the “**TENDER NO. 1395/26 RECLAMATION OF 25-KVA DAMAGED DISTRIBUTION TRANSFORMERS (REPAIRABLE)**” with the reference of “**P111469**”
2. The **Material Management Directorate/Department (Sukkur Power Electric Company (SEPCO))** invites Bids through **EPADS v2.0** from eligible Bidders registered on **EPADS v2.0** for provision of Non-Consultancy Services.
3. **Single Stage-One Envelope** Procedure of Principal Method of Procurement (i.e. Open Competitive Bidding) will be used by adopting **Least Cost Based Selection (LCBS)** Technique for the subject procurement, in line with the Public Procurement Rules, 2004 and any Regulations, and Instructions issued by the Authority (from time to time).
4. All Bids must be accompanied by a Bid Security described in Bid Security Section in Bidding Document in the form of **Pay Order, Banker's Cheque, Call at Deposit, Bank Guarantee, Demand Draft** or Bid Securing Declaration on the prescribed format described.
5. E-Bidding documents, containing detailed terms & conditions, specifications and requirements etc. are available on **e-Pak Acquisition and Disposal System (EPADS)** at **<https://epads.gov.pk/opportunities/federal/procurements/111469>**.
6. The e-bids, prepared in accordance with the instructions in the e-Bidding documents, must be submitted through **EPADS v2.0** on or before **Monday, September 28, 2026 10:30 AM**. E-bids will be opened on the same day at **Monday, September 28, 2026 11:00 AM**. Manual submission of Bids shall

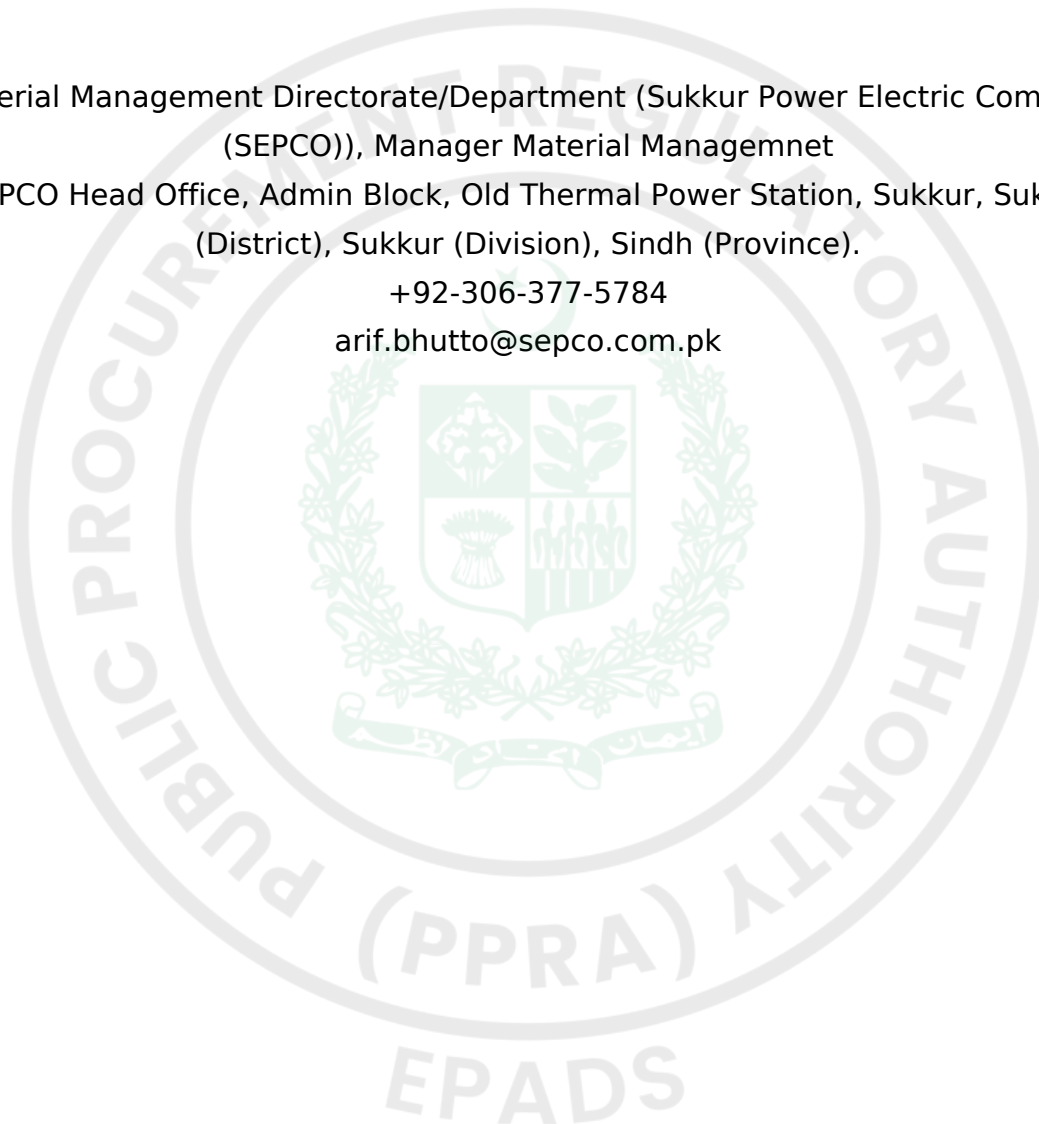
not be entertained. Those vendors who have not yet registered on the new version of **EPADS v2.0**, may register themselves on <https://vendors.epads.gov.pk/>. A tutorial to explain the registration process is available at <https://www.youtube.com/watch?v=MNW6T38v7tc>

7. In terms of Rules 48 of Public Procurement Rules, 2004 Grievance Redressal Committee (GRC) is notified for the subject procurement and notification copy is available on the procuring agency's website and also available on **EPADS v2.0** as well as Authority's website at (www.ppra.org.pk).

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Instructions to Bidders

A. Introduction

1. Scope of Bids

1.1. The Procuring Agency (PA), as indicated in the **Bids Data Sheet (BDS)** invites Bids through **EPADS v2.0** for the provision of Non-Consultancy Services for as specified in the BDS and in **Section Evaluation Criteria, Specifications & Schedule of Requirements**. The name, identification, and number of items/deliverables are provided in the **BDS**. **Single Stage-One Envelope** procedure of the open competitive method shall be used. The successful Bidders will be expected to provide the services within the specified period and timeline(s) as stated in the **BDS**.

2. Source of Funds

2.1. Source of funds is referred in Clause-1 of Invitation for Bids.

3. Fraudulent & Corrupt Practices

3.1. As defined under Rule 2(1)(f) of the Public Procurement Rules, 2004.

4. Eligible Bidders

4.1. A bidder is eligible to participate in a procurement process if the bidder:

4.1.1. possesses or has access to the technical competence, financial resources, equipment and other physical facilities, personnel, managerial capability, experience and reputation necessary to complete the procurement contract;

4.1.2. has the legal capacity to enter into a procurement contract;

4.1.3. is not insolvent, in receivership, bankrupt or being wound up and its activities or affairs are not suspended or being administered under any Act, by a court or by a judicial officer;

4.1.4. is not the subject of legal proceedings for any of the matters mentioned in sub-rule (c);

4.1.5. has fulfilled or has made substantial arrangements satisfactory to the relevant authorities, to fulfil its obligations to pay taxes and social security (where applicable) other contributions of its employees; and

4.1.6. has not, or in the case of a company, its owners and beneficial owners, directors or officers have not, been convicted of a criminal offence related to:

4.1.6.1. its professional conduct; or

4.1.6.2. a bidder (or, in the case of a company, its key individuals such as owners, beneficial owners, directors, or officers) must not have engaged in any prohibited practice, such as fraud, corruption, collusion, or coercion, within the time period stated in the bidding documents, which can be up to three years before the start of the procurement process. Additionally, the bidder must not have been debarred (i.e., banned) from participating in public procurement processes in Pakistan or by any international organization or country. If they have, they are ineligible to participate in the current bidding.

4.2. The procuring agency may require a bidder participating in the procurement process to provide the prescribed documentary evidence or other information to satisfy itself that the bidder is qualified in accordance with the criteria in sub-clause (1).

4.3. A procuring agency shall set out in the bidding document all the criteria for qualification to be applied in accordance with sub-clause (1).

4.4. Except as permitted under the Ordinance, Rules and Regulations, the procuring agency shall not establish a criterion for eligibility of a bidder that:

4.4.1. discriminates against or among a bidder or against categories of bidders; or

4.4.2. is not required for the performance of the procurement contract; or

4.4.3. is not related to the avoidance or management of legal, reputational or economic risk to the procuring agency unless it is in the national interest to do so, and the criteria is set out in the bidding documents.

4.5. A procuring agency shall assess the eligibility of a bidder for participation in the procurement process against the criteria for qualification under sub-clause (1).

4.6. In the case of a joint venture, consortium, or association, all members shall be jointly and severally liable for the execution of the contract in accordance with the terms and conditions of the contract. The joint venture, consortium, or association shall nominate a lead member as nominated in the BDS,

4.7. who shall have the Authority to conduct all business for and on behalf of any and all the members of Joint venture, consortium, or association during the bidding process, and in case of award of contract, during the execution of the contract.

4.8. The appointment of the lead Member in the joint venture, consortium, or association shall be confirmed by submission of valid power of Attorney to the procuring agency.

4.9. Subject to the limits specified in the BDS, the procuring agency may allow bidders to participate in the form of a Joint Venture (JV). However, each party in the JV must individually meet the eligibility criteria specified in the BDS

4.10. No Bidder can be a sub-contractor while submitting a Bids individually or as a member of a joint venture in the same Bidding process.

5. Qualification of the Bidder

5.1. All Bidders shall provide in Section VI, Bid Forms, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.

B. Bidding Documents

6. Contents of Standard Bidding Document

6.1. The Services required, bidding procedure, and terms and conditions of the contract are prescribed in the bidding document. In addition to the Invitation for Bids, the bidding document which should be read in conjunction with any addendum issued by the Procuring Agency include:

Section I -Invitation to Bid

Section II Instructions to Bidders (ITB)

Section III Bid Data Sheet (BDS)

Section IV Eligible Countries

Section V Evaluation Criteria, Specifications, Schedule of Requirements, and Technical Specifications.

Section VI Bidding Forms

Section VII Fraudulent & Corrupt Practices

Section VIII - Material & Non-material deviation

Section IX General Conditions of Contract (GCC)

Section X Special Conditions of Contract (SCC)

Section XI Contract Forms

6.2. The Bidder is expected to examine all instructions, requirements, forms, terms and specifications in the bidding documents. Failure to furnish all the information required in the bidding document will be at the Service provider's risk and may result in the rejection of his bids.

7. Clarifications

7.1. Clarifications of the bidding documents may be requested in writing through EPADS v2.0 by any bidder up to three days prior to the deadline for the submission of bids.

The procuring agency shall respond promptly and in writing to any request by a bidder for clarification of the bidding documents and, in any event, no later than two days prior to the deadline for the submission of bids or proposals.

Responses to requests for clarification shall be communicated simultaneously and in writing to all bidders participating in the procurement proceedings.

No bidder shall be allowed to alter or modify his bid after the bids have been opened however, the procuring agency may seek and accept clarification to the bid that do not change the substance of the bid, through EPADS v2.0.

7.2. Procuring Agency's response will be uploaded on the EPADS v2.0, including a description of the inquiry.

7.3. Should the Procuring Agency deem it necessary to amend the bidding document as a result of a clarification, it shall do so following the procedure under **ITB 1.1.**

7.4. If indicated **in the BDS**, the bidder's designated representative is invited at the bidder's cost to attend a pre-bid meeting at the place, date and time mentioned **in the BDS**. During this pre-bid meeting, prospective bidder(s) may request clarification(s) regarding the schedule of requirements, the Evaluation Criteria or any other aspects of the bidding document.

7.5. Minutes of the pre-bid meeting, if applicable, including the text of the questions asked by bidders, and the responses given, together with any responses prepared after the meeting will be uploaded on EPADS v2.0. Any modification to the bidding document that may become necessary as a result of the pre-bid meeting shall be made by the Procuring Agency exclusively through the use of an Addendum.

7.6. To assist in the examination, evaluation and comparison of Bids of the Bidders, the Procuring Agency may, ask any Bidder for a clarification of its bid including breakdown of prices, through EPADS v2.0. Any clarification submitted by a bidder that is not in response to a request by the Procuring Agency shall not be considered.

No change in the prices or substance of the bid shall be sought, offered, or permitted.

The alteration or modification in the bid which in any way affect the following parameters will be considered as a change in the substance of a

bid:

- 7.6.1. evaluation & qualification criteria;
- 7.6.2. required scope of work or specifications;
- 7.6.3. all securities requirements;
- 7.6.4. tax requirements;
- 7.6.5. terms and conditions of bidding documents; and
- 7.6.6. change in the ranking of the bidders.

From the time of bid(s) opening to the time of contract award, if any bidder wishes to contact the procuring agency on any matter related to the bid, it should do so in writing or through electronic form that provides record of the content of communication.

8. Amendment of Bidding documents

8.1. Before the deadline for submission of bids, the procuring agency for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder or pre-bid meeting may modify the bidding documents by issuing addendum.

8.2. Any addendum issued including the notice of any extension of the deadline shall be part of the bidding document and shall be uploaded on EPADS v2.0 as well as Authority's website. The procuring agency shall promptly publish the addendum at the procuring agency's website indicated in the **BDS**:

Provided that the bidder who had either already submitted his bid, shall have the right to withdraw his already submitted bid and submit the revised bid, prior to the original or extended bid submission deadline.

8.3. To give prospective bidders reasonable time in which to take an addendum/corrigendum into account in preparing their bids, the Procuring Agency may, at its discretion, extend the deadline for the submission of bids:

Provided that the Procuring Agency shall extend the deadline for submission of bids, if such an addendum is issued within last three (03) days of the bid submission deadline.

C. Preparation of Bids

9. Documents Constituting the Bids

9.1. The bids prepared by the bidders shall constitute the following components: -

9.1.1. Forms of bid and Bid Prices completed in accordance with ITB BDS, GCC and SCC;

9.1.2. Documentary evidence established in accordance with BDS that services to be provided by the bidder are eligible services, and conform to the bidding documents;

9.1.3. Documentary evidence established in accordance with BDS that the bidder is eligible and/or qualified for the subject bidding process;

9.1.4. Documentary evidence established, that the bidder has been authorized to provide the services;

9.1.5. Bid security or Bids Securing Declaration furnished in accordance with BDS; and

9.1.6. Any other document required in the BDS.

10. Documents Establishing Eligibility of the Services and Conformity to bidding documents

10.1. To establish the conformity of the Non-Consulting Services to the Bidding document, the bidder shall furnish as part of its bid the documentary evidence that services provided conform to the requirements.

10.2. Standards for the provision of the Non-Consulting Services are intended to be descriptive only and not restrictive.

11. Documents Establishing Eligibility and Qualification of the Bidder

11.1. Pursuant to BDS, the bidder shall furnish, as part of its bid, all those documents establishing the bidder's eligibility to participate in the bidding process and/or its qualification to perform the contract if its bid is accepted.

11.2. The documentary evidence of the bidder's eligibility to bids shall establish to the satisfaction of the procuring agency that the bidder, at the time of submission of its bid, is from an eligible country as defined in Section-IV titled as "Eligible Countries".

11.3. The documentary evidence of the bidder's qualifications to perform the contract if its bid is accepted shall establish to the satisfaction of procuring agency that:

11.3.1. the bidder has the financial, technical, and supply/production capability necessary to perform the Contract, meets the qualification criteria specified in BDS.

11.3.2. that the bidder meets the qualification criteria listed in the Bids Data Sheet.

12. Form of Bid

12.1. The bidder shall fill the Form of Bid furnished in the bidding documents. The Bid Forms must be completed without any alterations to its format and no substitute shall be accepted.

13. Bids Prices

13.1. The Bids Prices quoted by the bidder in the Forms of Bid and in the price schedule shall conform to the requirements specified or exclusively mentioned hereafter in the bidding document.

13.2. All items in the Schedule of Requirements must be listed and priced separately in the Price Schedules. If a Price Schedule shows items listed but not priced and neither explicitly mentioned, their prices shall be construed to be included in the prices of other items.

13.3. The Bid price to be quoted in the Forms of Bid shall be the total price of the bid, excluding any discounts offered.

13.4. The bidder shall indicate on the appropriate Price Schedule, the unit prices (where applicable) and total bid price of the services, it proposes to provide under the contract.

13.5. Prices quoted by the bidder shall be fixed during the currency of the contract and not subject to variation on any account. A bid submitted with an adjustable price will be treated as non-responsive and shall be rejected, unless otherwise price adjustment is permissible under Conditions of the Contract. (May be reviewed)

14. Price Adjustment

14.1. Price adjustment shall not be applicable.

14.2. Procuring agency may increase the remuneration of the human resources involved in non-consultancy services on annual basis as per agreement.

14.3. Procuring agency shall incorporate the provisions to allow wage rate in compliance with Federal Government's minimum wage notification, subject to the applicability in that case.

15. Bids Currencies

15.1. Prices shall be quoted in Pakistani Rupees unless otherwise specified in the BDS.

16. Bid Validity Period

16.1. Bid(s) shall remain valid for the period specified in the BDS after the bid submission deadline prescribed by the Procuring Agency. A Bid valid for a shorter period shall be rejected by the Procuring Agency as non-responsive. The period of bid validity will be determined from the complementary bid securing instrument i.e. the expiry period of bid security or bid securing declaration as the case may be.

17. Bid Security or Bid Securing Declaration

17.1. Unless otherwise specified in the BDS, the bidder shall furnish as part of its bid, in the amount and currency specified in the BDS or Bid Securing Declaration on the format provided in Section VI (Bid Forms) The scanned copy of the Bids Security shall be uploaded in the EPADS v2.0 while submitting bid, whereas the original forms of Bid Security shall be submitted to the procuring agency before the bid submission deadline. The bidder who failed to submit the original bid security before the submission deadline shall be disqualified straightaway.

17.2. The Bid Security or Bid Securing Declaration is required to protect the Procuring Agency against the risk of Bidder's conduct which would warrant the security's forfeiture.

17.3. The Bid Security shall be payable promptly upon written demand by the Procuring Agency in case any of the conditions listed in BDS, GCC and SCC are invoked.

17.4. Unsuccessful Bidders' Bid Security will be discharged or returned as promptly as possible after the award of contract, however in no case later than thirty (30) days after the expiration of the period of Bid Validity prescribed by the Procuring Agency. The Procuring Agency shall make no claim to the amount of the Bid Security, and shall promptly return the Bid Security document, whichever of the following that occurs earliest:

17.4.1. the expiry of the Bid Security;

17.4.2. the entry into force of a procurement contract and the provision of a Performance Guarantee, for the performance of the contract if such a guarantee, is required by the bidding document;

17.4.3. the rejection by the Procuring Agency of all Bids;

17.4.4. the withdrawal of the Bid prior to the deadline for the submission of bids, unless the bidding document stipulate that no such withdrawal is permitted.

17.5. The Bid Security may be forfeited or the Bid Securing Declaration executed:

17.5.1. if a bidder:

17.5.1.1. withdraws its bid during the period of bid validity as specified by the Procuring Agency, and referred by the bidder in the Forms of Bid, except as provided for in the ITBs; or

17.5.1.2. does not accept the correction of errors, or

17.5.2. in the case of a successful bidder fails:

17.5.2.1. **to sign the contract in accordance with SCC; or**

17.5.2.2. **to furnish Performance Guarantee in accordance with BDS and SCC.**

17.6. The bid security shall be valid for a period specified in BDS. Bids with shorter bid security validity period shall be rejected straight away.

18. Alternative Bids by Bidders

18.1. Alternatives will not be considered, unless specifically allowed for in the BDS.

18.2. When alternative times for completion are explicitly invited, a statement to that effect will be included in the BDS and the method of evaluating different time schedules will be described in Evaluation and Qualification Criteria.

19. Withdrawal, Substitution, and Modification of Bids

19.1. Before Bids submission deadline, any bidder may withdraw, substitute, or modify his bid after it has been submitted.

20. Format and Signing of Bids

20.1. The bidder shall prepare and submit his bid with due diligence after carefully reading all the terms and conditions before submission through

EPADS v2.0.

20.2. Any interlineations, erasures, or overwriting shall be valid only if they are signed by the person(s) signing the forms of bid.

D. Submission of Bids

21. Submission of Bids through EPADS v2.0 before Dead deadline

21.1. The Technical and Financial Bids as the case may be, shall be submitted in the due portion of the EPADS v2.0, before bid submission deadline. The bid submission option shall be automatically disabled once the deadline is over.

21.2. The Procuring Agency may, under exceptional circumstances and at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents. In such a case, all rights and obligations of the Procuring Agency and the Bidders that were previously subject to the original deadline shall thereafter be subject to the revised deadline.

E. Opening and Evaluation of Bids

22. Opening & Evaluation of Bids by the Procurement Cell/Evaluation Committee

22.1. The Procuring Agencies to constitute odd number Bid Evaluation Committee for the purpose of bid opening and evaluation of all procurements. As per Rules 29 & 30 of Public Procurement Rules, 2004, The Procuring Agency is required to establish a Procurement Cell/Evaluation Committee which shall Evaluate the Bids in accordance with the evaluation criteria, terms and conditions given in the bidding documents.

23. Opening of Bids

23.1. The Bid Evaluation Committee of the Procuring Agency will open all bids through EPADS, in the presence of bidders' or their representatives who

choose to attend, and other parties with a legitimate interest in the bid proceedings at the place, on the date and at the time, specified in the **BDS**. The Bidders' representatives present shall sign attendance sheet as proof of their attendance.

23.2. The bids shall be opened one at a time, and the following read out and recorded: (a) the name of the bidder; (c) the presence of a bid security, if required; and (d) any other details as the procuring agency may consider appropriate.

23.3. No bid will be rejected at the time of bid opening except for bids whose bid security has not been provided to the procuring agency before submission deadline.

23.4. The procuring agency shall prepare minutes of the bid opening. The record of the bid opening shall include, as a minimum: the name of the bidder and the bid price, if applicable.

24. Confidentiality

24.1. Information relating to the examination, clarification, evaluation and comparison of bids and recommendation of contract award shall not be disclosed to bidders or any other person(s) not officially concerned with such process, until the time of the announcement of the respective evaluation report.

24.2. Any effort by a bidder to influence the procuring agency processing of bids or award decision may result in the rejection of his bid.

25. Preliminary Examination of Bids

25.1. Prior to the detailed evaluation of bids, the procuring agency will determine whether each bid:

25.1.1. meets the eligibility criteria defined in **BDS**;

25.1.2. has been prepared as per the format and contents defined by the procuring agency in the bidding document;

25.1.3. is accompanied by the required securities; and

25.1.4. is substantially responsive to the requirements of the bidding document.

25.2. The procuring agency will confirm that the documents and information specified under **BDS, GCC and SCC** have been provided in the bids. If any of these documents or information is missing, or is not provided in accordance with the Instructions to Bidders, the bids shall be rejected.

25.3. If a bid is not substantially responsive, it will be rejected by the procuring agency and may not subsequently be evaluated for complete technical responsiveness.

26. Examination of Terms and Conditions, Technical Evaluation

26.1. The procuring agency shall evaluate the technical aspects of the bids submitted in accordance with **BDS**, to confirm that all requirements specified in **Evaluation Criteria, Technical Specifications and Schedule of Requirements**, prescribed in the bidding document have been met without material deviation or reservation.

26.2. If after the examination of the terms and conditions and the technical evaluation, the procuring agency determines that the bid is not substantially responsive in accordance with **BDS**, it shall reject the bids.

27. Correction of Errors

27.1. Bids determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows: -

27.1.1. if there is a discrepancy between unit prices and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected, unless in the opinion of the procuring agency there is an obvious misplacement of the decimal point in the unit price, in which the total price as quoted shall govern and the unit price shall be corrected;

27.1.2. if there is an error in a total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail and the total shall be corrected; and

27.1.3. where there is a discrepancy between the amounts in figures and in words, the amount in words will govern.

27.1.4. Where there is discrepancy between grand total of price schedule and amount mentioned on the Forms of bid, the amount referred in Price Schedule shall be treated as correct subject to elimination of other errors.

27.2. The amount stated in the bid will be adjusted by the procuring agency in accordance with the above procedure for the correction of errors and, with the concurrence of the bidder that shall be considered as binding upon the bidder. If the Bidder does not accept the corrected amount, his bid will then be rejected, and the Bid Security may be forfeited or the Bid Securing Declaration may be executed.

28. Conversion to Single Currency

28.1. As per Rule 30 of Public Procurement Rules, 2004.

29. Evaluation of Bids

29.1. The procuring agency shall evaluate bids in accordance with Rule 30 of Public Procurement Rules, 2004 and compare only those bids determined to be substantially responsive.

29.2. In evaluating the Technical Bids of each Bidder, the Procuring Agency shall apply the evaluation criteria and methodologies specified in the Bid Data Sheet (BDS) and in accordance with the Statement of Requirements and Technical Specifications. No other evaluation criteria or methodologies shall be permitted.

29.3. In case of tie of bids, the bidders shall be provided an opportunity to offer their best and final monetary offer through EPADS. However, in no case the rates shall be higher than the original financial bids.

29.4. The Procuring agency evaluation of a bid will take into account:

29.4.1. the bid price, excluding provisional sums and the provision, if any, for contingencies in the summary bill of quantities, but including day work items, where priced competitively;

29.4.2. price adjustment for correction of arithmetic errors in accordance with **ITB 6**;

29.5. converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with **ITB 7**;

29.6. The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.

29.7. If these bidding documents allow bidders to quote separate prices for different lots, and the award to a successful bidder of multiple lots, the methodology of evaluation to determine the lowest evaluated lot combinations in the Form of Bid, is specified in the **BDS**.

30. Determination of Most Advantageous Bids

30.1. Selection technique will be adopted for determining the Successful Bid in accordance with the criteria referred in the **BDS** or prescribed in the separate section titled as Evaluation Criteria.

31. Abnormally Low Financial Bids

31.1. Procuring agency may reject a bid if it has determined that the price, in combination with other constituent elements of the bid, is abnormally low in relation to the subject matter of the procurement, such that it raises material concerns on the part of the procuring agency, as to the ability of the bidder to perform the procurement contract satisfactorily for the offered price.

A procuring agency shall not reject a bid as abnormally low under sub-clause (1) above unless the procuring agency -

31.1.1. requested in writing through EPADS from the bidder a written clarification of his bid, including a detailed price analysis of his bid price in relation to the subject matter of the procurement contract, scope, methodology, schedule, allocation of risks and responsibilities and any other requirements of the bidding document; and

31.1.2. having taken account, the information provided by the bidder in response to a request under paragraph (a) and the information included in the bid, the procuring agency determines that the bidder has failed to demonstrate its ability to perform the procurement contract satisfactorily for the offered price.

The procuring agency shall promptly communicate to the bidder concerned its decision to reject the bid, including the reasons for the decision.

32. Rejection of Bids

32.1. As per Rule 33 of the Public Procurement Rules, 2004

33. Single Responsive Bid

33.1. The procuring agency may consider single responsive bid subject to underlying conditions of Rule 38(b) of the Public Procurement Rules, 2004.

34. Arbitration

34.1. As per Rule 49 of Public Procurement Rules, 2004.

F. Award of Contract

43. Criteria of Award

43.1. The procuring agency will award the Contract to the bidder whose bid has been determined to be substantially responsive to the bidding document and who has been declared as most advantageous Bid.

44. Procuring Agency's Right to reject All Bids

44.1. The procuring agency reserves the right to reject all the Bids and to annul the procurement process at any time prior to acceptance of the bid(s), without thereby incurring any liability to the affected bidder(s).

44.2. Notice of the rejection of all bids shall be given promptly to all bidders that have submitted the bids. The procuring agency shall upon request communicate to any bidder the grounds for the rejection of his bid, but is not required to justify those grounds.

45. Notification of Award

45.1. Prior to the award of contract, the procuring agency shall issue a Final Evaluation Report giving justification for acceptance or rejection of the bids.

45.2. Bidder whose bid has been accepted, will be notified for the award by the Procuring Agency prior to expiration of the Bid Validity period through EPADS. The Letter of Acceptance will state the sum that the procuring agency will pay the successful bidder in consideration for the execution of the scope of works as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price).

45.3. The notification of award will constitute the formation of the Contract, subject to the condition that bidder furnish the Performance Guarantee and signing of the contract.

46. Signing of Contract

46.1. Promptly after notification of award, Procuring Agency shall send the successful bidder the draft agreement, incorporating all terms and conditions as agreed by the parties to the contract. The successful bidder and the procuring agency shall sign the contract.

47. Performance Guarantee

47.1. After the receipt of the Letter of Acceptance, the successful bidder, within the specified time, shall deliver to the Procuring Agency a Performance Guarantee in the amount and in the form stipulated in the **BDS**

and SCC, denominated in the type and proportions of currencies in the Letter of Acceptance and in accordance with the Conditions of Contract.

47.2. Failure of the successful bidder to comply with the requirement of **BDS, SCC and GCC** shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security, in which event the procuring agency may make the award to the next ranked bidder or call for new bids.

48. Corrupt & Fraudulent Practices

48.1. Procuring Agencies (including beneficiaries of Government funded projects and procurement) as well as Bidders/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts, and will avoid to engage in any corrupt and fraudulent practices.

G. Grievance Redressal & Complaint Review Mechanism

53. Constitution of Grievance Redressal

53.1. Procuring agency shall constitute a Grievance Redressal Committee (GRC) comprising of an odd number of persons with proper power and authorization to address the complaint. The GRC shall not have any of the members of Procurement Evaluation Committee.

54. GRC Procedure

54.1. Any aggrieved party or bidder as the case may be, may file grievance in accordance with Rule 48 of the Public Procurement Rules, 2004 and Redressal of Grievance Regulations, 2022

H. Blacklisting/ Debarment

55. Procedure for Blacklisting/Debarment

55.1. The procuring agency may initiate blacklisting proceedings against contractor/supplier in accordance with Rule-19 of the Public Procurement

Rules, 2004 , Mechanism for Blacklisting, Debarment Regulations, 2024 and Regulation on “procedure for filling and disposal of review petition under rule-19(3) of the Public Procurement Rules, 2004.





Bid Data Sheet

Bids Data Sheet (BDS)

The following specific data for the procurement of Non-Consultancy Services to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

BDS Clause Number

ITB Number

Amendments of, and Supplements to, Clauses in the Instruction to Bidders

A. Introduction

BDS Clause Number 1

Name of Procuring Agency: **Material Management Directorate/Department (Sukkur Power Electric Company (SEPCO))**

The subject of procurement is: **TENDER NO. 1395/26 RECLAMATION OF 25-KVA DAMAGED DISTRIBUTION TRANSFORMERS (REPAIRABLE)**

Expected commencement date: **Monday, October 12, 2026**

BDS Clause Number 2

Financial year for the operations of the Procuring Agency: **2026-27**

Name and identification number of the Contract: **P111469**

BDS Clause Number 3

JV/Consortium or Association Allowed: **Yes**

Number of JV/Consortium Members: **3**

B. Bidding Documents

BDS Clause Number 4

The Bidders may seek clarifications through **EPADS v2.0**: Clarification Date: **Monday, September 21, 2026**

BDS Clause Number 5

Any addendum, in case issued, shall be published on **Material Management Directorate/Department (Sukkur Power Electric Company (SEPCO))** website and on **EPADS v2.0**.

BDS Clause Number 6

List of documents required along with the bid:

1. i) Certificate that General Conditions of Contract for purchases by WAPDA dated 12/08/1984 amended up to date and latest purchase procedure are acceptable to the bidder and are hereby agreed to by the bidder
2. ii) Fix Bid Security amount mentioned in bidding Doc for Prequalified / Registered Manufacturers and approved Repairing Workshops of the total value of tender issued by a Scheduled Bank of Pakistan only.
3. iii) Certificate that the Tender offered material is in accordance with the WAPDA / Tender Specifications (amended to date).
4. iv) List of any deviations or reservations from the Bid/Specification.
5. vi) Authorization letter (If any) of the foreign principal / manufacturer for local agents.
6. vii) (Integrity Pact) Declaration of fees, commission and brokerage etc. payable by the suppliers of goods, services and works in contracts worth Rs 10 Million or More.
7. viii) WAPDA / PPMC / DISCOs Prequalified / Registered Manufacturers and approved Repairing Workshops under the category M-1 (Item-iv)
8. ix) Bank Annual turnover certificate along of last three years (03)
9. x) Providing last three years Bank Statement
10. xi) The bidder must submit the copy of certificate for citizenship (CNIC/NICOP), FBR (NTN), FBR (GSTN), and SECP/REGISTRAR OF FIRMS (Whichever applicable)

11. xii) Bidder must submit duly filled, signed and stamped Annexure-B (Bidders Declaration & Undertaking) on Non-Judicial E-Stamp Paper of Rs. 500/- or above, confirming acceptance of all bidding conditions. Non-submission shall render the bid non-responsive.

12. NOTE : Bid Bond all other relevant / technical documents / information should be attached with Tender documents.

BDS Clause Number 7

The qualification criteria to establish the supply / production capability of the bidder.

see Eligibility Criteria

BDS Clause Number 8

Services and Their related documents:

See section Required Services and Scope of Work

BDS Clause Number 9

Price schedule will be provided according to the format defined and acquired.

see section price schedule.

BDS Clause Number 10

Specifications:

see section of specifications.

C. Preparation of Bids

BDS Clause Number 11

The price shall be **Fixed**.

BDS Clause Number 12

Currency of the Bids shall be : **PKR**

BDS Clause Number 13

The Bids/Bid Validity period shall be: **120 Days**

BDS Clause Number 14

The amount of Bid Security shall be as defined in Bid Security Section for items and lots given in **BDS 6**

The Bid Security shall be in the form of: **Pay Order, Banker's Cheque, Call at Deposit, Bank Guarantee, Demand Draft**

BDS Clause Number 15

The Bids security shall be valid for twenty-eight (28) days beyond the expiry of the Bids validity period specified in the bidding documents, for example the bid validity is 90 days so the bid security shall be valid for $90+28 = 118$ days.

BDS Clause Number 16

Alternative Bids to the requirements of the bidding documents will not be permitted.

D. Submission of Bids

BDS Clause Number 17

Bid shall be submitted online on EPADS v2.0 whereas hard copy of the bid security should be submitted to the following;

SEPCO Head Office, Admin Block, Old Thermal Power Station, Sukkur, Sukkur (District), Sukkur (Division), Sindh (Province).

Bids that are not submitted on EPADS v2.0 shall be disqualified.

The deadline for Bids submission is: **Monday, September 28, 2026 10:30 AM**

E. Opening and Evaluation of Bids

BDS Clause Number 18

The Bids opening shall take place on **EPADS v2.0**.

Day : **Monday**

Date: **Monday, September 28, 2026**

Time : **11:00 AM**

BDS Clause Number 19

Selection technique adopted will be: **Least Cost Based Selection (LCBS)**
see *Evaluation Criteria*

F. Award of Contract

BDS Clause Number 20

The Performance guarantee shall: **5.00%**.

The Performance Guarantee shall be acceptable in the form of: **Pay Order, Banker's Cheque, Call at Deposit, Bank Guarantee, Demand Draft**

21.

51.1

Arbitrator shall be appointed by mutual consent of the both parties.

G. Review of Procurement Decisions

BDS Clause Number 22

Grievance against this procurement shall be submitted online on EPADS v2.0.

Eligibility Criteria

Bidder's Type	Required Registration
Individual / Individual Consultant	NADRA CITIZENSHIP (CNIC/NICOP)
Sole Proprietorship	FBR (NTN)
Partnership Firm	FBR (GSTN)
Company (Private Limited)	SECP
Company (Public Limited)	Registrar of Firms
Company (Holding Company)	
Company (Limited by Guarantee)	
State Owned Enterprise (Private Limited)	
State Owned Enterprise (Public Limited)	
NGO / NPO	
IGO	

Eligibility Criteria	Document
The bidder should be registered with income tax & sales tax departments of FBR.	Yes

As per direction of FBR dated 3.9.2015 conveyed vide CE (operation) PEPCO vide letter No.1918-28dated.17.09.2025, only registered suppliers who are on Active Taxpayer List (ATL) of FBR, are eligible to supply goods / services to SEPCO	Yes
WAPDA / PPMC / DISCOs Prequalified / Registered Manufacturers and approved Repairing Workshops under the category M-1 (Item-iv) (Enclose supporting Documents) Registered with Income Tax Department for the Execution of a Work Order / Rate contract for Repair of detailed below Damaged Distribution Transformers and their free lifting & delivery after repair at Consignee Stores i.e Regional Store SEPCO Rohri & Larkana.	Yes
The Bidder shall be duly registered with the relevant authority, as applicable. Failure to provide the required documents shall render the bid non-responsive.	Yes
The Bidder/Manufacturer/Approved Repairing Workshop shall have successfully completed at least two (02) transformer reclamation/repair contracts as the main supplier/contractor, supported by Contract Award Orders or Satisfactory Completion Certificates. In case of a JV, experience may be demonstrated collectively, provided the JV as a whole meets the prescribed experience and quantity requirements. Non-submission of the required documents/certificates shall render the bid non-responsive	Yes
In case of new entrant, the tenderer should submit the copy of educational / regular purchase order issued by any DISCO along-with its completion and performance of supplied material in the light of specification / instructions / guidelines issued by Chief Engineer (D&S) NTDC Lahore letter No.3187-97 dated 20.10.2015, otherwise your firm will be considered as non-responsive.	Yes
Bids may liable to be rejected and declared as rejected/non-responsive forthwith if: Firm is not as per Tax requirements i.e., the bidder should have registered with Income Tax & Sales Tax Department and be listed on Active Taxpayer List (ATL).	No
Bids may liable to be rejected and declared as rejected/non-responsive forthwith if In the event that the total amount of pending or threatened litigations, arbitration and other claims represents twenty five percent (25%) of the Bidder's net worth.	Yes

Bids may liable to be rejected and declared as rejected/non-responsive forthwith if Financial statements and documents to ascertain the financial health of bidder not attached (In case of Litigation only)	Yes
The Reclamation of Transformers shall be strictly according (As per Specification of WAPDA/NGC/PEPCO/SEPCO)(Amended to date) and the quantities mentioned in Schedule of Requirements : Specification No. DDS-84:2007 with (Amendment No.4) and Specification No.DDS-84:2007/2020 with (Amendment No.5) (Amended to date)	Yes
The quoted FCS price in Pak Rupees shall be firm and final and Rate per unit exclusive of all taxes / duties, without credits (copper, HT & LT Bushing Rods etc) and exclusive of all applicable Sales Tax on the basis of free lifting & delivery after reclamation at consignee's store (FCS), Regional Store SEPCO Rohri and Larkana. The Sales Tax be quote separately.	No
Conditional Bids / Rates will not be entertained / accepted.	No
Bid submission / Tender opening date & timings shall be observed strictly	No
You have to submit the requisite Certificate dully filled in, regarding the Declaration of Fees, Commission & Brokerage etc paid by you about Goods, Services & Works.	Yes
Cartel / pool rates are strictly prohibited. The firms found involved in collusive practice shall be dealt under PPRA Rules / PEPCO instructions.	No
In case of holiday announced by the Govt. of Pakistan, strike in SEPCO or any other reasons what so ever due to which this office remains closed on the above scheduled tender opening date, the tender opening date and time will be extended through corrigendum on epads v2.0.	No
The quoted prices per unit are firm for the currency of the contract / Agreement except in case of any change in the existing rate of excise duty or imposition of new Government levy on material and components or increase / decrease in Sales Tax. The claim with this effect shall be paid extra at actual on production of documentary evidence.	No

The quantities stated in the Schedule of Requirements are provisional/estimated and based on SEPCO's anticipated requirements. They are not guaranteed, and SEPCO shall not be bound to procure the full quantity or liable for any shortfall. The actual quantity for reclamation shall be determined based on SEPCO's operational requirements during the Framework Agreement.	Yes
The tender must be accompanied by FIXED bid security mentioned in bidding documents valid for 148 days (One hundred Forty-eight) after the date of tender opening in the form of Call Deposit Receipt (CDR), Bank Draft or Pay Order drawn on a schedule Bank of Pakistan or in lieu of thereof a Bank / Bid Guarantee issued by scheduled Bank of Pakistan on the specified proforma in favor of Chief Executive Officer, SEPCO.	Yes
The firm will reclaim damaged transformers on the FIFO basis. However, in exceptional cases the instructions can be issued by the Manager (M.M) SEPCO for reclamation of specific capacity of transformers in accordance with the requirement of field formations	No
During the time of Rate Contract if any amendment in specification is made by the competent Authority the contractor shall be bound to follow the amended specifications for reclamation of transformers without any extra cost / charges.	No
The damaged tubes of transformers (if any) will be reclaimed / replaced free of cost as per original design	No
The damaged transformers after the allocation / issuance of Release Order will be lifted from the consignee within 07-days, and the same will be returned within 45-days after necessary reclamation from the date of the allocation / issuance of Release Order.	Yes
The damaged transformers under warranty period will be reclaimed by the manufacturer free of cost along with free pick & drop within 30-days of receipt irrespective of the condition that it is damaged due to SEPCO fault or manufacturer fault. The credit warranty period from the date of damage will be brought forward from the date of its receipt in concerned consignee store accordingly. For the acceptance of these reclaimed transformers under warranty period all the routine tests shall be	Yes

The cost sheet shall be based on actual weight in KGs, not percentages. The sepco joint inspection/M&T Report, indicating the actual weight of copper, aluminium and other recoverable materials, shall accompany each Release Order. The credit value of dismantled/recovered material, as determined through the SEPCO Joint Inspection Report, shall be deducted from the quoted BOQ rates.	Yes
This work order / rate contract shall remain in force for a period "01-Year" from the date of its issuance. However, the contract may be extended for further 01 year with mutual consent to meet with the requirements of field formations regarding reclamation of transformers with same rate and terms & conditions according to the Procurement Plan of corresponding year	Yes
Any delay in the lifting/shifting and the return of transformers after necessary reclamation according to the terms and conditions given in the "schedule of requirements" shall deem as delay beyond delivery schedule and the supplier shall be liable for Liquidated Damages (LD). 02% LD up to maximum 10% of render services/contract value (whichever applicable) shall be applicable per month beyond the specified time schedule.	Yes
Bidder must submit duly filled, signed and stamped "Annexure-B" (Bidders Declaration & Undertaking) on Non-Judicial E-Stamp Paper of Rs. 100/- or above, confirming acceptance of all bidding conditions. Non-submission shall render the bid non-responsive.	Yes

Evaluation Criteria

Least Cost Based Selection (LCBS)



Required Services

Positions Without Lots :

Position	Delivery Schedule	Quantity	Bid Security
Damaged Distribution Transformer 25 KVA (With Amendment No.4)	Address: ON FCS Basis at Regional Store Rohri & Larkana Schedule: lifted shall be as per Release Order within 07 days. Reclaim and return transformers to SEPCO Stores Rohri/Larkana within 45 days (including lifting). After Inspection Certificate, deliver within 03 working days. Delay: LD @ 02%/month. Quantity: 90/Qty	90/Qty	302400 PKR
Damaged Distribution Transformer 25 KVA (With Amendment No.5)	Address: ON FCS Basis at Regional Store Rohri & Larkana Schedule: lifted shall be as per Release Order within 07 days. Reclaim and return transformers to SEPCO Stores Rohri/Larkana within 45 days (including lifting). After Inspection Certificate, deliver within 03 working days. Delay: LD @ 02%/month. Quantity: 10/Qty	10/Qty	39552 PKR

Related Services :

Yes

Position	Related Services
Damaged Distribution Transformer 25 KVA (With Amendment No.4)	The Contractor shall complete reclamation, including lifting, transportation and delivery, within 45 days of the Release Order. After inspection/acceptance, delivery shall be made within 3 days. The Contractor shall bear all pick-up/delivery costs.
Damaged Distribution Transformer 25 KVA (With Amendment No.5)	The reclaimed transformer shall have a 12-month warranty. Warranty failures shall be reclaimed free of cost, including pick & drop, within 30 days, irrespective of fault. Unexpired warranty shall carry forward. Routine tests shall be conducted.

Services Specifications

Positions Without Lots :

Position: Damaged Distribution Transformer 25 KVA (With Amendment No.4)

Specifications / Requirements:

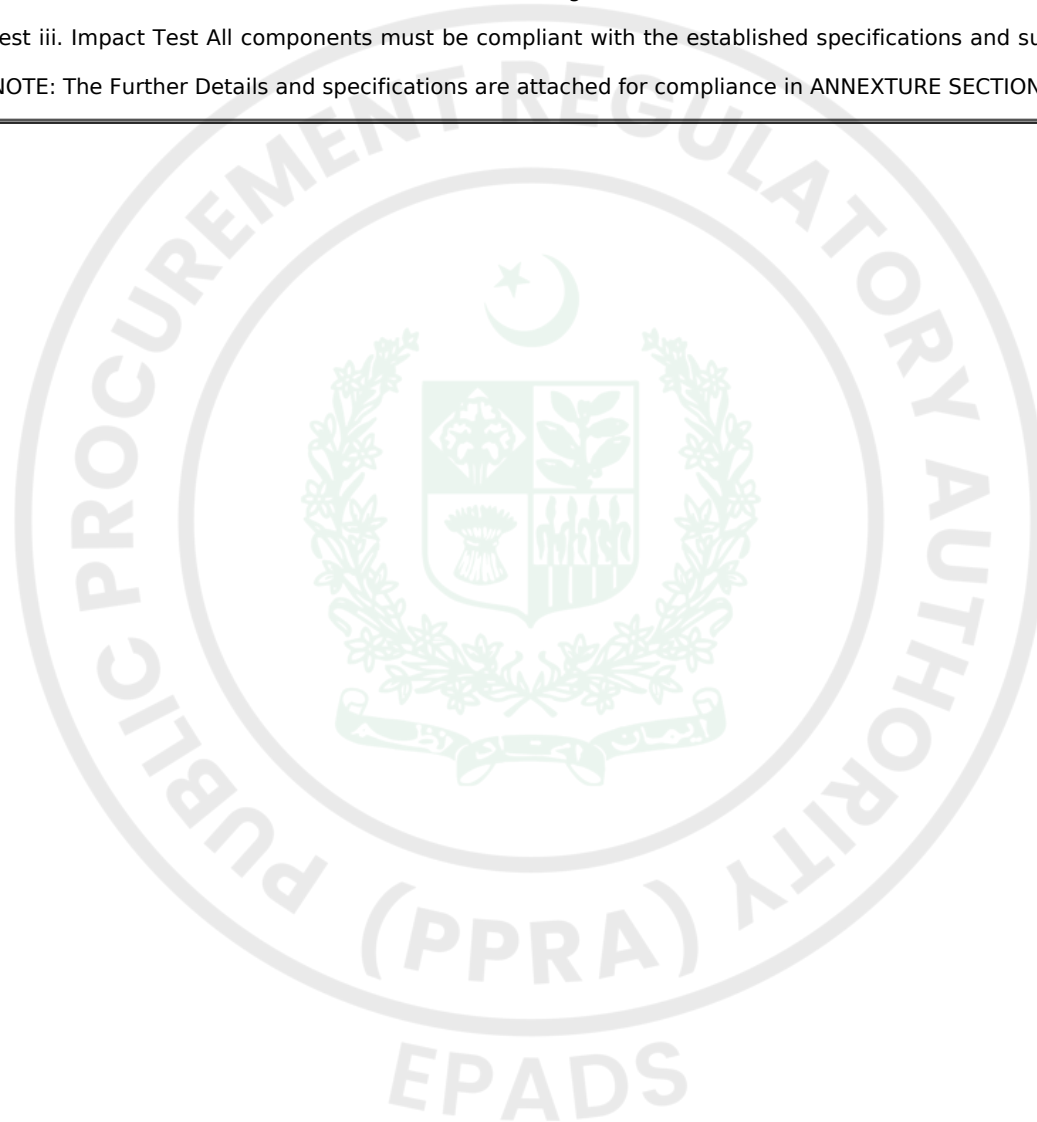
Technical Specifications of Reclamation of Damaged Transformers under WAPDA Specification No. DDS-84:2007 with Amendment No.4 The reclaimed transformers shall comply with the specification mentioned here-under for stage as well as final testing: a) WAPDA Specification No.DDS-84:2007 for Distribution Transformers with amendment No.4 excluding all type tests. b) WAPDA specification No. P-13-69 for Distribution Transformers excluding all types test. c) WAPDA specification No. P-72-70 for Bushing Rod connectors etc. d) IEC-296 for new transformer oil. e) ASTM D1170-62 STMDE-107-79 (a) for various Neoprene Rubber & Cork gas kits. f) BSS-3255-1955 press pan paper. g) DIN-7733 PSP -3052 Press Board Sheet Press Board Block. h) BSS-4516 part -IP 1969 for Enameled Copper Wire. i) BSS-4653 Part-II 1970 for LT Paper Covered Copper Strip. j) IEC-233-1974 for 11 KV Porcelain Bushing. k) IEC-233-1974 for LT Porcelain Bushing. l) Resin for transformer top cover for age long adherence and 8 kV di-electric with stand. m) All HT Bushing of T/Fs to be filled with epoxy resin. n) All top covers nut & bolt and lock plain washers shall be of reputable make, such as BMI Searose and Hescopak etc. All measures described under Annex-IV, V & VI shall be rigidly observed and followed. o) Oil level indication glass shall be 100 % replaced. p) Interior of transformer and channel of T/F core shall be painted with Red oxide of M/S Dulux, Berger or Buxly. q) Exterior of Transformer shall be spray painted in Grey with enamel paint of M/s Dulux, Berger or Buxly, 4 tubes shall be white painted in addition to "RECLAIMED kVA" in bold stencil in white colour, on transformers body. r) Newly installed tubes supported by ring having flate (MS Patti) strip NOTE: The Further Details and specifications are attached for compliance in ANNEXTURE SECTIONS.

Position: Damaged Distribution Transformer 25 KVA (With Amendment No.5)

Specifications / Requirements:

Technical Specifications of Reclamation of Damaged Transformers under WAPDA Specification No.DDS-84:2007/2020 with Amendment No.5 (Amended to date) The reclaimed transformers shall comply with the specification mentioned here-under for stage as well as final testing: a) IEC Publication 60076, Power Transformer (Part 1-5) b) IEC Publication 60137, Bushings c) IEC Publication 60296, (Virgin Oil) & IEC 60422 (Used oil) for Transformer oil d) IEC Publication 60060, High Voltage Test Techniques "The transformers shall

comply with the specifications outlined in NTDC document DDS-84:2020, as amended by Amendment No. 5 (amended to date). All components of the transformers must meet these specifications in their entirety and adhere to all relevant components, protocols and testing requirements. *Technical Specifications of DDS-84:2020 (Amendment No. 5)* 1. Core Material 2. Windings 3. Cooling System 4. Connection Terminal 5. Protection Devices 6. Testing Protocols 7. Routine Tests: i. Dielectric test: ii. Paint Coating Thickness 8. Type Tests: i. Cross cut Adhesion Test ii. Salt Spray Test iii. Impact Test All components must be compliant with the established specifications and subjected to the required testing protocols to ensure optimal performance and safety. NOTE: The Further Details and specifications are attached for compliance in ANNEXTURE SECTIONS.



Scope of Work

Repair/Reclamation of damaged 25 KVA Distribution Transformers, including free lifting from designated SEPCO locations, transportation to the Contractor's approved workshop, complete dismantling, repair/replacement of defective components, rewinding/reconditioning as required, replacement of transformer oil, drying, reassembly, routine testing in accordance with NTDC Approved Specifications DDS-84:2007 (Amendment No. 4) and DDS-84:2020 (Amendment No. 5), inspection/acceptance by SEPCO, and free delivery of the reclaimed transformers to the designated Consignee Stores at Regional Store SEPCO Rohri & Larkana. The Contractor shall complete the reclamation within 45 days of issuance of the Release Order and deliver the accepted transformers within 3 days of inspection/acceptance. The work shall include all labour, transportation, lifting, loading/unloading and other incidental costs. A 12-month warranty shall be provided, including free pick & drop and rectification/reclamation of warranty failures within 30 days."

Price Schedule

For Individual Positions

#	Position Title	Quantity	Unit Price (PKR)	Total Price (PKR)	Delivery Location	Delivery Period / Year	Country of Origin
1							
2							

For Lots

#	Lot Title	Total Lot Price (PKR)	Country of Origin
1	[Lot 1 Title]		





General Conditions of Contract

A. General

1. Definitions

1.1. Unless the context otherwise requires, the following terms whenever used in this Contract shall have the same meaning and shall be interpreted as indicated

1.1.1. “Applicable Law” means the laws and any other instruments having the force of law in the Government’s Country, or in such other country as may be specified in the Special Conditions of the Contract (SC), as they may be issued and in force from time to time;

1.1.2. “The Contract” means an agreement enforceable by law;

1.1.3. “The Contract Price” means the price payable to the Contractor under the Contract for the full and proper performance of its contractual obligations;

1.1.4. “The Services” means the work to be performed by the Contractor pursuant to this Contract and as prescribed in the Specifications and Schedule of Activities included in the Contractor’s Bid;

1.1.5. “Ancillary Services” means those services ancillary to the provision of Services, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training, and other such obligations of the Contractor covered under the Contract;

1.1.6. “GCC” means the General Conditions of Contract contained in this section;

1.1.7. “SCC” means the Special Conditions of Contract by which the GCC may be amended or supplemented;

1.1.8. “Day” means calendar day unless indicated otherwise;

1.1.9. “Effective Date” means the date on which this Contract comes into force and effect;

1.1.10. “The Contractor” means the individual or corporate body whose Bids to provide the Services has been accepted by the Procuring Agency;

1.1.11. “The Project Site,” where applicable, means the place or places named in Bid Data Sheet and technical Specifications;

1.1.12. “Government” means the Government of Pakistan;

1.1.13. “Local Currency” means the currency of Pakistan;

1.1.14. “In Writing” means communicated in written form with proof of receipt;

1.1.15. “Completion Date” means the date of completion of the Services by the Contractor as certified by the Procuring Agency;

1.1.16. “Foreign Currency” means any currency other than the currency of the country of the Procuring Agency;

1.1.17. "Party" means the Procuring Agency or the Contractor, as the case may be, and "Parties" means both of them;

1.1.18. "Service" means any object of procurement other than goods or works;

1.1.19. "Subcontractor" means any entity to which the Bidder subcontracts any part of the Services.

2. Applicable Law

2.1. The contract shall be governed and interpreted in accordance with the laws of Pakistan, unless otherwise specified in SCC.

3. Language

3.1. The Contract as well as all correspondence and documents relating to the Contract exchanged between the Contractor and the Procuring Agency, shall be written in the **English language** unless otherwise stated in the SCC. Supporting documents and printed literature that are part of the Contract may be in another language provided these are accompanied by an accurate translation of the relevant passages in English, in which case, for purposes of interpretation of the Contract, this translation shall govern.

4. Notices

4.1. Any notice, request, or consent made pursuant to this Contract shall be in writing and shall be deemed to have been made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent by registered mail, telex, telegram, or facsimile to such Party at the address specified in the SCC.

5. Location

5.1. The Services shall be performed at such locations as the Procuring Agency may approve and as specified in SCC.

6. Authorized Representatives / Authority of Member in charge

6.1. Any action required or permitted to be taken, and any document required or permitted to be executed, under this Contract by the Procuring Agency or the Contractor may be taken or executed by the officials specified in the SCC.

B. Commencement, Completion, Modification, and Termination of Contract

7. Effectiveness of Contract

7.1. This Contract shall come into effect on the date the Contract is signed by both parties and such other later date as may be stated in the SCC.

8. Commencement of Services

8.1. The Contractor shall confirm availability of Key Experts and begin carrying out the Services not later than the number of days after the Effective Date specified in the SCC.

9. Program schedule

9.1. Before commencement of the Services, the Contractor shall submit to the Procuring Agency for approval a Program showing the general methods, arrangements, order and timing for all activities. The Services shall be carried out in accordance with the approved Program as updated.

10. Starting Date/Expiration Date

10.1. The Contractor shall start carrying out the Services Five (05) days after the date the Contract becomes effective, or at such other date as may be specified in the SCC.

10.2. Unless terminated earlier pursuant to Clause **GCC 14** hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the SCC.

11. Entire Agreement

11.1. This Contract contains all covenants, stipulations and provisions agreed by the Parties. No agent or representative of either Party has authority to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.

12. Modification

12.1. Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may only be made by written agreement between the Parties. However, each Party shall give due consideration to any modification(s) or variation(s) made by the other Party.

12.2. In cases of any modification(s) or variation(s), the prior written consent of the Procuring Agency is required.

13. Force Majeure

13.1. Definition

For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Contractor and which makes a Contractor's performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.

13.2. No Breach of Contract

The failure of a Party to fulfill any of its obligations under the contract shall not be considered to be a breach of, or default under, this Contract in so far as such inability arises from an event of Force Majeure, provided that the Party affected by such an event (a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of this Contract, and (b) has informed the other Party as soon as possible about the occurrence of such an event.

13.3. Extension of Time

Any period within which a Contractor shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

13.4. Payments

During the period of their inability to perform the Services as a result of an event of Force Majeure, the Contractor shall be entitled to continue to be paid under the terms of this Contract, as well as to be reimbursed for additional costs reasonably and necessarily incurred by them during such period for the purposes of the Services and in reactivating the Service after the end of such period.

14. Termination

14.1. By the Procuring Agency

The Procuring Agency may terminate this Contract in case of the occurrence of any of the events specified in paragraphs (a) through (e) of this Clause. In such an occurrence the Procuring Agency shall give at least thirty (30) calendar days' written notice of termination to the Contractor in case of the events referred to in (a) through (d); at least sixty (60) calendar days' written notice in case of the event referred to in (e);

14.1.1. If the Contractor fails to remedy a failure in the performance of its obligations hereunder, as specified in a notice of suspension;

14.1.2. If the Contractor becomes (or, if the Contractor consists of more than one entity, if any of its members becomes) insolvent or bankrupt or enter into any agreements with their creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary;

14.1.3. If the Contractor fails to comply with any final decision reached as a result of arbitration proceedings;

14.1.4. If, as the result of Force Majeure, the Contractor is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days;

14.1.5. If the Procuring Agency, in its sole discretion and for any reason whatsoever, decides to terminate this Contract;

14.2. By the Contractor

The Contractor may terminate this Contract, by not less than thirty (30) calendar days' written notice to the Procuring Agency, in case of the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause.

14.2.1. If the Procuring Agency fails to pay any money due to the Contractor pursuant to this Contract and not subject to dispute within forty-five (45) calendar days after receiving written notice from the Contractor that such payment is overdue;

14.2.2. If, as the result of Force Majeure, the Contractor is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days;

14.2.3. If the Procuring Agency fails to comply with any final decision reached as a result of arbitration;

14.2.4. If the Procuring Agency is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (45) days (or such longer period as the Bidder may have subsequently approved in writing) following the receipt by the Procuring Agency of the Contractor's notice specifying such breach.

C. Obligations of the Contractor

15. General

15.1. Standard of Performance

15.1.1. The Contractor shall perform the Services and carry out the Services with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Contractor shall always act, in respect of any matter relating to this Contract or to the Services, as a faithful adviser to the Procuring Agency, and shall at all times support and safeguard the Procuring Agency's legitimate interests in any dealings with the third parties;

15.1.2. The Contractor shall employ and provide such qualified and experienced Experts and Sub-Contractors as are required to carry out the Services.

15.2. Law Applicable to Services

The Contractor shall perform the Services in accordance with the Contract and in accordance with the Law of Pakistan and shall take all practicable steps to ensure that any of its Experts and Sub-Bidders, comply with the Applicable Law.

16. Conflict of Interests

16.1. Contractor Not to Benefit from Commissions and Discounts

The remuneration of the Contractor shall constitute the Contractor's sole remuneration in connection with this Contract or the Services, and the Contractor shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Contractor shall use their best efforts to ensure that the Personnel, any Subcontractors, and agents of either of them similarly shall not receive any such additional remuneration.

16.2. Contractor and Affiliates Not to be Otherwise Interested in Project

The Contractor agree that, during the term of this Contract and after its termination, the Contractor and its affiliates, as well as any Subcontractor and any of its affiliates, shall be disqualified from providing Services (other than the Services and any continuation thereof) for any project resulting from or closely related to the Services.

16.3. Prohibition of Conflicting Activities

Neither the Bidder nor its Subcontractors nor the Personnel shall engage, either directly or indirectly, in any of the following activities:

- 16.3.1. during the term of this Contract, any business or professional activities in the Government's country which would conflict with the activities assigned to them under this Contract;
- 16.3.2. during the term of this Contract, neither the Contractor nor their Subcontractors shall hire public employees in active duty or on any type of leave, to perform any activity under this Contract;
- 16.3.3. after the termination of this Contract, such other activities as may be specified in the SCC.

17. Insurance to be Taken Out by the Contractor

17.1. The Contractor(a) shall take out and maintain, and shall cause any Subcontractors to take out and maintain, at its (or the Sub-contractors', as the case may be) own cost but on terms and conditions approved by the Procuring Agency, insurance against the risks, and for the coverage, as shall be specified in the SCC; and (b) at the Procuring Agency's request, shall provide evidence to the Procuring Agency showing that such insurance has been taken out and maintained and that the current premiums have been paid.

18. Contractor's Actions Requiring Procuring Agency's Prior Approval

18.1. The Contractor shall obtain the Procuring Agency's prior approval in writing before taking any of the following actions:

- 18.1.1. appointing such members of the Personnel not provided by the Contractor;
- 18.1.2. changing the Program of activities; and
- 18.1.3. any other action that may be specified in the SCC.

19. Reporting Obligations

19.1. The Contractor shall submit to the Procuring Agency the reports and documents in the numbers, and within the periods as prescribed by the Procuring Agency.

20. Liquidated Damages

20.1. Payments of Liquidated Damages

The Contractor shall pay liquidated damages to the Procuring Agency at the rate per day stated in the SCC for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the SCC. The Procuring Agency may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's liabilities.

20.2. Correction for Over-payment

If the Intended Completion Date is extended after liquidated damages have been paid, the Procuring Agency shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in SCC.

20.3. Lack of performance penalty

If the Contractor has not corrected a Defect within the time specified in the Procuring Agency's notice, a penalty for Lack of performance will be paid by the Contractor. The amount to be paid will be calculated as a percentage of the cost of having the Defect corrected, assessed as specified in the Contractor

21. Performance Guarantee

21.1. Within the time stipulated in the acceptance letter from the Procuring Agency, the successful Bidder shall furnish the Performance Guarantee in shape and amount **specified in SCC**.

21.2. The proceeds of the Performance Guarantee shall be payable to the Procuring agency as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

21.3. The Performance Guarantee shall be denominated in the currency of the Contract, or in a freely convertible currency acceptable to the Procuring agency and shall be in the acceptable form as specified in **SCC**.

21.4. The Performance Guarantee will be discharged by the Procuring agency and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless otherwise **specified in SCC**.

22. Sustainable Procurement

22.1. The Contractor shall conform to the sustainable procurement contractual provisions, if and as specified in the **SCC**.

D. Contractor's Personnel

23. Description of Personnel

23.1. The titles, agreed job descriptions, minimum qualifications, and estimated periods of engagement in the carrying out of the Services of the Contractor's Key Personnel. The Key Personnel listed by title as well as by name are hereby approved by the Procuring Agency.

24. Removal and / or Replacement of Personnel

24.1. Except as the Procuring Agency may otherwise agree, no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of the Contractor, it becomes necessary to replace any of the Key Personnel, the Contractor shall provide as a replacement a person of equivalent or better qualifications.

24.2. If the Procuring Agency finds that any of the Personnel have (i) committed serious misconduct or have been charged with having committed a criminal action, or (ii) have reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Contractor shall, at the Procuring Agency's written request specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to the Procuring Agency.

24.3. The Contractor shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of Personnel.

E. Obligations of the Procuring Agency

25. Change in the Applicable Law

25.1. If, after the date of this Contract, there is any change in the Applicable Law with respect to taxes and duties which increases or decreases the cost of the Services rendered by the Contractor, then the remuneration and reimbursable expenses otherwise payable to the Contractor under this Contract shall be increased or decreased accordingly by agreement between the Parties, and corresponding adjustments shall be made to the amounts referred in the SCC.

26. Services and Facilities

26.1. The Procuring Agency shall make available to the Contractor and the Experts, for the purposes of the Services and free of any charge, the services, facilities and property described in the Terms of Reference, at the times and in the manner specified in the Terms of Reference.

26.2. In case that such services, facilities and property shall not be made available to the Contractor, the Parties shall agree on (i) any time extension that it may be appropriate to grant to the Contractor for the performance of the Services, (ii) the manner in which the Contractor shall procure any such services, facilities and property from other sources, and (iii) the additional payments, if any, to be made to the Contractor as a result thereof.

F. Payments to the Contractor

27. Contract Price

27.1. The price payable shall be in Pakistani Rupees unless otherwise specified in the SCC.

28. Terms and Conditions of Payment

28.1. Payments will be made to the Contractor according to the payment schedule stated in the SCC and as per actual invoice submitted by the Contractor.

28.2. Unless otherwise stated in the SCC, the advance payment shall be made against the provision by the Contractor of a bank guarantee for the same amount, and shall be valid for the period stated in the SCC. Any other payment shall be made after the conditions listed in the SCC for such payment have been met, and the Contractor have submitted an invoice to the Procuring Agency specifying the amount due.

29. Quality Control Identifying Defects

29.1. The principle and modalities of Inspection of the Services by the Procuring Agency shall be as indicated in the SCC. The Procuring Agency shall check the Contractor's performance and notify him of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Procuring Agency may instruct the Contractor to search for a Defect and to uncover and test any service that the Procuring Agency considers may have a Defect. Defect Liability Period is as defined in the SCC.

30. Correction of Defects, and Lack of Performance Penalty

30.1. The Procuring Agency shall give notice to the contractor of any Defects before the end of the Contract. The Defects liability period shall be extended for as long as Defects remain to be corrected.

30.2. Every time notice a Defect is given; the contractor shall correct the notified Defect within the length of time specified by the Procuring Agency's notice.

30.3. If the contractor has not corrected a Defect within the time specified in the Procuring Agency's notice, the Procuring Agency will assess the cost of having the Defect corrected, the contractor will pay this amount, and a Penalty for Lack of Performance.

31. Settlement of Disputes Amicable Settlement

31.1. The Parties shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or its interpretation.

32. Dispute Settlement

32.1. Arbitration

If any dispute of any kind whatsoever shall arise between the procuring agency and the contractor in connection with or arising out of the Contract, including without prejudice to the generality of the foregoing, any question regarding its existence, validity or termination, or the execution of the contract, the parties shall seek to resolve any such dispute or difference by mutual consultation. If the parties fail to resolve such a dispute or difference even after negotiations or mediation, then the dispute shall be referred within fourteen (14) days in writing by either party to the Arbitrator, with a copy to the other party.

Any dispute in respect of which a notice of intention to commence arbitration has been given, in accordance with **GCC sub-clause 32.1**, shall be finally settled by arbitration. Arbitration may be commenced prior to or after completion of the Contract. Arbitration proceedings shall be conducted in accordance with Arbitration Act 1940. Notwithstanding any reference to arbitration herein, the parties shall continue to perform their respective obligations under the Contract unless otherwise agreed. The Procuring Agency shall continue to pay the Contractor any undisputed amounts due under the Contract during the resolution of any dispute.



Special Conditions of Contract

SECTION VIII. SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the Conditions of Contract. The corresponding clause number of the GCC is indicated in parentheses.

Number of GC Clause

Amendments of, and Supplements to, Clauses in the General Conditions of Contract

Definitions

The Procuring Agency is: Material Management Directorate/Department (Sukkur Power Electric Company (SEPCO)), Manager Material Managemnet SEPCO Head Office, Admin Block, Old Thermal Power Station, Sukkur, Sukkur (District), Sukkur (Division), Sindh (Province).

The Supplier is:

The title of the subject procurement is: TENDER NO. 1395/26 RECLAMATION OF 25-KVA DAMAGED DISTRIBUTION TRANSFORMERS (REPAIRABLE)

Number of GC Clause 2

Applicable/Governing Law:

The Contract shall be interpreted in accordance with the laws of Islamic Republic of Pakistan

Number of GC Clause 3

Language:

The language of the Contract, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be in **English**.

Number of GC Clause 4

Notices:

The addresses for the notices are:

Procuring Agency:

Material Management Directorate/Department (Sukkur Power Electric Company (SEPCO)), Manager Material Managemnet
SEPCO Head Office, Admin Block, Old Thermal Power Station, Sukkur, Sukkur (District), Sukkur (Division), Sindh (Province).
+92-306-377-5784
arif.bhutto@sepco.com.pk

Contractor/ Bidder:

[Name, address and telephone number].

The Contractor/ Bidder's Representative(s)

[Name, address, telephone number and e-mail address]

Number of GC Clause 6.1

The Authorized Representatives are:

For the Procuring Agency:

Material Management Directorate/Department (Sukkur Power Electric Company (SEPCO)), Manager
Material Management
SEPCO Head Office, Admin Block, Old Thermal Power Station, Sukkur, Sukkur (District), Sukkur
(Division), Sindh (Province).
+92-306-377-5784
arif.bhutto@sepco.com.pk

For the Bidder:

Name:

Designation:

Address:

Number of GC Clause 7

Effectiveness of the contract

The Contractor/Bidder shall be effective within days from the date of signature of the Contract by both parties

Number of GC Clause 8

Commencement of Contract:

The Contractor/ Bidder shall provide Non-Consultancy Services from the effective date of contract.

Number of GC Clause 10.2

Expiration of Contract:

The time period shall be

Number of GC Clause 14

Termination

In the event of termination of the contract due to any reason as already defined in the General Conditions of Contract, the Bidder shall be responsible for providing to the Authority the Services till the time of alternate arrangements.

Number of GC Clause 16

Conflict of Interest:

The Procuring Agency reserves the right to determine on a case-by-case basis whether the Bidder should be disqualified from providing services due to a conflict of a nature described in Clause GCC C2.

Number of GC Clause 20

Liquidated Damages

If the Bidder fails to provide services as required under the contract or in case of any data loss/data breach or any incident compromising the data security or other such failures related to any services, the Bidder shall pay to the Procuring Agency as Liquidated Damages at a rate of **0.06% to 10.00%** of the Contract value, in accordance with the extent of performance failure & the cost of investigating such incidents as judged by the Authority.

Number of GC Clause 21

Performance Guarantee:

The amount of performance guarantee shall be 5.00% of the contract price in acceptable form of Pay Order, Banker's Cheque, Call at Deposit, Bank Guarantee, Demand Draft

Number of GC Clause 27

Currency of Payment:

All the payment to be released to the contractor/Bidder shall be in Pakistani Rupees.

Number of GC Clause F

Payment terms:

Payment will be made to the Bidder against the procured Goods and services according to the actual invoice or running bills submitted by the Bidder against the services provided within the time given in the conditions of the contract.

Number of GC Clause F

Identifying Defects:

The Authority reserves the right at any time to inspect the premises of the provider to inspect the goods and monitor the goods being provided.

Inspections & Tests Requirements

A. Inspection of reclaimed Transformers shall be carried out at the Contractor's works by the SEPCO joint Inspection Committee nominated by the Competent Authority. The Contractor shall notify Manager (M.M), SEPCO in writing when the Transformers are ready for inspection; the inspection call shall be effective upon receipt by Manager (Material Management).

A. Continued: The Contractor shall provide all necessary inspection facilities at its own cost. For inspections outside Sukkur, all expenses of the SEPCO inspection team, including air/road travel, boarding, lodging and daily allowance, shall be borne by the Contractor/Manufacturer.

B. The inspection team will inspect all the necessary tests deemed necessary for reclaimed T/Fs but not restricted to this follows: i. Visual Inspection ii. Measurement of no load losses iii. Measurement of load losses iv. Measurement of percentage impedance Mv. Measurement of winding resistance vi. Transformer Turn Ratio Test vii. Bird Protection Test viii. Transformer Oil Test (see Note I)

B. Continued:ix. Induced Voltage Withstand Tests (double voltage double frequency)x. High Voltage Withstand Testxi. Vector Group – TTR Testxii. Di-Electric Strength Test of Transformer Oil xiii. Tank Pressure with Dry Nitrogen Gasxiv. Copper Loss Testxv. Iron Loss TestNote 1: Following test shall be carried out on Transformer oil. i- Dielectric strength ii- Specific Gravity iii-Viscosity iv-Acidity v-Flash Point

Note 2: Following shall be observed on visual inspectioni-Tank body ii- Tubes iii- Oil level indicator iv- Bushing v- Paint and any other physical defect/shortcomings SPECIFIED LOSSES FOR WAPDA STANDARD TRANSFORMER (As Per With Amendment No. 4) Mentioned and attached in SCC.

SPECIFIED LOSSES FOR WAPDA STANDARD TRANSFORMER (As Per With Amendment No. 5)TRANSFORMER RATING IRON LOSSES COPPER LOSS TOTAL LOSSkVA WFEspecified / Max Watts Specified / Max Watts Specified / Max Watts Mentioned and attached in SCC.

C. INSPECTION AND REJECTION The Inspecting Officer may reject part or all of the consignment if it does not comply with the Work Order/Rate Contract requirements. The decision of the Inspecting Officer shall be final and binding. Rejected Transformers may be re-reclaimed and resubmitted, but such resubmission shall not extend the delivery period. Any delay due to rejection shall be the Contractor's responsibility, and LD shall be deducted as per SCC Clause-20.

D) On final rejection, SEPCO may:a) Have the rejected Goods re-reclaimed at the Contractor's cost.b) Terminate the Contract and recover any resulting loss.SEPCO reserves the right to re-inspect/re-test the Goods at final destination and reject them if necessary, regardless of prior inspection or approval. SEPCO's decision based on such re-inspection/re-testing shall be final and binding on the Manufacturer/Supplier.

i. Inspection and testing of reclaimed Transformers shall be conducted at the Contractor's premises as per specifications. The successful bidder shall bear the cost of tests conducted at authorized external laboratories, if required.ii. New Transformer oil and enameled copper wire shall be tested once during the contract period at RTL Faisalabad or a reputable laboratory, at the Contractor's cost.

iii. Deputy Manager Regional Store SEPCO Rohri and Larkana shall issue fresh GRN for transformers damaged under warranty period if any against the rate contract and maintain up to date record as well as to avoid accumulation of damaged transformers with the firm.

Note :All reclaimed transformers shall be inspected/tested at Contractor's premises by SEPCO/authorized Inspector. All applicable tests shall be conducted as per DDS-84:2007 (Amendment-4) and DDS-84:2020 (Amendment-5), as applicable. Contractor shall provide testing facilities/reports. Transformers shall be delivered only after passing tests and SEPCO acceptance. Failed units shall be rectified/re-tested at Contractor's cost. All inspection/testing expenses shall be borne by Contractor.

Delivery & Documents

Goods shall be properly packed as per standard export packing specified in the Technical Specifications. Each item shall bear "Sukkur Electric Power Company (SEPCO)",Rate Contract No. and year of manufacture, along with other required markings as per specifications

The Goods shall be supplied on FCS basis (Free Consignee Stores) (at Regional Store Rohri/ Larkana) including free lifting and delivery.

i. one original plus four copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;

ii. delivery note, railway receipt, or truck receipt;

iii. Contractor or Supplier's warranty certificate; The warranty period shall be for a period of 12 months from the date of completion of supply.

iv. Bidder shall certify that prime material is used in manufacturing. If used/scrap material or any manufacturing, design or inherent defect is found later, the Goods shall be replaced free of cost with healthy Goods. Replaced Goods shall undergo inspection as per the Technical Specifications and Contract.

v. Inspection certificate issued by the nominated inspectors/agency, and The above documents shall be received by SEPCO before the arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses.

The Insurance shall be in an amount equal to 110 percent of the FCS value of the Goods from "warehouse" to "warehouse" on "All Risks" basis, including War Risks and Strikes.

Number of GC Clause F 5 & 6

Following is the guidance for Dispute Resolution

i. If any dispute of any kind whatsoever shall arise between the Authority and the Bidder in connection with or arising out of the Contract, including without prejudice to the generality of foregoing, any question regarding its existence, validity, termination and the execution of the Contract – whether during developing phase or after their completion and whether before or after the termination, abandonment or breach of the Contract – the parties shall seek to resolve any such dispute or difference by mutual diligent negotiations in good faith within 14 (fourteen) days following a notice sent by one Party to the other Party in this regard.

ii. At future of negotiation the dispute shall be resolved through mediation and mediator shall be appointed with the mutual consent of the both parties.

iii. At the event of failure of mediation to resolve the dispute relating to this contract such dispute shall finally be resolved through binding Arbitration by sole arbitrator in accordance with Arbitration Act 1940. The arbitrator shall be appointed by mutual consent of the both parties. The Arbitration shall take place in Islamabad, Pakistan and proceedings will be conducted in English language.

iv. The cost of the mediation and arbitration shall be shared by the parties in equal proportion however the both parties shall bear their own costs and lawyer's fees regarding their own participation in the mediation and arbitration. However, the Arbitrator may make an award of costs upon the conclusion of the arbitration making any party to the dispute liable to pay the costs of another party to the dispute.

v. Arbitration proceedings as mentioned in the above clause regarding resolution of disputes may be commenced prior to, during or after completion of the contract.

Notwithstanding any reference to the arbitration herein, the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree that the Authority shall pay the Bidder any monies due to the Bidder.

Arbitrator's fee:

The fee shall be specified in Pak Rupees, as determined by the Arbitrator, which shall be shared equally by both parties.

Appointing Authority for Arbitrator:

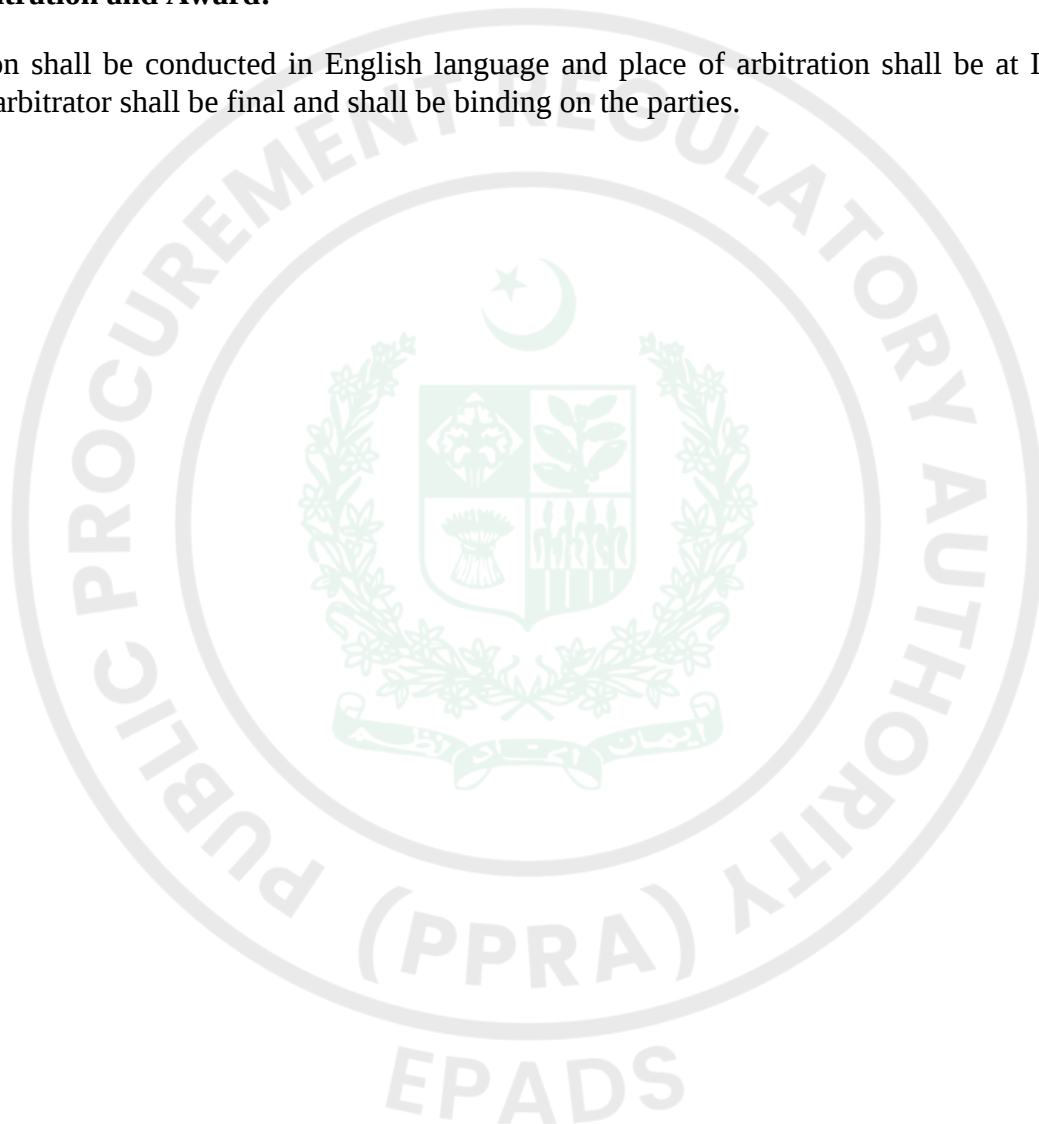
By the Mutual Consent or in accordance with the provisions of Arbitration Act, 1940, in case the parties fail to reach a consensus on the name of sole arbitrator, any party may submit an application to the Chief Justice Islamabad High Court for appointment of sole arbitrator. The Chief Justice IHC may appoint a former judge of any High Court or Supreme Court as the sole arbitrator to resolve the dispute between the parties.

Rules of procedure for arbitration proceedings:

Any dispute between the Authority and a Bidder who is a national of the Islamic Republic of Pakistan arising in connection with the present Contract shall be referred to adjudication or arbitration in accordance with the laws of the Islamic Republic of Pakistan including Arbitration Act 1940, however above provision shall prevail in referring the case to the Arbitrator.

Place of Arbitration and Award:

The arbitration shall be conducted in English language and place of arbitration shall be at Islamabad. The award of the arbitrator shall be final and shall be binding on the parties.





Bid Securing Declaration

Form 9: Bid Securing Declaration

Date: *[insert date (as day, month and year)]*

Bid No.: **P111469**

To: **Material Management Directorate/Department (Sukkur Power Electric Company (SEPCO)), Manager Material Managemnet SEPCO Head Office, Admin Block, Old Thermal Power Station, Sukkur, Sukkur (District), Sukkur (Division), Sindh (Province).**

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid Securing Declaration.

We accept that we will be blacklisted and henceforth cross debarred for participating in respective category of public procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration, however without indulging in corrupt and fraudulent practices, if we are in breach of our obligation(s) under the Bid conditions, because we:

1. have withdrawn or modified our Bid during the period of Bid Validity specified in the Form of Bid;
2. Disagreement to arithmetical correction made to the Bid price; or
3. having been notified of the acceptance of our Bid by the Procuring Agency during the period of Bid Validity, (i) failure to sign the contract if required by Procuring Agency to do so or (ii) fail or refuse to furnish the Performance Security or to comply with any other condition precedent to signing the contract specified in the Bidding Documents.

We understand this Bid Securing Declaration shall expire if we are not the successful

Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight (28) days after the expiration of our Bid.



Contract Form

SECTION IX: CONTRACT FORMS

THIS AGREEMENT made the ____ day of _____ 20____ between **Material Management Directorate/Department (Sukkur Power Electric Company (SEPCO)), Manager Material Managemnet SEPCO Head Office, Admin Block, Old Thermal Power Station, Sukkur, Sukkur (District), Sukkur (Division), Sindh (Province).**

(hereinafter called “the Procuring Agency”) of the one part and [name of Bidder] of [city and country of Bidder] (hereinafter called “the Bidder”) of the other part:

WHEREAS the Procuring Agency invited Bids for provision of goods, viz., **TENDER NO. 1395/26 RECLAMATION OF 25-KVA DAMAGED DISTRIBUTION TRANSFORMERS (REPAIRABLE) (P111469)** and has accepted a Bids by the Bidder for the provision of Goods in the sum of [contract price in words and figures] (hereinafter called “the Contract Price”).

NOW THIS CONTRACT WITNESSETH AS FOLLOWS:

1. In this Contract words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Contract, In the event of any ambiguity or conflict between the Contract Documents listed below, the order of precedence shall be the order in which the Contract Documents are listed below:-

1. This form of Contract;
2. the Form of Bids and the Price Schedule submitted by the Bidder;
3. the Schedule of Requirements;
4. the Technical Specifications;
5. the Special Conditions of Contract;
6. the General Conditions of the Contract;
7. the Procuring Agency’s Letter of Acceptance; and

8. [add here: any other documents]

3. In consideration of the payments to be made by the Procuring Agency to the Bidder as hereinafter mentioned, the Bidder hereby covenants with the Procuring Agency to provide the Goods related services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Procuring Agency hereby covenants to pay the Bidder in consideration of the provision of Goods and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS whereof the parties hereto have caused this Contract to be executed in accordance with their respective laws the day and year first above written.

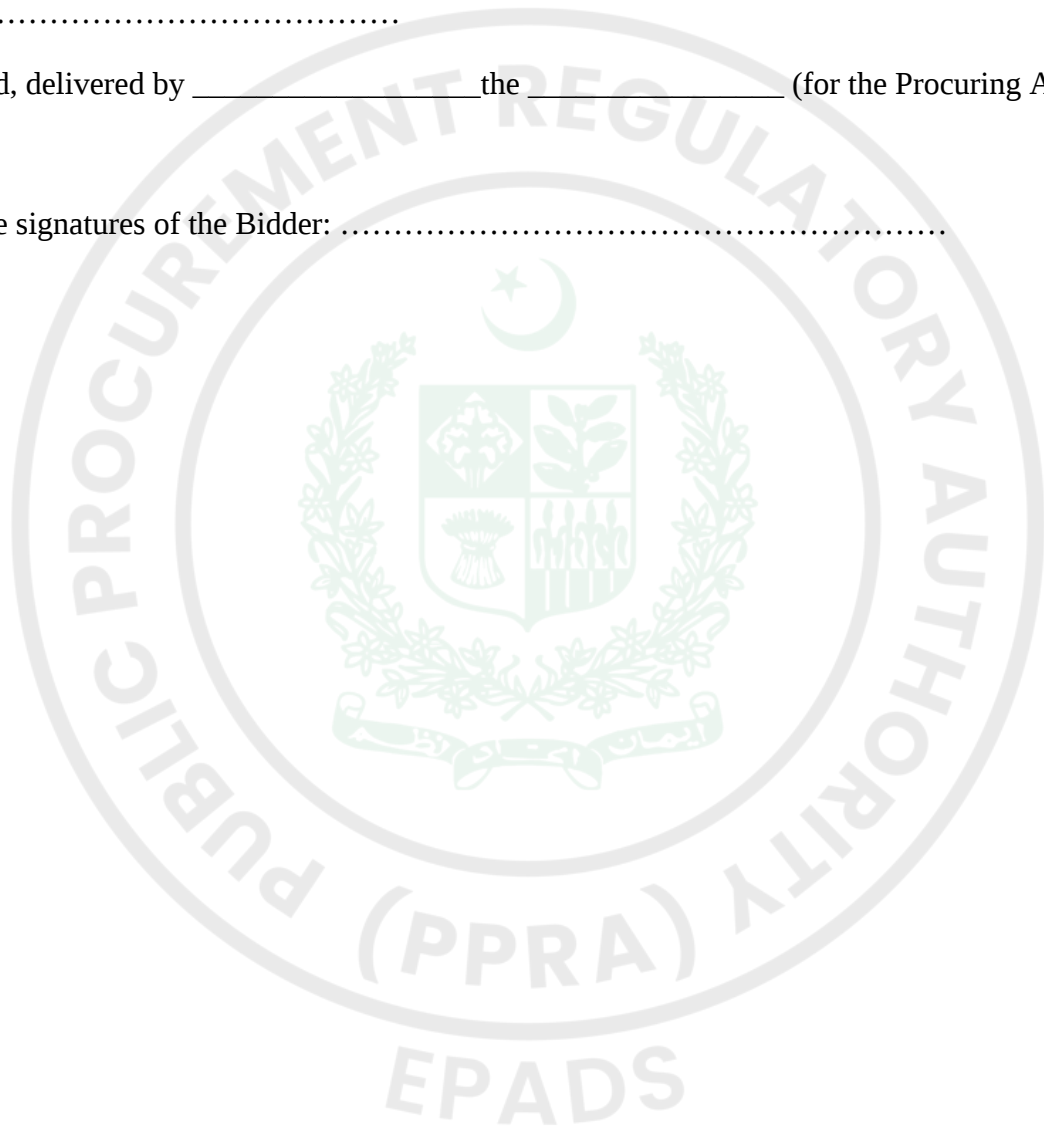
Signed, sealed, delivered by _____ the _____ (for the Procuring Agency)

Witness to the signatures of the Procuring Agency:

.....

Signed, sealed, delivered by _____ the _____ (for the Procuring Agency)

Witness to the signatures of the Bidder:





Integrity Pact

Integrity Pact

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN CONTRACTS WORTH RS.10.00 MILLION OR MORE

Contract

Number: Contract

Value: Contract Title:

Dated:

[Name of Supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business practice.

Without limiting the generality of the foregoing [Name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fee etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultations fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[Name of Supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representative or warranty.

[Name of Supplier] accepts full responsibility and strict liability for making and false declaration, not making full disclosure, misrepresenting fact or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, [Name of Supplier] agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by [Name of Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.



Performance Guarantee Form

Performance Guarantee Form

To: **Material Management Directorate/Department (Sukkur Power Electric Company (SEPCO)), Manager Material Managemnet SEPCO Head Office, Admin Block, Old Thermal Power Station, Sukkur, Sukkur (District), Sukkur (Division), Sindh (Province).**

WHEREAS *[name of Bidder]* (hereinafter called “the Bidder”) has undertaken, in pursuance of Contract No. *[reference number of the contract]* dated *[insert date]* for provision of Goods(hereinafter called “the Contract”).

AND WHEREAS it has been stipulated by you in the said Contract that the Bidder shall furnish you with a Bank Guarantee by a reputable bank for the sum specified therein as security for compliance with the Bidder’s performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Bidders guarantee:

THEREFORE, WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Bidder, up to a total of *[amount of the guarantee in words and figures]*, and we undertake to pay you, upon your first written demand declaring the Bidder to be in default under the Contract and without cavil or argument, any sum or sums within the limits of *[amount of guarantee]* as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the: *[insert date]*

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

[date]





Annexure

BID DATA SHEET (BDS)

Information (Read-Only)

See Form Under Additional Forms and Documents: **BID DATA SHEET (BDS)** (page number: 78)

SCHEDULE OF REQUIREMENTS & TECHNICAL DATA

Information (Read-Only)

See Form Under Additional Forms and Documents: **SCHEDULE OF REQUIREMENTS & TECHNICAL DATA** (page number: 83)

PRICE SCHEDULE Or BOQ

Financial Submission (Vendor)

Document Required

See Form Under Additional Forms and Documents: **PRICE SCHEDULE Or BOQ** (page number: 86)

FORM OF BID

Financial Submission (Vendor)

Document Required

See Form Under Additional Forms and Documents: **FORM OF BID** (page number: 87)

STANDARD FORMS ANNEXURES

NOTE:

All the standard forms must be filled stamped signed and scanned for reuploading in this section. non submission will be considered as nonresponsive for said tender.

Technical Submission (Vendor)

Document Required

See Form Under Additional Forms and Documents: **STANDARD FORMS ANNEXURES** (page number: 88)

GCC AND SSC

Information (Read-Only)

See Form Under Additional Forms and Documents: **GCC AND SSC** (page number: 100)

SEPCO SPECIAL CONDITIONS OF CONTRACT

Information (Read-Only)

See Form Under Additional Forms and Documents: **SEPCO SPECIAL CONDITIONS OF CONTRACT** (page number: 115)

RC TF Specification No. DDS-84-2007 (Amended todate)

Information (Read-Only)

See Form Under Additional Forms and Documents: **RC TF Specification No. DDS-84-2007 (Amended todate)** (page number: 117)

RC TF Specification No. DDS-84-2020 (Amended todate)

Information (Read-Only)

See Form Under Additional Forms and Documents: **RC TF Specification No. DDS-84-2020 (Amended todate)** (page number: 178)



Procurement Forms

Past Experience and Completed Contracts

The Bidder/Manufacturer/Approved Repairing Workshop shall have successfully completed, as the main supplier/contractor, at least two (02) contracts for the reclamation/repairing of transformers along with supporting contract award Order Or satisfactory completion certificate. In case of a Joint Venture (JV), the required experience may be demonstrated collectively by all JV partners, and the JV, as a whole, shall meet the above-mentioned experience and quantity requirements.

In case of new entrant, the tenderer should submit the copy of educational / regular purchase order issued by any DISCO along-with its completion and performance of supplied material in the light of specification / instructions / guidelines issued by Chief Engineer (D&S) NTDC Lahore letter No.3187-97 dated 20.10.2015, otherwise your firm will be considered as non-responsive.

See Form Under Additional Forms and Documents: **Past Experience and Completed Contracts** (page number: 237)

Historical Contract Non-Performance, and Pending Litigation and Litigation History

The Bidder shall provide complete and accurate details regarding historical contract non-performance, pending litigation, and litigation history in the prescribed format given at Annex-C of the Bidding Documents.

See Form Under Additional Forms and Documents: **Historical Contract Non-Performance, and Pending Litigation and Litigation History** (page number: 238)

Current Contracts and Their Progress

The Bidder shall provide details of all current/ongoing contracts and outstanding commitments, if any, in the prescribed proforma of Current Contract Commitments / Contracts in Progress appended to the Bidding Documents. In case of no such contracts, the Bidder shall clearly mention "NIL" in the prescribed proforma.

See Form Under Additional Forms and Documents: **Current Contracts and Their Progress** (page number: 240)

Financial Capacity and Net Worth Evaluation Form

The Bidder shall demonstrate sound financial capacity and sufficient net worth to successfully execute the Contract and ensure its smooth and timely completion.

The Bidder shall provide the required financial information and supporting details in the prescribed Financial Situation and Performance Proforma appended to the Bidding Documents, duly completed and signed.

See Form Under Additional Forms and Documents: **Financial Capacity and Net Worth Evaluation Form** (page number: 241)

Average Annual Turnover

The Bidder shall provide details of its average annual turnover (annual sales value) for the preceding three (03) financial years to demonstrate its financial capacity to successfully execute the Contract. The required information shall be furnished in the prescribed “Average Annual Turnover (Annual Sales Value)” proforma appended to the Bidding Documents, duly completed and supported by relevant financial statements/documentary evidence.

See Form Under Additional Forms and Documents: **Average Annual Turnover** (page number: 243)







Additional Forms and Documents

SUKKUR ELECTRIC POWER COMPANY



BIDDING DOCUMENTS FOR

TENDER NO. 1395/26

**RECLAMATION OF
25-KVA DAMAGED DISTRIBUTION TRANSFORMERS
(REPAIRABLE)**

(DDS-84:2007 AS PER AMENDMENT No.4)

(DDS-84:2020 AS PER AMENDMENT No.5)

**MANAGER
(MATERIAL MANAGEMENT)
SEPCO HEAD QUARTER
OLD THERMAL POWER STATION
SUKKUR**

SEPTEMBER 2026

Bid Data Sheet (BDS)

The following specific data for the goods to be procured shall complement, supplement, or amend.

BDS Clause Number	Amendments of, and Supplements to, Clauses in the Instruction to Bidders
----------------------	--

A. Introduction

1.	Name of Procuring Agency: Sukkur Electric Power Company Ltd. (SEPCO) The subject of procurement is: Reclamation of Damaged Distribution Transformer 25 KVA		
	TF Capacity (Repairable)	(with Amendment No.4)	(with Amendment No.5)
	Damaged Distribution Transformer 25 KVA	90	10
to be supplied on FCS (Free Consignee Stores) at Regional Store Rohri/Larkana including free Lifting and Delivery after reclamation. The unloading after reclamation shall be the responsibility of the supplier. The quantities of transformers indicated in the Schedule of Requirements are provisional/estimated quantities prepared on the basis of the Procuring Agency's anticipated requirement. The quantities are not guaranteed quantities and the Procuring Agency shall neither be bound to procure the entire estimated quantity nor liable to compensate the Service Provider for any shortfall in the quantity actually ordered. The actual quantity of transformers requiring reclamation shall be determined during the currency of the Framework Agreement on the basis of the actual operational requirement of SEPCO. Period of the rate contract: This work order / rate contract shall remain in force for a period "01-Year" from the date of its issuance. However, the contract may be extended for further 01 year with mutual consent to meet with the requirements of field formations regarding reclamation of transformers with same rate and terms and conditions as per approved procurement plan.			
2.	Financial year for the operations of the Procuring Agency: 2026-27 Name of financing institution: SEPCO Name and identification number of the Contract: Tender No. 1395/26		
3.	Maximum number of members in the joint venture, consortium or association shall be: Three		
4.	The invitation to bid is open to all pre-qualified/registered reclamation workshops in DISCOs in the relevant category. Furthermore, bidder must be registered with FBR and be listed as an Active Taxpayers. The procurement process would be as per Public Procurement Rule 36 (a) Single Stage One Envelope procedure.		
5.	Ineligible countries are stated in the Section IV of this Bidding Documents.		

B. Bidding Documents

6.	The Bidding Documents (BD) can be downloaded by interested bidders from the following link: https://epms.ppra.gov.pk/public/tenders/active-tenders?keyword=&tender_no=&closing_date=&tender_type=&procurement_category=1&sector=9&tender_nature=0&organization=44&country=&advertise_date_from=&advertise_date_to=&status=&city= The bidders shall download the Bidding Documents, duly fill, sign and stamp all pages of the same, and upload the scanned copy as part of their bid submission through EPADS V 2.0. In addition, the bidder shall also submit a hard copy of the Bidding Documents, duly signed and stamped, at the office of the Manager Material Management SEPCO Sukkur on or before the deadline for submission of bids. In case of any discrepancy between the uploaded (soft copy) and submitted hard copy, the submitted bid on EPADS V 2.0 shall prevail.
7.	The clarification can be sought on the EPADS portal.

C. Preparation of Bids

8.	The Language of all correspondences and documents related to the Bid is: English
9.	Samples are not required
10.	Power of Attorney Authorizing the signatory of the bidder to submit the bid on the Company's Latter Head.
11.	This detail is not required, in case the firm is registered/pre-qualified with DISCOs/NTDC.
12.	The bidder shall provide the following documents: - Per year reclamation / manufacturing capacity. - Supply/Reclamation record of last three years. - Current contract commitment - Bank statements for the last three years The bidders will submit the detail of installed machinery and available human resources related to this tender / work.
13.	The offered Bid prices shall be on FCS basis (Free Consignee Stores) at Regional Store Rohri/Larkana including free Lifting and Delivery after reclamation. The unloading after reclamation shall be the responsibility of the supplier. Not Applicable
14.	The quoted Prices shall be in PKR.
15.	The Bid Validity period shall be 120 days .
16.	The amount of Bid Security shall be Fixed Bid Security of Rs.341,952 which shall have a minimum validity period of 148 days, commencing from the tender opening date. This extended 28 days period is necessary to enable the fulfillment of all requisite official formalities.
17.	Bid Securing Declaration is not allowed.
18.	The Bid Security shall be in PKR issued in favour of Chief Executive Officer (CEO) SEPCO and it shall be in the form as per the following: - A bank guarantee issued by a scheduled bank of Pakistan in the form provided in the Bidding Documents. - Call Deposit Receipt (CDR)
19.	Alternative Bid is not allowed.
20.	The number of copies of the Bid to be completed
21.	Written confirmation of authorization is required on the bidder's letterhead along with the signature specimen and CNIC number.

D. Submission of Bids

22.	The e-bids, prepared in accordance with the instructions in the e-Bidding documents, must be submitted through EPADS v2.0 on or before Monday, September 28, 2026 10:30 AM. E-bids will be opened on the same day at Monday, September 28, 2026 11:00 AM. In addition, the bidder shall also submit a hard copy of the Bidding Documents, duly signed and stamped, at the office of the Manager Material Management SEPCO Sukkur on or before the deadline for submission of bids. In case of any discrepancy between the uploaded (soft copy) and submitted hard copy, the submitted bid on EPADS V 2.0 shall prevail.
23.	Title of the subject Procurement: Repair/Reclamation of <u>90 Nos.</u> of Damaged Distribution Transformer 25KVA (with Amendment No.4) & Repair/Reclamation of <u>10 Nos.</u> of Damaged Distribution Transformer 25KVA (with Amendment No.5)
	ITB/Tender No: 1395/26 The deadline for Bid submission is: up to 10:30 am 28.09.2026
24.	Time date for Bid Opening: Day: Monday Date: 28.09.2026 Time: 11:00 a.m.

E. Opening and Evaluation of Bids

25.	The Bid opening shall take place at: The office of the Manager Material Management SEPCO, SEPCO Headquarter, Old Thermal Power Station, Sukkur. Day: Monday Date: 28.09.2026 Time: 11:00 a.m.																								
26.	Announcement of rates at the time of tender opening does not mean that all the bidders are responsive.																								
27.	Only PKR currency is acceptable.																								
28.	Technical and Commercial Evaluation/Comparison of bids shall be carried out individually/Item wise on FCS basis (Free Consignee Stores) after deducting the credit offered from the unit price (at Regional Store Rohri/Larkana) including free lifting and delivery after reclamation. Evaluation Criteria is defined below: <table><tr><th>Name of Participating Firm(s)</th><th>Quoted Rate</th><th>Cost of dismantled material</th><th>Net Rate</th><th>Rating</th><th>Relative Price expressed in %age</th></tr><tr><td>M/s. A</td><td>115</td><td>60</td><td>55</td><td>1st lowest evaluated bidder</td><td>100%</td></tr><tr><td>M/s. B</td><td>110</td><td>52</td><td>58</td><td>2nd lowest evaluated bidder</td><td>105.45%</td></tr><tr><td>M/s. C</td><td>100</td><td>40</td><td>60</td><td>3rd lowest evaluated bidder</td><td>109.09%</td></tr></table> The Bid shall be considered non-responsive if the bidder's previous two-year performance against DISCOs/local contracts is not satisfactory. The Damaged Transformers shall be reclaimed as per legitimate delivery schedule strictly according to NTDC/PPMC approved Standard specifications (amended-to-date). Any deviations in the tender specification shall be liable for the rejection of the tender. Arithmetical errors will be rectified on the following basis: If there is a discrepancy between the unit price and total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between the words and figures the amount in words shall prevail. If there is a discrepancy between the total Tender price entered in Form of Tender and the total shown in the Schedule of Prices. The amount stated in the Form of Tender will be corrected by the Purchaser/Engineer in accordance with the Corrected Schedule of Prices. If the Tenderer does not accept the corrected amount of Tender, his Tender shall be rejected and his Tender Security forfeited. Tenders indicating the delivery beyond the date specified in Tender Schedule shall be declared non-responsive. The bidder must be registered with Income Tax and Sales Tax Department.	Name of Participating Firm(s)	Quoted Rate	Cost of dismantled material	Net Rate	Rating	Relative Price expressed in %age	M/s. A	115	60	55	1 st lowest evaluated bidder	100%	M/s. B	110	52	58	2 nd lowest evaluated bidder	105.45%	M/s. C	100	40	60	3 rd lowest evaluated bidder	109.09%
Name of Participating Firm(s)	Quoted Rate	Cost of dismantled material	Net Rate	Rating	Relative Price expressed in %age																				
M/s. A	115	60	55	1 st lowest evaluated bidder	100%																				
M/s. B	110	52	58	2 nd lowest evaluated bidder	105.45%																				
M/s. C	100	40	60	3 rd lowest evaluated bidder	109.09%																				
29.	The comparison shall be made on the basis of i. FCS (Free Consignee Stores) at Regional Store Rohri/Larkana including free loading and unloading of transformers. ii. Bid Price minus credit offered by the bidder.																								
30.	The offered bid in addition to the relevant specification shall be evaluated by the procuring agency's evaluation committee as per PP Rule-4 <i>Principles of Procurement</i> especially in terms of quality, reliability, efficiency, economy and value for money etc.																								
31.	The evaluation shall be carried out as per ITB Clause 30 and Clause-36, 37 & 38 of BDS on the basis of the eligibility of the supplier/manufacturer and the eligibility of goods. Additionally the bidder also has to comply with the SEPCO special requirements. If eligible, the bidder will be selected on the least cost basis.																								
32.	Negotiations will be undertaken as per Public Procurement Rule 40.																								

F. Award of Contract

33.	The Percentage for quantity increase or decrease is 15% during the currency of the contract.
34.	The Performance Security (or guarantee) shall be 5% of the total Contract Price
	The Performance Security (or guarantee) shall be in the form of:

35.	- A bank guarantee issued by a scheduled bank of Pakistan in the form provided in the Bidding Documents.
36.	Advance Payment is not allowed
37.	The Arbitrator shall be appointed by mutual consent of both parties. Arbitration shall take place at SEPCO Sukkur.
38.	1. Grievance Redressal Committee (GRC): A Grievance Redressal Committee (GRC) has been constituted for by the SEPCO Management to address and Redressal of complaints of participated bidders in SEPCO Tenders. The composition of the GRC is as follows: Convener: Operation Director (OD) SEPCO Sukkur Member: Manager Legal, HQ, SEPCO, Sukkur Member: Manager Corporate Account O/O Finance Director, SEPCO, Sukkur 2. Address for Submission of Complaints: All complaints must be submitted in writing to the Convener, GRC, at the following address: Grievance Redressal Committee (GRC) Office Of The Chief Executive Officer Operation Director SEPCO, HQ Thermal House Old Sukkur
	Any Bidder Or Party not satisfied with the decision of the SEPCO GRC, may file an appeal before the PPRA Authority with in thirty (30) days of communication of the decision subject to depositing the prescribe fee and in accordance to the procedure issued by the authority. The decision of the PPRA authority shall be considered as final. The Address of PPRA to submit a copy of grievance: Grievance Redressal Appellate Committee, Public Procurement Regulatory Authority 1st Floor, G-5/2, Islamabad, Pakistan Tel: +92-51-9202254

Schedule of Requirements

The delivery schedule expressed as days stipulates hereafter a delivery date which is the date of delivery at SEPCO Regional Store Rohri and Larkana on FCS (Free Consignee Stores) basis including free loading and unloading at consignee's store by the bidder.

Number	Description	Quantity	Time schedule
1.	The damaged transformers shall be shifted / lifted from the stores	As per the Release Order	07-days
2.	The lifted transformers shall be returned to Regional Store SEPCO Rohri & Larkana duly reclaimed.		45-days From the date of lifting of Transformers.
3.	Inspection Certificate	As per Report	The 07 days lifting period is also included in the 45 days reclamation and return period. The Transformers after the Issuance of Inspection Certificate shall be delivered to SEPCO Stores within 03-working days.
4.	Any delay in the lifting/shifting and the return of transformers after necessary reclamation shall deem as delay beyond delivery schedule and the supplier shall be liable for Liquidated Damages (LD).		2% LD upto maximum 10% of the render services/contract value(whichever applicable) shall be applicable per month beyond the specified time schedule.

Technical Specifications of Reclamation of Damaged Transformers under WAPDA Specification No. DDS-84:2007 with Amendment No.4

The reclaimed transformers shall comply with the specification mentioned here-under for stage as well as final testing:

- a) WAPDA Specification No.DDS-84:2007 for Distribution Transformers with amendment No.4 excluding all type tests.
- b) WAPDA specification No. P-13-69 for Distribution Transformers excluding all types test.
- c) WAPDA specification No. P-72-70 for Bushing Rod connectors etc.
- d) IEC-296 for new transformer oil.
- e) ASTM D1170-62 STMDE-107-79 (a) for various Neoprene Rubber & Cork gas kits.
- f) BSS-3255-1955 press pan paper.
- g) DIN-7733 PSP -3052 Press Board Sheet Press Board Block.
- h) BSS-4516 part –IP 1969 for Enameled Copper Wire.
- i) BSS-4653 Part-II 1970 for LT Paper Covered Copper Strip.
- j) IEC-233-1974 for 11 KV Porcelain Bushing.
- k) IEC-233-1974 for LT Porcelain Bushing.
- l) Resin for transformer top cover for age long adherence and 8 kV di-electric with stand.
- m) All HT Bushing of T/Fs to be filled with epoxy resin.
- n) All top covers nut & bolt and lock plain washers shall be of reputable make, such as BMI Searose and Hescopak etc. All measures described under Annex-IV, V & VI shall be rigidly observed and followed.
- o) Oil level indication glass shall be 100 % replaced.
- p) Interior of transformer and channel of T/F core shall be painted with Red oxide of M/S Dulux, Berger or Buxly.
- q) Exterior of Transformer shall be spray painted in Grey with enamel paint of M/s Dulux, Berger or Buxly, 4 tubes shall be white painted in addition to "RECLAIMED kVA" in bold stencil in white colour, on transformers body.
- r) Newly installed tubes supported by ring having flate (MS Patti) strip

Technical Specifications of Reclamation of Damaged Transformers under WAPDA Specification No.DDS-84:2007/2020 with Amendment No.5 (Amended todote)

The reclaimed transformers shall comply with the specification mentioned here-under for stage as well as final testing:

- a) IEC Publication 60076, Power Transformer (Part 1-5)
- b) IEC Publication 60137, Bushings
- c) IEC Publication 60296, (Virgin Oil) & IEC 60422 (Used oil) for Transformer oil
- d) IEC Publication 60060, High Voltage Test Techniques

"The transformers shall comply with the specifications outlined in NTDC document DDS-84:2020, as amended by Amendment No. 5 (amended todote). All components of the transformers must meet these specifications in their entirety and adhere to all relevant components, protocols and testing requirements.

Technical Specifications of DDS-84:2020 (Amendment No. 5)

- 1. Core Material
- 2. Windings
- 3. Cooling System
- 4. Connection Terminal
- 5. Protection Devices
- 6. Testing Protocols
- 7. Routine Tests:
 - i. Dielectric test:
 - ii. Paint Coating Thickness
- 8. Type Tests:
 - i. Cross cut Adhesion Test
 - ii. Salt Spray Test
 - iii. Impact Test

All components must be compliant with the established specifications and subjected to the required testing protocols to ensure optimal performance and safety.

PRICE SCHEDULE FOR SEPCO TENDER NO 1395/26

- Due by 10:30 AM on 28.09.2026
- Tender will be opened at 11:00 A.M on 28.09.2026

NAME OF BIDDER: _____

Bid Validity : 120 days

Capacity of Transformer	Approx Quantity (No.)	Specification No (Amended todate)	Category	FCS Unit Rate (Free Consignee Stores) in PKR without GST(without credits)	Total Amount in (PKR)
25 KVA	90	DDS-84:2007 With Amendment No 4	Repairable Damaged T/Fs having healthy body & core with oil		
25 KVA	10	DDS-84:2020 With Amendment No 5			
Total					

(In words: _____)

Note: The bidder has to quote for all BOQ items. Incomplete bids shall be rejected.**CREDIT**

The credit of dismantled material will be as per joint inspection report of M&T SEPCO on following rates:

25 KVA (WITH AMENDMENT NO 4)

Sr. No	Description	Unit	Approx. (Qty.)	Unit Credit in (PKR)	Total Amount Credit in (PKR)
1	Credit of Copper	Per kg	26		
2	Credit of Dismantled bushing Rod (LT)	Each	04		
3	Credit of Dismantled bushing Rod (HT)	Each	03		
4	Dirty TF oil with sludge	Ltr	80		
TOTAL :					

Reference: The quantity of copper, HT & LT Bushing Rods is taken from the technical data of M/s. Siemens Pakistan Engineering Co Ltd Karachi for calculation purpose only submitted against SEPCO Tender No 537/10 opened on 30.03.2010. The said tender is last tender for purchase of Distribution Transformer (with amendment No 4).

25 KVA (WITH AMENDMENT NO 5)

Sr. No	Description	Unit	Approx. (Qty.)	Unit Credit in (PKR)	Total Amount Credit in (PKR)
1	Credit of Copper	Per kg	51		
2	Credit of Dismantled bushing Rod (LT)	Each	04		
3	Credit of Dismantled bushing Rod (HT)	Each	03		
4	Dirty TF oil with sludge	Ltr	52.30		
TOTAL :					

Reference: The quantities are taken for calculation purpose only from last Rate Contract No. 22200-03 dated 30.06.2022 issued to M/s. Al-Madina Electric Engineering Works, Hyderabad with amendment No. 5 as maximum credit of copper received from different manufacturers, the actual credit of dismantled copper will be as per M&T Reports.

Bid Security

Bid Bond/Guarantee Fix Amount Of Rs.341,952

Bid Security No. & date _____

Total Bid Amount _____ Bid Security Validity _____

Issuing Authority _____

Note: This tender is governed by Procurement Rules (amended todate) issued by PPRA.

Stamp & Sign: _____ Date: _____

Form of Bid

Bid/Tender No. _____

Date: _____

To

Manager
Material Management
SEPCO Sukkur

We, the undersigned, declare that:

Having examined the Bidding Documents including Addenda, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to deliver _____ in conformity with the said Bidding Documents for the sum of _____ or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We declare that our Bidding price did not involve agreements with other Bidders for the purpose of Bid suppression.

We are hereby confirm, General Manager (Technical) SEPCO as arbitrator, to act as the adjudicator in case of any arisen disputes in accordance with **BDS Clause 47**.

We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our Bid is accepted, we undertake to provide a Performance Security (or Guarantee) in the form, in the amounts, and within the 15-days from the date of issue of Letter of Intent (LOI). Failure to provide the performance guarantee within the stipulated time, the delivery period shall start. The delayed period shall be deducted from the delivery schedule while issuing the Purchase Order.

We declare that as Bidder(s) we do not have a conflict of interest with reference to **ITB Clause 3.7**.

We agree to abide by this Bid for the Bid Validity Period specified in BDS 22, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

We are not participating, as Bidders, in more than one Bid in this Bidding process, other than alternative offers in accordance with the Bidding Documents.

Our firm, its affiliates or subsidiaries – including any subcontractors or suppliers for any part of the contract – has not been declared ineligible by the Government of Pakistan under Pakistan's laws or official regulations.

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any Bid you may receive.

We certify/confirm that we comply with the eligibility requirements as per **ITB Clause 3** of the Bidding Documents.

Dated this _____ day of _____, 20____.

(Name)

[in the capacity of] _____ [signature]

Duly authorized to sign Bid for and on behalf of _____

Form of Qualification Information

1. Individual Bidders or Individual Members of Joint Ventures

1.1 Constitution or legal status of Bidder: *[attach copy]*

Place of registration: *[insert]*

Principal place of business: *[insert]*

Power of attorney of the signatory of Bid: *[attach]*

1.2 Total annual volume of Services performed in 3-5 years, in PKR specified in the Bid Data Sheet: *[insert]*

1.3 Services performed as prime Supplier on the provision of Services of a similar nature and volume over the last 3-5 years. The values should be indicated in the same currency used for Item 1.2 above. Also, list details of work underway or committed, including the expected completion date.

Project name and country	Name of Purchasing Agency and contact person	Type of Services provided and year of completion	Value of Contract
(a)			
(b)			
(c)			
(d)			

1.4 Major items of Supplier's Equipment proposed for carrying out the Services. List all information requested below. Refer also to ITB 13.3(c).

Item of equipment	Description, make, and age (years)	Condition (new, good, poor) and number available	Owned, leased (from whom?), or to be purchased (from whom?)
(a)			
(b)			
(c)			
(d)			

1.5 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data. Refer also to ITB 13.3(d).

Position	Name	Years of experience (general)	Years of experience in proposed position
(a)			
(b)			

1.6 Proposed sub-contracts and firms involved. Refer to GCC 24.

Sections of the Services	Value of Sub-contract	Sub-contractor (name and address)	Experience in providing similar Services
(a)			
(b)			

1.7 Financial reports for the last 3 years: balance sheets, profit and loss statements, auditors' reports, etc. List below and attach copies.

- 1.8** Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List below and attach copies of support documents. We certify/confirm that we comply with eligibility requirements as per ITB 3 of the bidding documents.
- 1.9** Name, address, telephone, telex, e-mail, and facsimile numbers of banks that may provide references if contacted by SEPCO.
- 1.10** Information regarding any litigation, current or within the last 5 years, in which the Bidder is or has been involved.

Other party(ies)	Cause of dispute	Details of litigation	Amount
a)			
b)			

- 1.11** Information regarding Occupation Health and Safety Policy and Safety Records of the Bidder. Attach valid certificates.
- 1.12** Statement of compliance with the requirements of ITB 3.4.
- 1.13** Proposed Program (service work method and schedule). Descriptions, drawings, and charts, as necessary, to comply with the requirements of the bidding documents.

2. Joint Ventures

- 2.1** The information listed in 1.11 - 1.12 above shall be provided for each member of the joint venture.
- 2.2** The information in 1.13 above shall be provided for the joint venture.
- 2.3** Attach the power of attorney of the signatory(ies) of the Bid authorizing the signature of the Bid on behalf of the joint venture.
- 2.4** Attach the Contract among all members of the joint venture (and which is legally binding on all members), which shows that
- all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;
 - one of the members will be nominated as being in-charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all members of the joint venture; and
 - The execution of the entire Contract, including payment, shall be done exclusively with the member in charge.

3. Additional Requirements

- 3.1** Bidders should provide any additional information required in the Bid Data Sheet and to fulfil the requirements of ITB 12.1, if applicable.

We, the undersigned declare that

- The information contained in and attached to this form is true and accurate as of the date of bid submission *Or [delete statement which does not apply]*
- The originally submitted pre-qualification information remains essentially correct as of date of submission

Authorized Signature: _____

Name and Title of Signatory: _____

Name of Bidder: _____

Address: _____

Bid Security Form

To: Chief Executive Officer SEPCO.

Whereas *[name of the Bidder]* (hereinafter called "the Bidder") has submitted its Bid dated *[date of submission of Bid]* for the delivery of *[name and/or description of the goods]* (hereinafter called "the Bid").

KNOW ALL PEOPLE by these presents that WE *[name of Financial Institution]* of *[name of country]*, having our registered office at *[address of Financial Institution]* (hereinafter called "the Bank"), are bound unto *[name of SEPCO]* (hereinafter called "SEPCO") in the sum of *[amount]* for which payment well and truly to be made to the said SEPCO, the Bank binds itself, its successors, and assigns by these presents.

Sealed with the Common Seal of the said Bank this _____ day of _____ 20_____.

THE CONDITIONS of this obligation are:

1. If the Bid

- (a) have withdrawn or modified our Bid during the period of Bid Validity specified in the Form of Bid;
- (b) Disagreement to arithmetical correction made to the Bid price; or
- (c) having been notified of the acceptance of our Bid by SEPCO during the period of Bid Validity, (i) failure to sign the contract if required by SEPCO to do so or (ii) fail or refuse to furnish the Performance Security or to comply with any other condition precedent to signing the contract specified in the Bidding Documents.

2. We undertake to pay to SEPCO up to the above amount upon receipt of its first written demand, without SEPCO having to substantiate its demand, provided that in its demand SEPCO states the amount claimed by it is due to it, owing to the occurrence of one or both of the conditions, specifying the occurred condition or conditions..

This guarantee shall remain in force up to and including twenty-eight (28) days after the period of Bid Validity, and any demand in respect thereof should reach the Bank not later than the above date.

Name: _____ in the capacity of _____

signed

[Signature of the Bank]

Dated on _____

Performance Security (or guarantee) Form

To: Chief Executive Officer SEPCO

WHEREAS *[name of Supplier]* (hereinafter called "the Supplier") has undertaken, in pursuance of Contract No. *[reference number of the contract]* dated *[insert date]* to delivery *[description of goods and services]* (hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the Supplier shall furnish you with a Bank Guarantee by a reputable bank for the sum specified therein as security for compliance with the Supplier's performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Supplier a guarantee:

THEREFORE, WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of *[amount of the guarantee in words and figures]*, and we undertake to pay you, upon your first written demand declaring the Supplier to be in default under the Contract and without cavil or argument, any sum or sums within the limits of *[amount of guarantee]* as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the: *[insert date]*

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

[date]

Integrity Pact

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN CONTRACTS WORTH RS.10.00 MILLION OR MORE

Contract Number: _____

Date: _____

Contract Title: _____

Contract Value: _____

[Name of Supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business practice.

Without limiting the generality of the foregoing [Name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fee etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultations fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[Name of Supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representative or warranty.

[Name of Supplier] accepts full responsibility and strict liability for making and false declaration, not making full disclosure, misrepresenting fact or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, [Name of Supplier] agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by [Name of Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.

Buyer

Seller

BIDDERS DECLARATION & UNDERTAKING

TO BE FILLED & AFFIXED ON NON-JUDICIAL E-STAMP PAPER WORTH RS. 500/- OR ABOVE

- I _____ confirm that the quoted prices are exclusive of GST and acceptance to SEPCO Joint inspection Committee and M&T Report, loading, labour charges, transport charges (or any other charges) for lifting of damaged distribution transformers.
- I _____ also confirm that all terms and conditions mentioned in this tender document are fully understood and acceptable to me and my firm.
- I _____ also confirm that my firm is not blacklisted / not debarred by any Government or Semi Government organization and my firm has not defaulted in any tender of transformers reclamation/repairing.
- I _____ undertakes that all used transformer oil recovered during reclamation shall be sold only to OGRA approved firms duly notified/authorized by the Ministry of Petroleum and Natural Resources, Government of Pakistan, in accordance with Clause 2.3(b) of the WAPDA Material Disposal Procedure and applicable rules.
- I _____ will comply with all applicable laws, including those related to Tax, Safety and Environment.
- I _____ also confirm that SEPCO reserves the right to Recover Damages or Losses caused to SEPCO property or personnel while lifting/shifting of damage distribution transformers as per bidding document conditions.
- I _____ will comply that the reclamation of TF is in accordance As per Specification of WAPDA/NGC/PEPCO/SEPCO)(Amended to date) DDS-84:2007 with (Amendment No.4) and Specification No.DDS-84:2007/2020 with (Amendment No.5) (Amended to date).
- I _____ also undertake that in case my firm declared as 2nd Lowest Responsive Bidder, the earnest money shall be retained till issuance of Work/Purchase Order to the successful bidder for reclamation of transformers.

Signature of Bidder: _____

Name of Bidder: _____

CNIC No. _____

Date _____

Notarized by _____

NON / INVOLVEMENT LITIGATION CERTIFICATE

It is certified that M/s. _____
is not involved in the litigation in any court of law against Sukkur Electric Power Company (SEPCO) and other DISCOs / any formation of WAPDA till date.

Stamp with Signature

If the firm (M/s. _____) is involved in any litigation against above organizations then provide one page brief alongwith following information on the prescribed proforma.

Name of DISCO / Formation	P.O / W.O	Dated	Item	Amount Involved (Rs.)		Reason for Litigation	Current Status with Attested Copies of the evidences (Under Process / Resolved / Stay Order / Arbitrations)
				Pending or Threatened	Resolved		

Net worth of the Firm ending latest fiscal year = _____
(Alongwith proof / documentary evidences of required net worth). Bank statement and FBR statement must be attached.

%age of pending or threatened litigation with respect to Net worth _____

In case of any information found incorrect from the above, SEPCO reserve the right to cancel our tender or prequalification and registration without assigning any reason what so ever and all consequences at our cost.

Stamp with Signature

SCHEDULE OF TECHNICAL DEVIATIONS

DEVIATIONS FROM TECHNICAL PROVISIONS

It is presumed that the tenderer shall not take any deviation. However, if he intends to take deviations to the specified terms, those must be listed in the space provided below:-

Sr. No.	Clause No./Section No.	Deviations/Clarifications

Stamp with Signature

SCHEDULE OF TECHNICAL DEVIATIONS

It is presumed that the tenderer shall not take any deviation. However, if he intends to take deviations to the specified Contractual/Commercial Conditions, those must be listed in the space provided below:-

[illegible]

Stamp with Signature

Declaration of Ultimate Beneficial Owners Information for Public Procurement Contracts.

- [illegible]

- | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------------------------------|--|---------------------------------|--|-----------------------------|------------|--|---|
| Name and surname (in Block Letters) | CNIC No. (in case of foreigner, Passport No) | Father's/Husband's Name in full | Current Nationality | Any other Nationality (ies) | Occupation | Residential address in full or the registered/principal office address for a subscribers other than natural person | Number of shares taken by cash subscriber(in figures and words) |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Total numbers of shares taken (in figures and words) | | | | |

- Name and signature**
(Person authorized to issue notice on behalf of the company)

Manufacturer's Authorization

(This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. The Bidder shall include it in its Bid, if so indicated in the BDS.)

Date: [insert date of Bid submission]
Tender No.:

To: [insert complete name of Procuring Agency]

WHEREAS

We [insert complete name of Manufacturer], who are official manufacturers of (insert type of goods manufactured), having factories at [insert full address of Manufacturer's factories], do hereby authorize [insert complete name of Bidder] to submit a Bid the purpose of which is to provide the following Goods, manufactured by us insert name and or brief description of the Goods], and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Clause 28 of the General Conditions of Contract, with respect to the Goods offered by the above firm.

Signed: [insert signature(s) of authorized representative(s) of the Manufacturer]

Name: (insert complete name(s) of authorized representative (s) of the Manufacturer)

Title: [insert title]

Dated on _____ day of _____ [insert date of signing]

DECLARATION REGARDING USE OF PRIME MATERIAL

(A) We _____
(Company's Name)

declare that the material used for the manufacturing of the Distribution Transformers will 100% confirm to the WAPDA/PEPCO Specification No. DDS-84:2007 (Without Amendment No.5 amended to date) and WAPDA/PEPCO Specification No. DDS-84:2020 (With Amendment No.5 amended to date) as per relevant specification clauses of Transformer Oil and Core material (Silicon Steel) of the Distribution Transformers.

(B) We _____
(Company's Name)

hereby clarify that _____
(Company's Name)

is not involved in using or used material since 5-years or since _____ (Number of years since Transformers manufacturing business).

(C) We _____
(Company's Name)

further clarify that non adherence of the above said conditions may cause the forfeit of Tender / Performance Guarantees and may also be liable for getting Black Listed in **SEPCO** for any kind of Tender participation / Business forever.

For (Company's Name)

AUTHORIZED SIGNATURE WITH COMPANY'S SEAL

GENERAL CONDITIONS OF THE CONTRACT (GCC)

1. Definitions	1.1	The following words and expressions shall have the meanings hereby assigned to them: a) "Authority" means Public Procurement Regulatory Authority. b) The "Arbitrator" is the person appointed with mutual consent of both the parties, to resolve contractual disputes as provided for in the General Conditions of the Contract GCC Clause 31 hereunder. c) The "Contract" means the agreement entered into between SEPCO and the Supplier, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein. d) The "Commencement Date" is the date when the Supplier shall commence execution of the contract as specified in the SCC. e) "Completion" means the fulfillment of the related services by the Supplier in accordance with the terms and conditions set forth in the contract. f) "Country of Origin" means the countries and territories eligible under the PPRA Rules 2004 and its corresponding Regulations as further elaborated in the SCC. g) The "Contract Price" is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract. h) "Defective Goods" are those goods which are below standards, requirements or specifications stated by the Contract. i) "Delivery" means the transfer of the goods from the supplier equipment, machinery, and /or other materials which the Supplier is required to supply to SEPCO under Contract. j) "Effective Contract date" is the date shown in the Certificate of Contract Commencement issued by SEPCO upon fulfilment of the conditions precedent stipulated in GCC Clause 3. k) "SEPCO" means the person named as SEPCO in the SCC and the legal successors in title to this person, procuring the Goods and related service, as named in SCC. l) "Related Services" means those services ancillary to the delivery of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training, initial maintenance and other such obligations of the Supplier covered under the Contract. m) "GCC" means the General Conditions of Contract contained in this section. n) "Intended Delivery Date" is the date on which it is intended that the Supplier shall effect delivery as specified in the SCC. o) "SCC" means the Special Conditions of Contract. p) "Supplier" means the individual private or government entity or a combination of the above whose Bid to perform the contract has been accepted by SEPCO and is named as such in the Contract Agreement, and includes the legal successors or permitted assigns of the supplier and shall be named in the SCC. q) "Project Name" means the name of the project stated in SCC. r) "Day" means calendar day. s) "Eligible Country" means the countries and territories eligible for participation in accordance with the policies of the Federal Government. t) "End User" means the organization(s) where the goods will be used, as named in the SCC. u) "Origin" means the place where the Goods were mined, grown, or produced or from which the Services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially recognized new produce results that is substantially different in basic characteristics or in purpose or utility from its components. v) "Force Majeure" means an unforeseeable event which is beyond reasonable control of either Party and which makes a Party's performance of its obligations under the Contract impossible or so impractical as to be considered impossible
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		under the circumstances. For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party, is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of a Party, and which makes a Party's performance of its obligations hereunder impossible or so impractical as reasonably to be considered impossible in the circumstances. and includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood, epidemics, or other adverse weather conditions, strikes, lockouts or other industrial action (except where such strikes, lockouts or other industrial action are within the power of the Party invoking Force Majeure to prevent), confiscation or any other action by Government agencies. w) "Specification" means the Specification of the Goods and performance of incidental services in accordance with the relevant standards included in the Contract and any modification or addition made or approved by SEPCO. x) The Supplier's Bid is the completed Bid document submitted by the Supplier to SEPCO.
2. Application and Interpretation	2.1	These General Conditions shall apply to the extent that they are not superseded by provisions of other parts of the Contract.
	2.2	In interpreting these Conditions of Contract headings and marginal notes are used for convenience only and shall not affect their interpretations unless specifically stated; references to the singular include the plural and vice versa and masculine include the feminine. Words have their ordinary meaning under the language of the Contract unless specifically defined.
	2.3	The documents forming the Contract shall be interpreted in the following order of priority: - Form of Contract, - Special Conditions of Contract, - General Conditions of Contract, - Letter of Acceptance, - Certificate of Contract Commencement - Specifications - Contractor's Bid, and - Any other document listed in the Special Conditions of Contract as forming part of the Contract.
3. Conditions Precedent	3.1	Having signed the Contract, it shall come into effect on the date on which the following conditions have been satisfied: - Submission of performance Security (or guarantee) in the form specified in the SCC; - Furnishing of Advance Payment Unconditional Guarantee.
	3.2	If the Condition precedent stipulated on GCC Clause 3.1 is not met by the date specified in the SCC this contract shall not come into effect;
	3.3	If SEPCO is satisfied that each of the conditions precedent in this contract has been satisfied (except to the extent waived by him, but subject to such conditions as he shall impose in respect of such waiver) he shall promptly issue to the supplier a certificate of Contract commencement, which shall confirm the start date.
4. Governing Language	4.1	The Contract as all correspondence and documents relating to the contract exchanged by the Supplier and SEPCO shall be written in the language specified in SCC. Subject to GCC Clause 3.1, the version of the Contract written in the specified language shall govern its interpretation.
5. Applicable Law	5.1	The contract shall be governed and interpreted in accordance with the laws of Pakistan, unless otherwise specified in SCC.
6. Country of Origin	6.1	The origin of Goods and Services may be distinct from the nationality of the Supplier.
7. Standards	7.1	The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, the American Standards (such as ACI, IEEE, ASME, etc.) or the Pakistani standards such as PSQCA such standards shall be the latest issued by the concerned institution.
8. Use of Contract Documents and	8.1	The Supplier shall not, without SEPCO's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information

Information; Inspection and Audit by the Government of Pakistan		furnished by or on behalf of SEPCO in connection therewith, to any person other than a person employed by the Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only as far as may be necessary for purposes of such performance.
	8.2	The Supplier shall not, without SEPCO's prior written consent, make use of any document or information enumerated in GCC Clause 7.1 except for purposes of performing the Contract.
	8.3	Any document, other than the Contract itself, enumerated in GCC Clause 7.1 shall remain the property of SEPCO and shall be returned (all copies) to SEPCO on completion of the Supplier's performance under the Contract if so required by SEPCO.
	8.4	The Supplier shall permit the Government of Pakistan or / and donor agencies involved in financing the project to inspect the Supplier's accounts and records relating to the performance of the Supplier and to have them audited by auditors appointed by the Government of Pakistan or / and the appropriate donor agencies if so required by the Government of Pakistan or / and the appropriate donor agencies.
9. Patent and Copy Rights	9.1	The Supplier shall indemnify SEPCO against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof in Pakistan.
	9.2	The patent right in all drawings, documents, and other materials containing data and information furnished to SEPCO by the Supplier herein shall remain vested in the supplier, or, if they are furnished to SEPCO directly, or through the Supplier by any third party, including suppliers of materials, the patent right in such materials shall remain vested in such third party.
10. Performance Security (or Guarantee)	10.1	The Performance Security (or Guarantee) shall be provided to SEPCO no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to SEPCO, and denominated in the types and proportions of the currencies in which the Contract Price is payable as specified in the SCC.
	10.2	The proceeds of the Performance Security (or Guarantee) shall be payable to SEPCO as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.
	10.3	The Performance Security (or Guarantee) shall be in one of the following forms: a) A bank guarantee, an irrevocable letter of credit issued by a reputable bank, or in the form provided in the Bidding Documents or another form acceptable to SEPCO; or b) A cashier's or certified check.
	10.4	The performance security (or guarantee) will be discharged by SEPCO and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations unless otherwise specified in SCC.
11. Inspections and Test	11.1	SEPCO or its representative shall have the right to inspect and /or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to SEPCO. SCC and the Technical Specifications shall specify what inspections and tests SEPCO shall notify the Supplier in writing or in electronic forms that provide record of the content of communication, in a timely manner, of the identity of any representatives retained for these purposes.
	11.2	The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery, and/or at the Goods' final destination. If conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to SEPCO.
	11.3	Should any inspected or tested Goods fail to conform to the Specifications, SEPCO may reject the Goods, and the Supplier shall replace the rejected Goods to meet specification requirements free of cost to SEPCO.
	11.4	SEPCO's right to inspect, test and, where necessary, reject Goods after the Goods' arrival in SEPCO's country shall in no way be limited or eared by reason of the Goods having previously been inspected, tested, and passed by SEPCO or its representative

		prior to the Goods' shipment from the country of origin.
	11.5	Nothing in GCC Clause 10 shall in any way release the supplier from any warranty or other obligations under this Contract.
12. Packing	12.1	The supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods final destination and the absence of heavy handling facilities at all points in transit.
	12.2	The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by SEPCO.
13. Delivery and Documents	13.1	Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in the Schedule of Requirements. The details of shipping and or other documents to be furnished by the Supplier as specified in SCC.
	13.2	For purposes of the Contract, "EXW", "FOB", "FCA", "CIF", "CIP," and other trade terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of INCOTERMS published by the International Chamber of Commerce, Paris.
	13.3	Documents to be submitted by the Supplier are specified in SCC.
14. Insurance	14.1	The Goods supplied under the Contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery in the manner specified in the SCC.
15. Transportation	15.1	Where the Supplier is required under Contract to deliver the Goods FOB, transport of the Goods, up to and including the point of putting the Goods on board the vessel at the specified port of loading, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price. Where the Supplier is required under the Contract to deliver the Goods FCA, transport of the Goods and delivery into the custody of the carrier at the place named by the Procuring Agency or other agreed point shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.
	15.2	Where the Supplier is required under Contract to deliver the Goods CIF or CIP, transport of the Goods to the port of destination or such other named place of destination in Pakistan, as shall be specified in the Contract, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.
	15.3	Where the Supplier is required under the Contract to transport the Goods to a specified place of destination within Pakistan, defined as the Project Site, transport to such place of destination in Pakistan, including insurance and storage, as shall be specified in the Contract, shall be arranged by the Supplier, and related costs shall be included in the Contract Price.
16. Related Services	16.1	The Supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC: a) Performance or supervision of on-site assembly, Installation Commissioning and/or start-up of the supplied Goods; b) Furnishing of tools required for assembly and/or maintenance of the supplied Goods; c) Furnishing of detailed operations and maintenance manual for each appropriate unit of the supplied Goods; d) Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and e) Training of SEPCO's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods.
	16.2	Prices charged by the Supplier for related services, if not included in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.

17. Spare Parts	17.1	As specified in SCC, the Supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier: a) Such spare parts as SEPCO may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under the Contract; and b) In the event of termination of production of the spare parts: i. Advance notification to SEPCO of the pending termination, in sufficient time to permit SEPCO to procure needed requirements; and ii. Following such termination, furnishing at no cost to SEPCO, the blueprints, drawings, and specifications of the spare parts, if requested.
18. Warranty/ Defect Liability Period	18.1	The Supplier warrants that the Goods supplied under the Contract are new, unused, of the most recent or current models and that they have incorporated all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the SEPCO, specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions prevailing in Pakistan.
	18.2	This warranty shall remain valid for a period specified in the SCC after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the Contract.
	18.3	SEPCO shall promptly notify the Supplier in writing or in electronic forms that provide a record of the content of communication of any claims arising under this warranty.
	18.4	Upon receipt of such notice, the manufacturer/supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective Goods or parts thereof. The cost of lifting the defective materials its subsequent repair or replacement and returning back to SEPCO stores shall be borne by the supplier.
	18.5	If the Supplier, having been notified, fails to remedy the defect(s) within the period specified, SEPCO may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which SEPCO may have against the Supplier under the Contract.
19. Payment	19.1	The method and conditions of payment to be made to the Supplier under this Contract shall be specified in SCC.
	19.2	The Supplier's request(s) for payment shall be made to SEPCO in writing or in electronic forms that provide a record of the content of communication, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by documents submitted pursuant to GCC Clause 13, and upon fulfillment of other obligations stipulated in the Contract.
	19.3	Payments shall be made promptly by SEPCO, within sixty (60) days after submission of an invoice or claim by the Supplier.
	19.4	The currency or currencies in which payment is made to the Supplier under this Contract shall be specified in SCC subject to the following general principle: payment will be made in the currency or currencies in which the payment has been requested in the Supplier's Bid.
	19.5	All payments shall be made in the currency or currencies specified in the SCC pursuant to GCC Clause 19.4
20. Prices	20.1	The contract price shall be specified in the Contract Agreement Subject to any additions and adjustments thereto or deductions therefrom, as may be made pursuant to the Contract.
	20.2	Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in its Bid, with the exception of any price adjustments authorized in SCC or in SEPCO's request for Bid Validity extension, as the case may be.
21. Change Orders	21.1	SEPCO may at any time, by a written order given to the Supplier pursuant to GCC Clause 22, make changes within the general scope of the Contract in any one or more of

		the following: a) Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for SEPCO; b) The method of shipment or packing; c) The place of delivery; and/or d) The Services to be provided by the Supplier.
	21.2	If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of SEPCO change order.
	21.3	Prices to be charged by the supplier for any related services that might be needed but which were not included in the Contract shall be agreed upon in advance by the Parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.
22. Contract Amendments	22.1	Subject to GCC Clause 20, no variation in or modification of the terms of the Contract shall be made except by a written amendment signed by the parties.
23. Assignment	23.1	Neither SEPCO nor the Supplier shall assign, in whole or in part, obligations under this Contract, except with the prior written consent of the other party.
24. Sub- contracts	24.1	The Supplier shall consult SEPCO in the event of subcontracting under this contract if not already specified in the Bid. Subcontracting shall not alter the Supplier's obligations.
	24.2	Subcontracts must comply with the provision of GCC Clause 5.
25. Delays in the Supplier's Performance	25.1	Delivery of the Goods and performance of Services shall be made by the Supplier in accordance with the time schedule prescribed by SEPCO in the Schedule of Requirements.
	25.2	If at any time during the performance of the Contract, the Supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify SEPCO in writing or in electronic forms that provide record of the content of communication of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, SEPCO shall evaluate the situation and may at its discretion extend the Supplier's time for performance, with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of Contract.
	25.3	Except as provided under GCC Clause 28, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to GCC Clause 26, unless an extension of time is agreed upon pursuant to GCC Clause 25.2 without the application of liquidated damages.
26. Liquidated Damages	26.1	Subject to GCC Clause 28, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, SEPCO shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the performance security (or guarantee) specified in SCC. Once the said maximum is reached, SEPCO may consider termination of the Contract pursuant to GCC Clause 26.
27. Termination for Default	27.1	SEPCO or the Supplier, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the concerned party may terminate the Contract if the other party causes a fundamental breach of the Contract.
	27.2	Fundamental breaches of Contract shall include, but shall not be limited to the following: a) the Supplier fails to deliver any or all of the Goods within the period(s) specified in the Contract, or within any extension thereof granted by SEPCO pursuant to GCC Clause 24; or b) the Supplier fails to perform any other obligation(s) under the Contract; c) Supplier's failure to submit performance security (or guarantee) within the time stipulated in the SCC;

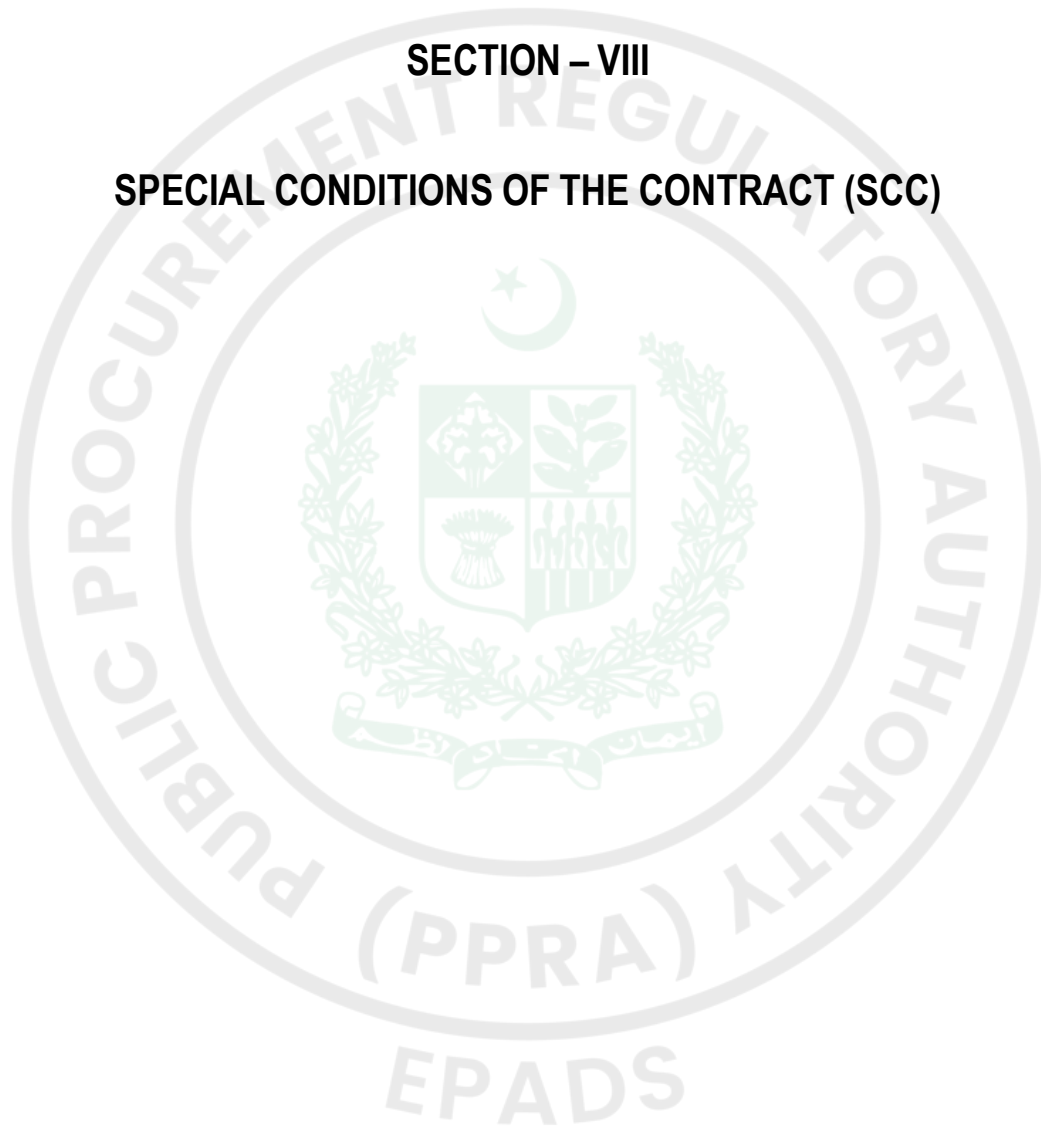
		d) the supplier has abandoned or repudiated the contract. e) SEPCO or the Supplier is declared bankrupt or goes into liquidation other than for reconstruction or amalgamation; f) a payment is not paid by SEPCO to the Supplier after 84 days from the due date for payment; g) the SEPCO gives Notice that goods delivered with a defect is a fundamental breach of Contract and the Supplier fails to correct it within a reasonable period of time determined by SEPCO; and h) if SEPCO determines, based on reasonable evidence, that the Supplier has engaged in corrupt, coercive, collusive, obstructive or fraudulent practices, in competing for or in executing the Contract. For the purpose of this clause: “Corrupt and Fraudulent Practice” means the practices as described in Rule-2 (1) (f) of Public Procurement Rules-2004.
	27.3	In the event SEPCO terminates the Contract in whole or in part, pursuant to GCC Clause 26.1 SEPCO may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to SEPCO for any excess costs for such similar Goods or Services. However, the Supplier shall continue the performance of the Contract to the extent not terminated.
28. Termination for Force Majeure	28.1	Notwithstanding the provisions of GCC Clauses 25, 26, and 27, neither Party shall have any liability or be deemed to be in breach of the Contract for any delay nor is other failure in performance of its obligations under the Contract, if such delay or failure is a result of an event of Force Majeure. For purpose of this clause, “Force Majeure” means an event which is beyond the reasonable control of a Party, is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of a Party, and which makes a Party’s performance of its obligations hereunder impossible or so impractical as reasonably to be considered impossible in the circumstances, and includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood, epidemics, or other adverse weather conditions, strikes, lockouts or other industrial action (except where such strikes, lockouts or other industrial action are within the power of the Party invoking Force Majeure to prevent.
	28.2	If a Party (hereinafter referred to as “the Affected Party”) is or will be prevented from performing its substantial obligation under the contract by Force Majeure, it shall give a Notice to the other Party giving full particulars of the event and circumstance of Force Majeure in writing or in electronic forms that provide a record of the content of communication of such condition and the cause thereof. Unless otherwise directed by SEPCO in writing or in electronic forms that provide a record of the content of communication, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
29. Termination for Insolvency	29.1	SEPCO may at any time terminate the Contract by giving written notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to SEPCO.
30. Termination for Convenience	30.1	SEPCO, by written notice sent to the Supplier, may terminate the contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for SEPCO’s convenience, the Contract is terminated, and the date upon which such termination becomes effective.
	30.2	The Goods that are complete and ready for shipment within (45) days after the Supplier’s receipt of notice of termination shall be accepted by SEPCO at the Contract terms and price. For the remaining Goods, SEPCO may elect: a) To have any portion completed and delivered at the Contract terms and prices; / or b) To cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Services and for materials and parts previously procured by the Supplier.
31. Dispute	31.1	In the event of any dispute arising out of this contract, either party shall issue a notice of

Resolution		the dispute to settle the dispute amicably. The parties hereto shall, within twenty-eight (28) days from the notice date, use their best efforts to settle the dispute amicably through mutual consultations and negotiation. Any unsolved dispute may be referred to by either party to an arbitrator that shall be appointed by mutual consent of both parties.
	31.2	After the dispute has been referred to the arbitrator, within 30 days, or within such other period, as may be proposed by the Parties, the Arbitrator shall give its decision. The rendered decision shall be binding to the Parties.
32. Procedure for Disputes Resolution	32.1	The arbitration shall be conducted in accordance with the arbitration procedure published by the Institution named and in the place shown in the SCC.
	32.2	The rate of the Arbitrator's fee and administrative costs of arbitration shall be borne equally by the Parties. The rates and costs shall be in accordance with the rules of the Appointing Authority. In conducting arbitration to its finality each party shall bear its incurred costs and expenses.
	32.3	The arbitration shall be conducted in accordance with the arbitration procedure published by the institution named and in the place shown in the SCC.
33. Replacement of Arbitrator	33.1	Should the Arbitrator resign or die, or should SEPCO and the Supplier agree that the Arbitrator is not functioning in accordance with the provisions of the contract, a new Arbitrator shall be appointed by mutual consent of both parties.
34. Limitation of Liability	34.1	Except in cases of criminal negligence or willful conduct, and in the case of infringement pursuant to GCC Clause 8, a) The supplier shall not be liable to the SEPCO, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to SEPCO; and b) The aggregate liability of the Supplier to SEPCO, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment or to any obligation of the Supplier to indemnify SEPCO with respect to patent infringement.
35. Notices	35.1	Any notice given by one party to the other pursuant to this Contract shall be sent to the other party in writing or in electronic forms that provide a record of the content of communication and confirmed in writing or in electronic forms that provide a record of the content of communication to the other party's address specified in SCC.
	35.2	A notice shall be effective when delivered or on the notice's effective date, whichever is later.
36. Taxes and Duties	36.1	A foreign Supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside Pakistan.
	36.2	If any tax exemptions, reductions, allowances or privileges may be available to the Supplier in Pakistan SEPCO shall use its best efforts to enable the Supplier to benefit from any such tax savings to the maximum allowable extent.
	36.3	A local Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to SEPCO.

EPADS

SECTION – VIII

SPECIAL CONDITIONS OF THE CONTRACT (SCC)



Special Conditions of Contract (SCC)

The following Special Conditions of Contract (SCC) shall supplement the GCC. Whenever there is a conflict, the provisions herein shall prevail over those in the GCC. The corresponding clause number of the GCC is indicated in parentheses.

SCC Clause Number	GCC Clause Number	Amendments of, and Supplements to, Clauses in the GCC
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Definitions (GCC 1)

1.	1.1	The Procuring Agency is: Sukkur Electric Power Company (SEPCO)
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Documents Forming the Contract (GCC)

2.	2.3	1. Purchase Order (PO) 2. Performance Guarantee submitted by the successful Firm and its verification from the concerned Bank 3. Letter of Intent (LOI) issued by SEPCO and its acceptance by the successful bidder 4. Special Conditions of Contract 5. General Conditions of Contract 6. Specifications 7. Contractor's Bid & Bidding Document 8. Addendum (if any)
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Conditions Precedent (GCC 3)

3.	3.1	Having issued the Purchase Order it shall come into effect on the date of its issuance. i. Submission of performance Security (or guarantee) in the form specified in the SCC ii. Acceptance of LOI iii. Declaration of ultimate Beneficiary Owner as per pro-forma specified in SCC
4.	3.1 (b)	Not applicable

Governing Language (GCC 4)

5.	4.1	The Governing Language shall be English
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Applicable Law (GCC 5)

6.	5.1	The Applicable Law shall be: Laws of the Government of Pakistan and PPRA rules.
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Performance Security (or Guarantee) (GCC 10)

7.	10.1	The amount of performance security (or guarantee), as a percentage of the Contract Price, shall be: 5% of the total bid price (including GST) Time period of validity: shall be 24 months from the receipt of the last consignment.
8.	10.3 (a) & (b)	The Performance Security/Guarantee shall be in PKR issued in favour of Chief Executive Officer (CEO) SEPCO and it shall be in the form as the per following: a. A bank guarantee issued by a scheduled bank of Pakistan in the form provided in the Bidding Documents. b. Call Deposit Receipt (CDR) c. Pay Order (PO)
	10.4	After delivery and acceptance of the Goods, the Performance Security (or guarantee) shall be withheld to cover the Supplier's warranty obligations in accordance with the SSC clause 15. The Performance Security (or guarantee) shall be extended by the firm in case any defect or replacement of material is claimed until the expiry/extended warranty period.

Inspections and Tests (GCC 11)

9.	11.1	Inspection and tests prior to shipment of Goods and at final acceptance are as follows:
	11.2	A. The inspection of reclaimed transformers shall be carried out at contractor's works by the SEPCO joint inspection committee nominated by Competent Authority. Notice in writing shall be given to the Manager (M.M) SEPCO by the contractor when the store against the order is ready for inspection. The inspection call shall be effective on the date of its receipt at the office of Manager (Material Management). All reasonable facilities as provided in the specification or followed by the industry or trade in general shall have to be afforded to the inspecting officers by the contractor at his expenses for carrying out stage and final inspection. In case of inspection out of Sukkur, all the expenses for the subject T/Fs in respect of SEPCO team like Round Tickets, Boarding, Lodging & Daily Allowance etc shall be borne by the firm / manufacturer.
	11.3	
	11.4	B. The inspection team will inspect all the necessary tests deemed necessary for reclaimed T/Fs but not restricted to this follows: i. Visual Inspection ii. Measurement of no load losses iii. Measurement of load losses iv. Measurement of percentage impedance M v. Measurement of winding resistance vi. Transformer Turn Ratio Test vii. Bird Protection Test viii. Transformer Oil Test (see Note I) ix. Induced Voltage Withstand Tests (double voltage double frequency) x. High Voltage Withstand Test xi. Vector Group – TTR Test xii. Di-Electric Strength Test of Transformer Oil xiii. Tank Pressure with Dry Nitrogen Gas xiv. Copper Loss Test xv. Iron Loss Test

kVA	WFE (WATTS FERROUS)	WCU (WATTS COPPER)	WTOT (WATTS TOTAL)
	Specified / Max Watts	Specified / Max Watts	Specified / Max Watts
25	98	512	610

C. INSPECTION AND REJECTION

- The Inspecting Officer may reject a part or the whole of the consignment offered for inspection, if after inspection such portion thereof as he may decide on his discretion he is satisfied that the consignment is below the requirements of the particulars governing the supply given in the work order / Rate Contract.
- The decision of the Inspecting Officer shall be binding on you.
- If the stores are rejected as aforesaid, then without prejudice to the right of the purchaser, you may submit again to stores after re-reclaiming of those rejected T/Fs, but re-submission shall not mean extension of delivery period.
- The responsibility of any delay occurring on account of rejection of goods by the inspecting officers shall be on the firm/supplier/contractor and Liquidated Damages (LD) shall be deducted as per SCC Clause-20.

D) On final rejection the consignee shall have the following rights: -

- a) To get reclamation the rejected goods at your cost and expense.
- b) To terminate the contract and recover from you the loss to SEPCO thereby.

SEPCO reserves the right to re-inspect, re-test (at its own expense) and, where necessary, reject the Goods after the arrival at the final destination. This shall in no way be limited to or eased because of the Goods having previously been inspected, tested and passed by SEPCO or its representative prior to the Goods' shipment. The decision of SEPCO based on the reports of re-inspection and/or re-testing shall be binding on the manufacturer/supplier.

Packaging (GCC 12)

10.	12.2	The Goods shall be packed properly in accordance with standard export packing specified by the Procuring Agency in the Technical Specification. The word "Sukkur Electric Power Company" or SEPCO with PO No. & year of manufacturing together with other essential markings as per the Specification shall be provided.
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Delivery and Documents (GCC 13)

11.	13.2	The Goods shall be supplied on FCS basis (Free Consignee Stores) (at Regional Store Rohri/ Larkana) including free lifting and delivery .
12.	13.3	Upon delivery of the Goods, the Supplier shall notify SEPCO and mail the following documents to SEPCO: i. one original plus four copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount; ii. delivery note, railway receipt, or truck receipt; iii. Manufacturer's or Supplier's warranty certificate; iv. Certificate to the effect that the prime material has been used in the manufacturing of Goods, and if any evidence of used/scrap material is found at a later stage the supplied Goods shall be replaced free of cost with the Goods having prime material. Also, if any manufacturing, design and/or inherent fault is detected at later stage the faulty Goods shall be

		replaced with Healthy Goods. The inspection procedure for the replaced goods shall be same as per the inspection requirement in the Technical Specifications and the Contract. v. Inspection certificate issued by the nominated inspectors/agency, and The above documents shall be received by SEPCO before the arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses.
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Insurance (GCC 14)

13.	14.1	The Insurance shall be in an amount equal to 110 percent of the FCS value of the Goods from "warehouse" to "warehouse" on "All Risks" basis, including War Risks and Strikes.
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Warranty (GCC 18)

14.	18.2	The warranty period shall be for a period of 12 months from the date of completion of supply. The Supplier shall be held responsible for all the losses and the unacceptable Goods shall be substituted with the acceptable Goods free of cost during the warranty period. A warranty certificate shall be issued to the effect that the T/Fs reclaimed exactly to the specifications laid down in the contract and that in the event of the T/Fs being found defective or not conforming to the specification / particular governing supply during the time of delivery. The successful bidder shall be held responsible for losses and that the unacceptable T/Fs shall be thus reclaimed by successful firm's expenses & cost. If a reclaimed T/F fails, during warranty period, a representative of successful bidder shall also participate in the committee to ascertain the reasons of its failure. The damaged transformers during warranty period shall be lifted within 07-days and returned by successful bidder after reclamation within 30-days free of cost from the date of intimation by the Deputy Manager Regional Store SEPCO Rohri & Larkana.
15.	18.4 & 18.5	Upon receipt of notice for correction of defects under warranty period the manufacturer/supplier shall, within 07-days and reclaim or replace the defective Goods or parts thereof within 30-days from the issue of warranty claim by the concerned Deputy Manager Regional Stores. The cost of lifting the defective Goods, its subsequent reclaim or replacement and returning back to SEPCO stores shall be borne by the supplier. If the supplied Goods or its part(s) is/are damaged during the warranty and need reclamation, its warranty period will be protected. The warranty period shall effectively remain active from the date of intimation of defective goods to the manufacturer/supplier and shall resume again once the defect has been removed and goods supplied back to SEPCO stores. For Example: An item has a warranty period of 12 months. Its warranty starts on 1st January and it gets defective after its successful use/commissioning after 6 months on 5th July. The manufacturer/supplier is intimated about the defect on 7th July. The remaining warranty is 5 months and 23days. This remaining warranty period shall remain reserved. The item is lifted for reclamation on 15th July and returned to SEPCO stores on 7th August. The remaining warranty of 5 months and 23 days will resume from 7th August. The warranty period of the entirely replaced item shall be as per the initial warranty period of new goods. If the Goods under warranty period already reclaimed are damaged again (second time) the procedure mentioned for the first time damage shall be followed. Accordingly, the same procedure shall be followed for damage/defect for the third time. However, if the goods under warranty period are damaged for the third time the manufacturer/supplier shall be issued a Performance Certificate that will have an impact on its participation in future bids/tenders in SEPCO. <i>NOTE: Liquidated Damages shall be applicable where there is a delay in delivery of material under the warranty claim. Liquidated Damages shall be applicable as</i>

		per SCC clause 20.
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Payment (GCC 18)

16.	19.1	The payment will be made directly by the Chief Financial Officer SEPCO Sukkur within (30) days on the presentation of the following documents:- - Invoice of the supplied material in triplicate. - Delivery challan duly acknowledged and signed by the consignee. - G.R.N. issued by concerned Deputy Manager, Regional Store SEPCO and shall be countersigned by the Manager (MM) Sukkur. - Warranty Certificate. - Inspection Certificate issued by SEPCO Inspectors. - Confirmation letter of acceptance of performance bond/Security of Manager by the (M.M) SEPCO Sukkur. - Certificate to the effect that the billed amount has not been claimed or received earlier (Non-payment certificate). - Professional Tax paid certificate by the firm. - All Federal & Provincial Taxes will be applied as per prevailing laws. - Copy of General Sales Tax/Excise Duty Invoice. - The manufacturer / supplier in its invoices shall also give an undertaking, in case of omission of any deduct-able amount; SEPCO's claim at any later stage (through pre-audit / post audit) shall be acceptable to them. - As per directions of FBR dated. 3.9.2015 conveyed vide C.E (Operation) PEPCO vide letter No. 1918-28 dated. 17.09.2015, the payment to the registered persons may be linked with the active taxpayer status of the suppliers as per FBR database. If any registered supplier is not in ATL his payment should be stopped till he files his mandatory returns and appears on ATL of FBR. PARTIAL DELIVERIES AND PARTIAL PAYMENTS ARE ALLOWED. The amount of 18% sales tax will be reimbursed by the Chief Financial Officer SEPCO Sukkur as under: - Sales Tax return cum payment Challan for the month of delivery of material. - Copy of GRN duly stamped and signed by the respective consignees and shall be counter signed by Manager (MM), SEPCO. - Sales Tax Invoice as per GRN above. - Any increase/decrease in the existing tariff of custom duty/Sales tax or any other tax is imposed or charged by the Government of Pakistan/Provincial Government, the same will be adjusted by the Chief Financial Officer, SEPCO Limited, Sukkur on presentation of documentary evidence. In case the manufactures who pay lump-sum Sales Tax, they shall also submit an affidavit on non-judicial paper separately that "Challan includes the amount of Rs._____of Sales Tax for supply of material to SEPCO against P.O. No._____dated._____
17.	19.3	Not applicable.
18.	19.5	All payments shall be made in PKR

Prices (GCC 20)

19.	20.1 & 20.2	Prices shall not be adjusted. The offered price shall be firm and final.
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Liquidated Damages (GCC 26)

20.	26.1	If the supplier fails to deliver the Goods or any consignment thereof within the specified delivery period, the purchaser shall be entitled at his option, either: a) To recover from the supplier liquidated damages levied at the rate of 02% per month subject to a maximum of ten percent (10%) of the PO/contract price, except: - Where un-delivered stores hold up the use of other stores, liquidated damages shall be levied on the total value of the contract/PO. - The recovery of liquidated damages mentioned above can be effected from any payment due to the supplier from any unit of SEPCO Or b) To purchase from elsewhere, without notice to the supplier, at the supplier's risk and cost, the stores not delivered, without canceling the contract/PO in respect of the consignment not yet due for delivery Or c) To cancel the contract/PO at the supplier's risk and cost and initiate blacklisting/debarring action as per Public Procurement Rules. In the event of action being taken under (b) or (c) above, the supplier shall be liable for any loss which the purchaser may suffer on the account, but the supplier shall not be entitled to any gain on repurchase made against the supply order.
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Procedure for Dispute Resolution (GCC 32)

21.	32.1	As per the Laws of Government of Pakistan.
22.	32.3	(a) Contracts with Foreign Contractors/Service Providers All disputes arising out of or in connection with this Contract shall be finally settled under the Rules of Conciliation and Arbitration of the International Chamber of Commerce (ICC) by one or more arbitrators appointed in accordance with the said Rules. (b) Contracts with Pakistani Nationals - Any dispute arising out of or in connection with the Contract shall first be resolved through mutual negotiations in good faith within 07 days of written notice by either Party. - If negotiations fail, the dispute shall be referred to a sole arbitrator mutually appointed by both Parties, in accordance with the Arbitration Act, 1940. - Arbitration shall be held at SEPCO, Sukkur, and conducted in the English language. - Mediation/arbitration costs shall be shared equally, while each Party shall bear its own legal and participation costs. The Arbitrator may, however, award costs as deemed appropriate. - Arbitration may commence before, during, or after delivery of Goods. Pending resolution, both Parties shall continue performing their contractual obligations, unless otherwise agreed. - The territorial jurisdiction for all litigation shall be Sukkur District, and no court other than the competent court(s) of Sukkur District shall have jurisdiction over any matter arising from this Contract.

Notices (GCC 35)

23.	35.1	— Procuring Agency's address for notice purposes: Manager (M.M) SEPCO Old Thermal Power Station Old Sukkur Phone: 071-9310798- 071-5620079. Fax: 071-9310797 E-mail: managemmsepco@gmail.com —Supplier's address for notice purposes:
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SEPCO SPECIAL CONDITIONS FOR BIDDING

- i. This tender is governed by latest Public Procurement Rule 2004 amended to date.
- ii. Rate per unit exclusive of all taxes / duties, without credits (copper, HT & LT Bushing Rods etc) and exclusive of all applicable Sales Tax on the basis of **free** lifting & delivery after reclamation at consignee's store (FCS), Regional Store SEPCO Rohri and Larkana.
- iii. The bidder has to quote for all BOQ items. Incomplete bids shall be rejected.
- iv. Tender with any condition shall be considered as "Non Responsive".
- v. The tenderer shall quote full tender quantity; the bid having less than 100% of the tender quantity shall not be accepted and bid shall be liable for rejection.
- vi. Please note that bid not accompanied with requisite Bid Guarantee/Earnest money for total offered quantity of any lot or with less bid validity shall be considered "Non Responsive".
- vii. For the bids indicating the delivery beyond the date specified in bid schedule shall be declared as "Non Responsive".
- viii. Cartel / pool rates are strictly prohibited. The firms found involved in collusive practice shall be dealt with under PPRA Rules / PEPCO instructions.
- ix. As per directions of FBR dated. 3.9.2015 conveyed vide C.E (Operation) PEPCO vide letter No. 1918-28 dated. 17.09.2015, only registered suppliers who are on Active Taxpayers List (ATL) of FBR, are eligible to supply goods / services to SEPCO.
- x. Bidder / tenderer have required shall submit necessary Integrity Declaration Certificate for the use of Prime Material.
- xi. In case of new entrant, the tenderer should submit the copy of educational / regular purchase order issued by any DISCO along-with its completion and performance of supplied material in the light of specification / instructions / guidelines issued by Chief Engineer (D&S) NTDC Lahore letter No.3187-97 dated 20.10.2015, otherwise your firm will be considered as non-responsive.
- xii. **Method of Procurement:** Single stage one envelope procedure as per PPRA Clause-36(a) shall be adopted for open competitive bidding. Each bid shall comprise one single envelope containing financial proposal and technical proposal (if any).
- xiii. The quoted prices on the basis of free lifting and delivery after reclamation at consignee's Store i.e Regional Store SEPCO Rohri and Larkana are firm & final and shall not be escalated for any reason whatsoever.
- xiv. Only Registered / pre-qualified firm under category M-1 (item-iv) by any DISCO can participate in this tender.
- xv. **Bid Bond / Security:** In order to be considered, The tender must be accompanied by **FIXED bid security** valid for 148 days (One hundred Forty-eight) after the date of tender opening in the form of Call Deposit Receipt (CDR), Bank Draft or Pay Order drawn on a schedule Bank of Pakistan or in lieu thereof a Bank / Bid Guarantee issued by scheduled Bank of Pakistan on the specified proforma **in favor of Chief Executive Officer, SEPCO**. In case, the tenderer withdraws his tender / offer during the period of tender validity or successful tenderer fails to furnish the required Performance Bond / Security or sign the Contract Agreement/ Acknowledgment of the Work Order / Rate Contract, the amount of Bid Bond/ Tender Security shall be forfeited in favour of Chief Executive Officer SEPCO. The Bid Security from any Insurance Company shall not be acceptable in any case and Bid shall be liable for rejection.
- xvi. This work order / rate contract shall remain in force for a period "01-Year" from the date of its issuance. However, the contract may be extended for further 01 year with mutual consent to meet with the requirements of field formations regarding reclamation of transformers with same rate and terms & conditions according to the Procurement Plan of corresponding year.
- xvii. The quantities of transformers indicated in the Schedule of Requirements are provisional/estimated quantities prepared on the basis of the Procuring Agency's anticipated requirement. The quantities are not guaranteed quantities and the Procuring Agency shall neither be bound to procure the entire estimated quantity nor liable to compensate the Service Provider for any shortfall in the quantity actually ordered. The actual quantity of transformers requiring reclamation shall be determined during the currency of the Framework Agreement on the basis of the actual operational requirement of SEPCO.
- xviii. The quoted prices per unit are firm for the currency of the contract / Agreement except in case of any change in the existing rate of excise duty or imposition of new Government levy on material and components or increase / decrease in Sales Tax. The claim with this effect shall be paid extra at actual on production of documentary evidence.
- xix. The Bidder/Manufacturer/Approved Repairing Workshop shall have successfully completed at least two (02) transformer reclamation/repair contracts as the main supplier/contractor, supported by Contract Award Orders or Satisfactory Completion Certificates. In case of a JV, experience may be demonstrated collectively, provided the JV

as a whole meets the prescribed experience and quantity requirements. Non-submission of the required documents/certificates shall render the bid non-responsive

- xx. Inspection and Testing of reclaimed transformers shall be carried out at the premises of the firm for which necessary testing facilities shall be provided and testing will be carried out in accordance with specification, the successful bidder shall bear the expenses for all those tests to be carried out from outside authorized laboratories, if deemed necessary.
- xxi. New transformer oil and enameled copper wire during the currency of contract shall be tested once from RTL Faisalabad or reputable lab at the contractor's expenses.
- xxii. Deputy Manager Regional Store SEPCO Rohri and Larkana shall issue fresh GRN for transformers damaged under warranty period if any against the rate contract and maintain up to date record as well as to avoid accumulation of damaged transformers with the firm.
- xxiii. The firm will reclaim damaged transformers on the FIFO basis. However, in exceptional cases the instructions can be issued by the Manager (M.M) SEPCO for reclamation of specific capacity of transformers in accordance with the requirement of field formations.
- xxiv. SEPCO reserves the right to cancel the contract at any time without assigning any reason if the performance is found unsatisfactory.
- xxv. SEPCO reserves the right to increase / decrease the quantities upto 15% at the time of award or through repeat order after placement of award / issuance of Rate Contract during the currency of contract
- xxvi. SEPCO, reserve the right to scrap the tender under PPRA Rules.
- xxvii. During the time of Rate Contract if any amendment in specification is made by the competent Authority the contractor shall be bound to supply the material according to the amended specification without any extra cost / charges.
- xxviii. Joint Inspection committee will inspect the Damaged Transformers with respect to availability / shortage of copper, core at the time of handing over to the firm.
- xxix. undertakes that all used transformer oil recovered during reclamation shall be sold only to OGRA approved firms duly notified/authorized by the Ministry of Petroleum and Natural Resources, Government of Pakistan, in accordance with Clause 2.3(b) of the WAPDA Material Disposal Procedure and applicable rules.
- xxx. The reclamation shall be made as per NTDC / PEPCO Specification No. DDS-84:2007 (without amendment No. 5) and DDS-84:2020(with amendment No. 5) amended to-date.
- xxxi. All routine tests as specified in specification shall be carried out as per Specification No. DDS-84:2007 (without amendment No.5) and DDS-84:2020(with amendment No. 5) amended to-date.
- xxxii. Bidder / Tenderer shall submit a certificate that the firm is not black listed / debarred from WAPDA / DISCOs / GENCO / NTDC / Govt. Sector at present.
- xxxiii. The damaged tubes of transformers (if any) will be reclaimed / replaced free of cost as per original design.
- xxxiv. Bidder / tenderer have to furnish / maintain the documents / proof of purchase of material for reclamation of transformers to the inspection team / Manager (MM) SEPCO Sukkur from time to time.
- xxxv. The damaged transformers after the allocation / issuance of Release Order will be lifted from the consignee within 07-days, and the same will be returned within 45-days after necessary reclamation from the date of the allocation / issuance of Release Order.
- xxxvi. The damaged transformers under warranty period will be reclaimed by the manufacturer free of cost along with free pick & drop within 30-days of receipt irrespective of the condition that it is damaged due to SEPCO fault or manufacturer fault. The credit warranty period from the date of damage will be brought forward from the date of its receipt in concerned consignee store accordingly. For the acceptance of these reclaimed transformers under warranty period all the routine tests shall be carried out.
- xxxvii. The cost sheet shall be based on actual weight in KGs, not percentages. The sepco joint inspection/M&T Report, indicating the actual weight of copper, aluminium and other recoverable materials, shall accompany each Release Order. The credit value of dismantled/recovered material, as determined through the SEPCO Joint Inspection Report, shall be deducted from the quoted BOQ rates.

Stamp & Signature of bidders

PAKISTAN WATER AND POWER DEVELOPMENT AUTHORITY
(WAPDA) / PAKISTAN ELECTRIC POWER CO. (PEPCO)

SPECIFICATION DDS-84:2007

OIL IMMERSED HERMETICALLY
SEALED TYPE
DISTRIBUTION TRANSFORMERS
11/0.415 KV

PEPCO

OFFICE OF CHIEF ENGINEER (DESIGN & STANDARDS) PEPCO

17/C-1, FAISAL TOWN, IEEE BUILDING, LAHORE

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PEPCO

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All Chief Executive Officers
DISCOs,

Subject: WAPDA/PEPCO SPECIFICATION NO. DDS-84:2007 FOR OIL
IMMERSED SEALED TYPE DISTRIBUTION TRANSFORMERS

The above subject specification is revised version of Specification No.P-13:2002 by incorporating already made amendments and other changes according to requirements. Copy of the Specification No.DDS-84:2007 is enclosed herewith for record and implementation in future purchase orders.

This issues with the approval of Competent Authority.


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OIL IMMERSED SEALED TYPE

DISTRIBUTION TRANSFORMERS

1. FOREWORD

- 1.1 This standard has been introduced by WAPDA/PEPCO and lays down the specification for distribution transformers. It has been prepared by the Design & Standards Directorate of the office of Chief Engineer (Design & Standards) WAPDA/PEPCO.
- 1.2 The standard is intended only for the purpose of technical specification to facilitate procurement of material and does not include provision of contract.
- 1.3 The standard is subject to periodic revisions as and when occasion demands.
- 1.4 This specification is amended to date version of P-13: 2002
- 1.5 Reference Specifications.

The transformer shall be supplied and tested in accordance with the following International Electro-technical Commission (IEC) Specifications (amended to date):

- a. IEC Publication 60076 (amended to date), Power Transformer (Part 1-5)
- b. IEC Publication 60137 (amended to date), Bushings
- c. IEC Publication 60296 (amended to date), Transformer Oil
- d. IEC Publication 60060 (amended to date), High Voltage Test Techniques

2. SCOPE

- 2.1 This standard covers the requirements of 3-phase, hermetically sealed distribution transformers, having winding insulated with Class-A insulating materials, and rating 5, 10, 15, 25, 50, 100, 200, 400 and 630 KVA.

3. DEFINITIONS

- 3.1 The following definitions are applicable so far as this standard is concerned:

3.1.1 Transformers

An apparatus for transferring electric energy by mean of an electromagnetic alternating filed from system of given voltage to systems of desired voltage.

3.1.2 Oil Immersed Type Transformer

A transformer having the core and winding immersed in either natural mineral oil or a synthetic insulating liquid.

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3.1.3 Higher Voltage Winding and Lower Voltage Winding

Terms used in reference to two winding transformers to distinguish the winding or the group of winding associated with the higher operating voltage from that associated with the lower operating voltage

3.1.4 Primary Winding

That winding which receives energy from the supply circuit

3.1.5 Secondary Winding

That winding which receives energy from the primary winding by electromagnetic induction and delivers it as output energy to the load circuit.

3.1.6 Insulation Level

The test voltage for which the transformer is designed

Note: For non-impulse tested transformers the insulation level is designated by the value of the separate source power frequency test voltage

3.1.7 Uniformly Insulated Winding

A winding in which the insulation to earth at all points will withstand the separate source test voltage appropriate to the line end.

3.1.8 Graded Insulated Winding

A winding in which the insulation to earth is graded from the amount at the line end to a smaller amount at the neutral end and which therefore will withstand separate source test voltage corresponding only to the insulation level at the neutral end.

3.1.9 Principal Tapping

The tapping which corresponds to the rated voltage of the winding.

3.1.10 Plus Tap

A tap so located as to introduce into the active part of the winding concerned greater number of turns than those corresponding to the principal tapping.

3.1.11 Minus Tap

A tap so located as to introduce into the active part of the winding concerned less turns than those corresponding to the principal tapping.

3.1.12 Terminals

That part of the transformer intended to receive external connections.

3.1.13 Sub-Terminal

A connecting point, other than a permanently jointed and insulated connection, within the casing or tank serving the purpose of effecting connection to a terminal, switch or any other auxiliary apparatus.

3.1.14 Turns Ratio

The ratio of the number of primary turns to the number of secondary turns is taken as equal to the ratio of the primary voltage to the rated secondary voltage, multiplied by a phase factor depending on the method of connecting the windings in the case of poly-phase transformers.

3.1.15 Voltage Ratio

The ratio of the voltage between line terminals of one winding to the voltage between the terminals of another winding.

3.1.16 Phase Displacement

The angular difference between the vectors representing the voltage induced between the higher voltage and lower voltage terminals having the same marking letter and the corresponding neutral points (real or imaginary), expressed with reference to the higher-voltage side.

3.1.17 Rating

Those quantities assigned to the transformer to define its operation under (type of duty and) conditions, specified in those recommendation and on which manufacture's guarantees and tests are based.

3.1.18 Rated Voltage of a Winding

The voltage applicable to or to be developed at no-load between the line terminals to poly phase transformer, or between the terminals of a single phase transformer.

3.1.19 Rated Primary Voltage

The terminal voltages applicable under normal operating conditions to the full primary winding if there are no tapping, or to the principal tapping on tapped primary winding. It is the voltage specified by the purchaser.

3.1.20 Rated Secondary Voltage

The voltage developed between the output terminals at no-load by the full secondary winding if there are no lappings or in a tapped winding, by the part

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of the winding up to the principal tapping when rated primary voltage is applied. It is the voltage specified by the purchaser.

3.1.21 Rated Current

The current flowing through a line terminal of a winding, derived by dividing its rated power by its rated voltage and by 1.732.

3.1.22 Rated KVA

The product of the rated voltage in Kilovolts and rated current in Amperes and 1.732 measured on the output side.

3.1.23 Rated Frequency

The frequency at which the transformer is designed to operate.

3.1.24 Service Conditions

Factors outside the control of the manufacturer which may affect the operation.

3.1.25 Cooling Medium Temperature

The temperature of the available cooling medium above which the temperatures rise is measured.

3.1.26 Thermal Time Constant

The time which would be required for a transformer to reach a temperature rise equal to that which would be attained under steady-state specified loading conditions in a cooling medium of constant temperature, if the initial rate of temperature rise (when no heat was being dissipated) were maintained.

3.1.27 System Nominal Voltage

The voltage by which a system is designated.

Note: The nominal voltage of apparatus is not necessarily the same as the system rated voltage.

3.1.28 System Highest Voltage

The highest r.m.s voltage between lines which occurs under normal operating conditions and at anytime at any point in the system. It excludes temporary voltage variations due to fault conditions or to the sudden disconnection of large loads.

3.1.29 Impedance Voltage

The voltage which, applied to a winding of a transformer when another winding is short-circuited, will cause rated current to flow in the winding to which the voltage is applied.

Note: The impedance voltage is the vector sum of the resistance voltage and the reactance voltage. The values for resistance, reactance, and impedance voltage apply only to the pair of winding tested.

3.1.30 Resistance Voltage

The component of the impedance voltage in phase with the current.

3.1.31 Reactance Voltage

The component of the impedance voltage in quadrature with the current.

3.1.32 Inherent Regulation

The difference between rated secondary voltage and the voltage developed at the terminals of the secondary winding when, with rated primary voltage applied to the terminals of the primary winding, rated current is delivered at a stated power factor.

3.1.33 No Load Tap Changer

A device for changing the voltage ratio of the windings whilst the transformer is not energized on the primary side and no load being tapped on secondary side.

3.1.34 Type Test

A test made by the manufacturer to verify a design characteristics not covered by routine tests.

3.1.35 Routine Test

Tests conducted by the manufacturer on each transformer.

3.1.36 Year

Financial year

4. SERVICE CONDITIONS

- 4.1 Transformer rated in accordance with this standard shall be suitable for operation under service conditions set out in clauses 4.2 & 4.3

4.2 Reference Ambient Temperatures

The Reference Ambient Temperatures assured for the purpose of this standard are:-

- i. Maximum ambient air temperature 50°C.
- ii. Maximum daily average ambient air temperature 40°C.
- iii. Maximum yearly average ambient air temperature 30°C.

4.3 Altitude

The altitude will not exceed 1000 meters (3,300 feet)

4.4 Unusual Temperature and Altitude

Standard Temperatures may be operated at higher ambient temperatures or at higher Altitude than specified and in consequence their performance may be affected.

5. RATING

5.1 The manufacturer shall describe ratings to the transformer which shall be marked on the rating plate (see Section 13). These ratings shall be such that the transformer can deliver its rated current under steady loading conditions without exceeding the limits of temperature rise specified in Section (10) assuming an applied voltage equal to the rated input voltage and that the supply is at 50 cycles per second at the principal tapping. The output voltage and current shall be of approximately sine-wave form.

5.2 The preferred values of rated power for 3 phase transformer are: 10, 15, 25, 50, 100, 200, 400 and 630 KVA.

6. METHOD OF COOLING

The method of cooling will be natural air, the method of circulation of oil will be by natural thermal head and would be indicated by symbol "ONAN".

7. REGULATING TAPS

7.1 Unless otherwise specified, adjusting tap shall be normal, -2.5%, -5% for 10 & 15kVA transformers and 2.5%, normal, -2.5%, -5% and -7.5% for 25, 50, 100, 200, 400 & 630kVA transformers. The tapping being located on the higher voltage winding. For 10 & 15kVA transformers, the switch position shall be 2, 3 & 4 for normal, -2.5% & -5% respectively. (Sra-P)

7.2 Tap-changing shall be effected by means of an externally operated off circuit switch capable of being locked in position. It shall be accessible with safety.

- 7.3 When tapping is used to compensate for variation of voltage, the transformer shall be capable of operation at its rated KVA on any tapping without injury. The tap changing contacts shall be capable of carrying the same currents, due to external short circuits, as the windings into section (11).

8. INSULATING MATERIAL

- 8.1 The thermal class of insulating material class A is recognized. Low viscosity insulating oil conforming to IEC 296 (amended to-date) shall be used.

9. INSULATION LEVEL

- 9.1 Test voltage shall be based on the system highest voltage of which the transformer forms a part. This value for nominal voltage of 11 KV is 12 KV.

- 9.2 Power frequency test voltage will be 34 KV and the impulse test voltage to be 95 KV. The wave being 1/50 microseconds.

- 9.3 Insulation to Earth

The insulation to earth of windings will be uniform.

- 9.4 Transformer For Use at Higher Altitude

Where transformers are specially ordered for operation at altitude between 1000-3000 meters (3300 and 10,000 ft) above sea level, the separate source power frequency test level shall be increased by 1.25% for each 100 meters in excess of 1,000 meters that the installation is above sea level.

10. LIMITS OF TEMPERATURE RISE

- 10.1 When transformers are tested in accordance with the temperature rises above ambient of the windings, cores, and oil shall not go beyond the limits specified below:-

✓ Windings	50°C	
✓ Core	On external surface At the point	Winding for Tabular Tank
✓ Oil	40°C	
Winding	49°C	for corrugated fin Tank
Oil	& 38°C	for corrugated fin Tank

- 10.2 Altitude in Excess of 1000 Meters

When KVA rating of a transformer is required to apply at an altitude in excess of 1000 Meters (3300 feet) and the limits of temperature rise are as specified

above are not be exceeded at the specified altitude, the permissible limits of temperature rise, when a test is made at the manufacturers works shall be less than the specified values above by the amounts equal to 0.2°C for each 100 meters (330 feet) that the specified altitude exceeds 1000 meters (3,300 feet).

10.3 Higher Ambient Temperature

✓ For each degree centigrade that the average temperature of air is above 40°C, a transformer may be loaded for any period of time below its KVA rating by an amount equal to 1.5% of its capacity per °C rise in temperature above reference ambient up to a max of 10°C.

11. SHORT CIRCUIT WITHSTAND

11.1 General

The transformer shall be designed and constructed to withstand without damage, the effects of short circuit of magnitude equal to 25 times the symmetrical r.m.s. value of valid current for 2 seconds.

11.2. Mechanical Requirements

The transformer shall be capable of withstanding, without damage on any tapping, under service conditions, the electromagnetic forces arising under short circuit conditions as determined from the systemalical peak value of the current in the windings which shall be taken as not greater than 2.55 ($1.8 \times \sqrt{2}$) time the over current derived.

NOTE:

In the case of a transformer where the value of resistance relative to that of reactance is significant, a figure lower than 2.55 may be more realistic.

11.3 Thermal Requirements

The transformer shall be capable of withstanding, without damage on any tapping under service conditions the thermal effects of short circuit at the terminals of any windings, for 2 seconds.

11.4 Short circuit tests are not included as a standard requirement of these recommendations. To verify the ability of the transformer to withstand the mechanical and thermal stresses arising under short circuit conditions, the first transformer of a new design (prototype) shall be subjected to dynamic short circuit withstand test at an independent testing laboratory of international repute.

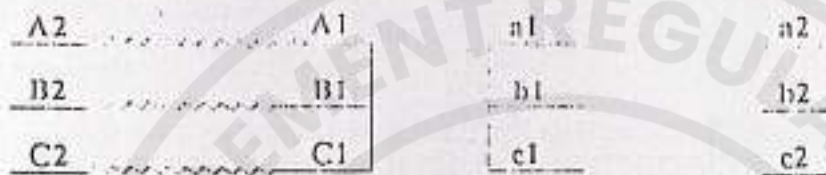
12. MARKING AND MARKING PLATES

12.1 Designating Letters

Letters shall be assigned to phase windings. The same letters shall be used for all windings on the limb of the core.

The higher voltage windings shall be described by a capital (or Block) letter and the lower voltage winding of the same phase by the corresponding small letters. The letters used shall be:-

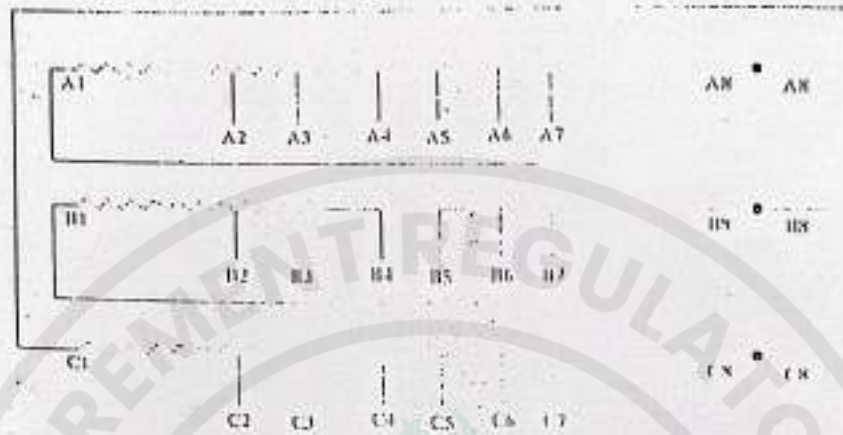
A B C for higher voltage winding and a b c for lower voltage windings. See Fig-1



Fig(1)

When a phase winding is divided into sections, the subscript numbers assigned to the ends and tapping of the windings shall be as per figure 2

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Fig(2)

Three phase windings with tapping at middle. Typical designating letters and subscript numbers for tapped windings, showing also terminal connections.



Fig.3

Three phase winding with tapping at middle for 10 & 15kVA transformers

12.2 Terminal and Sub Terminal Markings for Transformers

The appropriate designating letter and subscript numbers assigned to the windings and tapping shall be clearly and indelibly marked upon, or adjacent to the terminals and sub-terminals with which they are associated.

- (a) The marking for line terminals of transformers, both letter and subscript shall be the same as those of the phase winding to which the line terminal is connected as in fig. 2. When the terminal is connected to more than one sub-terminal as in the case of a delta connection, the marking selected shall be shown on the relevant diagram.
- (b) Neutral terminal to be marked.

n (without a subscript number)

12.3 Position of Terminals

12.3.1 General

Viewed from the higher voltage side, arrangement for both sets of terminals shall be alphabetical from left to right for the phase terminals. Where a neutral terminal is fitted, it shall be on the extreme left. (See fig 4)



Fig(4)

Marking and relative position of terminals

12.4 Vector Diagrams and Symbols

- 12.4.1 Reference to vector diagrams shall apply to diagrams below. The vector group symbol being DY 11 belonging to group with phase displacement of minus 30°.

EPADS

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Line Terminal markings
and vector diagram of
Induced voltages



Fig(5)

13. RATING PLATES

- 13.1 (a) A plate shall be provided showing the relative physical position of the terminal, their markings and the approximate position of one external fitting
- Plate shall show the relative position number of lap connection corresponding to the different voltages. The switch position corresponding to the maximum number of turns in the lapped winding shall be position 1
- The rating plate shall include the manufacturer's diagram of connections.
- (b) Arrangement of information. The general arrangement of rating plates shall be as given below.

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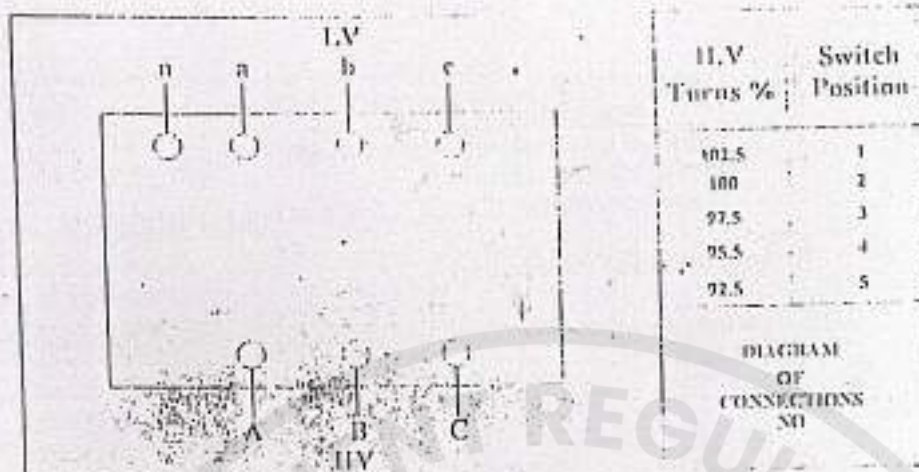


Fig (6)

- c) The following will be the arrangement for tap switch for 10 & 15 kVA transformers.

H.V Transformers %	Switch Position
100	2
97.5	3
95	4

13.2 (a) Information to be given on rating plates

All transformers shall be fitted with rating plates giving the information detailed in items 1 to 17 below:-

1. The number of this standard
2. Manufacturer's name.
3. Manufacturer's serial number
4. Rated KVA
5. Number of Phases
6. Frequency
7. Rated voltage at no-load (higher-voltage/Lower voltage)
8. Rated current higher voltage/lower voltage
9. Impedance (%age)
10. Winding connections and phase displacement symbols of vector diagram.
11. Connection Diagram
12. Weight of complete transformer in Kg.

13. Type of cooling
14. Total weight of oil in Kg.
15. Weight of core and windings assembly in Kg.
16. Year of manufacturing.
17. The word "WAPDA"/"DISCO" and purchase order number

(b) Arrangements of information

The arrangement of the information given on the rating plate shall be as below:

KVA	Type of Cooling
Volts	Frequency
HV	Impedance %age
LV	Weight of Oil
(Neutral)	Weight of
Amperes	Core & Windings
HV	Total weight
LV	Year of manufacture
Phases	Maker, S.Nr.No.
HV	WAPDA/DISCO P.O.No
LV	& Date
Diagram Dwg.No	
Vector Symbols	

14. PROVISION OF FITTINGS

14.1 Fitting for transformer shall be as specified below -

Items	Application	Drawing No.
1. Rating Plate	All transformers	
2. P.O No. punch on base channel	All transformers	
3. Lifting lugs	All transformers	EW/DF-416
4. Earthing terminal for tanks	All transformers	EW/DF-415
5. Oil filling hole and plug	All transformers	EW/DF-401
6. Oil level indicator	All transformers	

(i) Sealed tank type with 5, 10, 15, 25, 50, 100 & 200 kVA transformer.

EW/DF-31

The oil level indicator shall show the minimum oil level at a temperature of 30°C.

(ii) Conservator type with 400 & 630kVA

To indicate the level at a temperature of 30° on transformer filled with conservators two additional marking "Min." and "Max" to be provided.

- | | | | |
|-----|--------------------------|-----------------|-----------|
| 7. | Drain plug with sampler | 400 & 630 KVA | EW/DF-417 |
| 8. | Support lugs | 10,15,25,50 KVA | |
| 9. | Conservator tank | 400& 630 KVA | |
| 10. | Air vent/pressure relief | 400& 630 KVA | |

Device. Pressure relief
Device shall conform and
Tested as per

- | | | |
|-----|---------------------------|--------------|
| 11. | Dehydrating breather | 400& 630 KVA |
| 12. | Oil thermometer dial type | 400& 630 KVA |
- With max temperature
indicator

13. Rollers The roller will be provided on Transformers
100 KVA and above on the requirement of
Purchaser adjusting the cost in P.O. and
subsequently mentioning the requirement
or other wise in the P.O.

EW/DF-418

15. SPECIAL REQUIREMENTS

- 15.1 The transformers shall conform to WAPDA/PEPCO Specification No. DDS-84:2007 (amended to date) in general and shall be exactly same as designs, approved by Design & Standard Department WAPDA/PEPCO Lahore.

15.1.1 All questions arising as to the acceptability or otherwise of the equipment and materials offered shall be decided by design Engineer whose decision shall be final.

15.1.2 The local & international manufacturers must be ISO 9001:2000 certified.

15.2 Tank with Top Cover

5, 10, 15, 25, 50, 100, 200, KVA transformed shall be of hermetically sealed tank construction with air cushion with bolted cover and shall be suitable for outdoor pole / pad mounting installation 400 , 630 KVA transformed shall be of conservator type tank construction filled with breather bolted cover and shall be suitable for pad mounting installation.

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15.2.1 Transformer of sealed tank construction shall be effectively sealed from atmosphere for a top oil temperature range of 0°C to 110°C.

- i. The completely assembled tube tank transformers having air cushioned shall be designed & tested to withstand without deformation or leakage an over pressure of 15 lbs/in² for 15 minutes.
- ii. The completely assembled corrugated fin type transformer with air cushioned shall be designed and tested without deformation or leakage an over pressure of 30 kN/m² or 5 lbs/in² for 15 minutes.
- iii. The overall length of transformer tank including tubes / corrugation fins up to 200 KVA rating shall not exceed in any case beyond 1700mm
- iv. Dry Nitrogen gas shall be used for over pressure test to avoid moisture entry.
- v. Oil level indicator may be located on top cover or on the side wall of the transformer with marking of min. & max. level of oil in transformer.

15.2.2 Tank Construction (Tubular/Corrugation fins)

(a) Tubular Tank

The transformer shall be tube type tank construction with bolted cover. The sheet thickness shall be 3.0 mm (min). The top cover sheet thickness shall be 6 mm, alternatively, 4 mm sheet can be used after reinforcement & creating stiffness by bending all sides. The thickness of bottom sheet shall be 4 mm (min). A metallic strip of MS sheet of appropriate size shall be provided round the tubes of the tank for extra protection of all the transformers except for 10 & 15 KVA.

(b) Corrugated Fin Tank

The transformer shall be corrugated fin type tank construction with bolted cover. The frame (upper & lower) sheet thickness shall be 3.0 mm (min). The fin sheet thickness shall be 1.2mm with mill variation. The top cover shall be the same as described in "tubular tank" clause 15.2.2(a). A metallic rod of MS of 6mm dia minimum shall be provided on the upper & lower corners of the each fin panel for making it straight & aligned.

15.3 Bird Protection

Amel-2 15.3.1 To prevent flashover caused by large birds, transformers cover shall be effectively coated with a weather proof permanent insulating material / powder coating having a dry dielectric withstand voltage of not less than 8 KV to withstand 8KV dielectric test.

15.4 Tank Finish

Amel-3 The tank finish shall be a battle-ship gray color. The paint shall be highly resistant to the effects of strong sunlight and high temperature and shall have a long life under such conditions. Before paint, prepare the surface of tubular tank/corrugated tank by shot blasting/sand blasting respectively. The thickness of paint coating shall not be less than 0.12 mm.

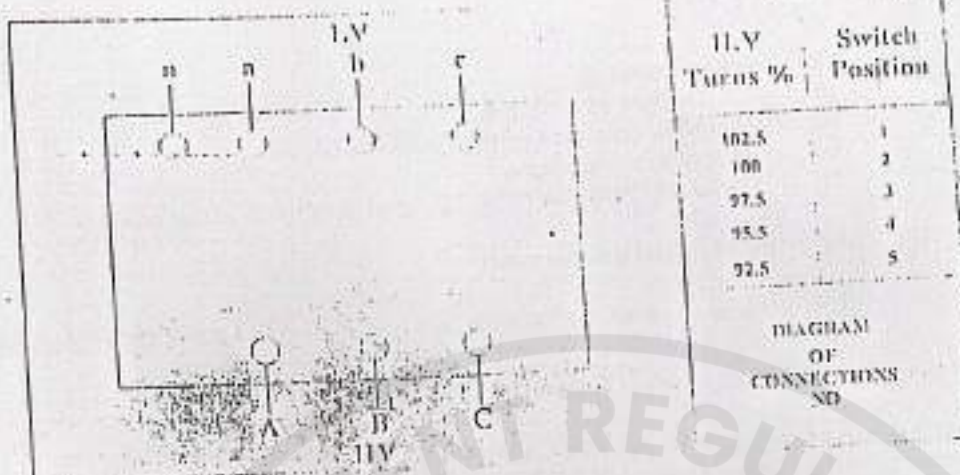


Fig (6)

- c) The following will be the arrangement for tap switch for 10 & 15 kVA transformers.

HV Transformers %	Switch Position
100	2
97.5	3
95	4

13.2 (a) Information to be given on rating plates

All transformers shall be fitted with rating plates giving the information detailed in items 1 to 17 below:-

1. The number of this standard
2. Manufacturer's name.
3. Manufacturer's serial number
4. Rated KVA
5. Number of Phases
6. Frequency
7. Rated voltage at no-load (higher-voltage/Lower voltage)
8. Rated current higher voltage/lower voltage
9. Impedance (%age)
10. Winding connections and phase displacement symbols of vector diagram.
11. Connection Diagram
12. Weight of complete transformer in Kg.

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13. Type of cooling
 14. Total weight of oil in Kg
 15. Weight of core and windings assembly in Kg
 16. Year of manufacturing.
 17. The word "WAPDA"/"DISCO" and purchase order number

(b) Arrangements of Information

The arrangement of the information given on the rating plate shall be as below

KVA		Type of Cooling
Volts	HV	Frequency
	LV	Impedance %age
(No load)	HV	Weight of Oil
Ampere	LV	
Phases	HV	Weight of
	LV	Core & Windings
Diagram Diag. No		Total weight
Vector Symbols		year of manufacture
		Maker's Sr. No.
		WAPDA/DISCO P.O. No.
		& Date

14. PROVISION OF FITTINGS

14.1 Fitting for transformer shall be as specified below -

Items	Application	Drawing No.
1. Rating Plate	All transformers	
2. P.O No. punch on base channel	All transformers	
3. Lifting lugs	All transformers	
4. Earthing terminal for tanks	All transformers	EW/DF-416
5. Oil filling hole and plug	All transformers	EW/DF-415
6. Oil level indicator	All transformers	EW/DF-401

(i) Sealed tank type with 5, 10, 15, 25, 50, 100 & 200 kVA transformer

EW/DF-31

The oil level indicator shall show the minimum oil level at a temperature of 30°C.

15.5 Bushings.

Bushings and connectors shall be provided on transformers as indicated below:

Transformer Rating	Drawing No.
LT Bushings 5, 10, 15, 25, 50, 100 KVA	EW/DF-405 ✓
LT Bushing 200 KVA	EW/DF-406
LT Bushing 400 KVA	EW/DF-204
LT Bushing 630 KVA	EW/DF-47
HT Bushings all ratings	EW/DF-410 & EW/DF-403

15.6 Transformer Oil

- The oil used in the transformers shall conform to IEC-296, Class-1 Oil (amended to date)
- To avoid formations of bubbles and entry of moisture to ensure longer service life, it is essentially required to fill transformer oil under vacuum.
- Oil testing facilities such as oxidation stability, dissipation factor, pour point etc, shall be arranged in the manufacturer's lab.
- If the type testing facilities of the oil is not available at the works of the manufactures, the oil will be got tested at any reputable lab. And the delay in delivery period will be to the manufacturers account.
- All the necessary documents for the purchase of oil should also be submitted to WAPDA/PEPCO Design & Standard and Material Inspection Departments.

- 15.7 The KVA rating of the transformers up to 630 KVA shall be stenciled in white on both sides of the transformers in 4 inches bold letters.

Encls:

Lifting Lug	Drawing No. EW/DF - 416
Filling Plug & Collar	Drawing No. EW/DF-404
Support Lug for 10,15,25 & 50 KVA Distribution Transformer	Drawing No. EW/DF-417
Mounting Arrangement for Distribution transformers	Drawing No. EW/DF-418

16.1 Special Technical Conditions

The transformer shall conform to WAPDA Specification No.DDS-84:2007 (amended to date), P-10:67 (amended to date) and to IEC Standard for short circuit with stand Test as per their publication :75-5 (amended to date). The transformer of ratings up to 50 KVA will be supplied without wheels and above

50 KVA rating transformers shall be supplied with wheels subject to the conditions mentioned in clause 14.1 (13).

16.2 Core Material

- a. The core shall be of high grade non ageing prime CRGO Electrical Steel Sheet at least M1 grade or equivalent.
- b. It should be from Western Europe, North America, Japanese, Australia New Zealand.
- c. Manufacturer must develop the testing facilities for testing of core material or it may be got tested at any reputable lab on the expenses of the manufacturer.
- d. A certificate showing test results from the Core Manufacturers for authenticity of the quality of the core shall be provided.
- e. The record of import for the purchase of the core from the foreign manufacturers will also be supplied to the WAPDA Inspector.
- f. The manufacturer will provide the facility for the testing of core material for aging test upto June 2009. In the meantime, a certificate from the original manufacturer of the core material will be provided in lieu of the aging test to the Inspectors of Material Inspection and Design & Standard Departments of WAPDA/PEPCO.

16.3 Prevention of Moisture Entry

The manufacture must design their transformer to prevent the Moisture Entry as follows:

- a) Gasket
 - NBR rubber seal (double) with a metal seat on the spindle of tap changer driving rod to hold the NBR rubber must be provided. NBR must conform to ASTM F-104 (amended to date) with the following properties:
 - a) Change in mass (+15%, -5%)
 - b) Hardness (60 - 90)
 - c) Compressibility (25% - 35%)

Gasket of NBR (Nitril Butadiene Rubber)/NBR rubberized cork sheet conforming to ASTM F-104 (amended to date) be provided under the cover plate of the transformer and HT & LT bushings. A certificate from the Gasket manufacturer for authenticity of quality of NBR shall be provided for each lot of the offered transformers for International Tenders and for each local purchase order of DISCOs.

b) Nuts & Bolts

- i. High tensile galvanized steel bolts, alternatively with galvanized M.S Bolts conforming to WAPDA Specification P-82 clause 3.2.2 for zinc coating and clause 8.8 of DIN 627 for hardness be provided for achieving proper tightness of transformer cover plates.

- ii. All nuts and bolts used for the tank assembly shall be electro galvanized with minimum zinc coating thickness of 15 micron.
- c) Araldite/Epoxy applied on portion of screws of upper arcing horn before tightening
- d) Electro Galvanizing of Steel Parts

On both ends of the Tie Rods, Hanging Studs & Core Bolts, Lock Nuts with spring/lock washers are to be used. All threads of Tie Rods, Hanging Studs & Core Bolts be punched after proper light. All steel washers, nuts, tie rods shall be electro galvanized.

Amel-3
e) Check nut should be used on HT through bolt under the HT connectors.

f) The top end of HT Bushing shall be filled with Araldite 2 to 3 inches after filling of through bolts so that moisture/water should not enter from the outside. A space of 50 to 75 mm of the insulation tube at the bottom may be kept empty. Alternatively long casted bolt bushings or elastimould Bushings may be used.

g) Industrial sealant shall be applied on the side wall oil gauge in case of non-rubber gaskets.

h) The holes of HT/LT bushings on the top cover sheet of 200 KVA Transformer should be pressed upward. ✓

16.4 a) HT/LT Connectors

✓ HT/LT connectors shall be tested during stage inspection according to WAPDA specification P-72 (amended to date). The material of HT/LT connectors shall be of brass with minimum tin coating of 30 microns conforming to BS 1872:84.

Amel-2
b) Special connectors with two outputs on LT side of 200 KVA transformers which shall accommodate 2 Nos. 120 mm sq. conductor or equivalent size cable must be provided.

✓ c) Locking Arrangements

Locking arrangements be provided to HT & LT connectors by welding / press fitting of metallic washer of brass at end of bolt.

✓ d) Insulating Material

Pressboard, pressure blocks, winding coil drums, oil duct strips and separator shall be used either made of press board or laminated Wood/Bakelite Blocks conforming to International Standards.

e) Conductor Risers

Flexible conductor risers connecting LT windings to transformer terminals must be electrical grade

f) Earthing Terminal

The dia of hole for earthing terminal shall be 12 mm.

g) Sealing of Oil Filling Plug

The arrangement of sealing of oil filling plug shall be provided.

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- h) **Sealing Arrangement of Transformer**
Two through hole bolts shall be provided on the adjacent sides of the top cover to seal the transformer.
- i) **Hanging Rods**
The lifting rods, yoke clamping bolts and tie rods shall be of appropriate size to sustain forces during short circuit.

16.5 Core & Winding Losses

- i) The manufacturers shall design their prototype transformers on the basis of following losses. 05% tolerance is allowed on individual iron and copper losses for prototype production.

KVA rating	5	10	15	25	50	100	200	400	630
Iron Losses (W)	55	65	85	123	175	310	495	925	1350
Copper Losses (W)	175	320	435	640	1170	202	3410	5600	8150

no-load losses
load losses

- ii) 15% tolerance is allowed on individual core & winding losses for mass production subject to the condition that these losses shall not be more than the total losses (core & winding) including 10% tolerance.
- iii) Manufacturer who design or get approved their transformers on lesser losses; an incentive in the form of increased quantity (at least 15% of quoted quantity) may be purchased from that manufacturer. This increased quantity will be adjusted by reducing quantities of other manufactures.

16.6 Efficiency of a Transformer

A-1 Where a statement of the efficiency of transformer is required, the following losses are included the value given being those arrived at in accordance with clause 16 and its sub clauses.

- (1) No load loss, which is considered to be constant at all loads.
- (2) Load loss, which varies with load.

The total loss on load is the sum of 1 and 2.

- A-2 The efficiency to be declared is given by the following expression for rated KVA and unity power factor.

$$\text{Efficiency} = \frac{\text{Output in KWP}}{\text{Output} + \text{Losses}} \times 100$$

16.7 Stage Inspection

For local manufacturer stage inspection including HT & LT Bushing, Neoprene Rubber, and Connectors etc. will be carried out by Chief-Engineer (MI) during stage inspection. The methodology of stage inspection shall be laid down by Chief Engineer (MI).

16.8 Dimensional Checks

2 Nos. transformers of each rating for each Lot or International Tenders will be selected and opened from the offered transformers by inspectors, one transformer in the beginning and other at any stage and internal details will be compared with approved drawings. For local purchase orders of DISCOs one No. transformer will be selected in each purchase order for dimensional checks.

16.9 Fuse Ratings

Fuse rating shall be printed on the tank of the transformer in white colour as given below.

USE.....K (Color Code)

Fuse at 11 KV Side

The value of the fuse rating and colour for different KVA capacities shall be selected from the table given below.

Designation	Current Rating (Amp).	Transformer Rating (kVA)	Colour Code
01 K	01	5, 10 & 15	Black
03 K	03	→ 25 & 50	Green
10 K	10	100	Blue
15 K	15	200	Orange
30 K	30	400	White
40 K	40	630	Gray

The size of the letters shall be appropriate to be visible from ground.

16.10 Prototype Approval of Drawings.

A PROTOTYPE APPROVAL OF DRAWING FOR LOCAL MANUFACTURERS

- (i) If the manufacturer does not possess the prototype approval of drawings from Chief Engineer (Design & Standard), according to the prevalent WAPDA Specification within last five years, the same shall have to be obtained from Chief Engineer (Design & Standard), before start of mass production.
- (ii) The manufacturer may offer the prototype before the expiry date on the basis of some improvements.
- (iii) All expenses like testing fee, expenditure incurred for shipment of transformer from manufacturer's premises to the testing lab., traveling, lodging/boarding and daily allowance of two WAPDA/PEPCO Engineers shall be born by the manufacturer.
- (iv) The prototype sample shall be submitted within 30 days from the date of issue of purchase order to Design Department. It is mandatory to supply details pertaining to design, short circuit performance and temperature rise of oil and winding, tank details (No. of tubes/Fins), weight of complete transformer, weight of oil, weight of core, weight of windings, etc. to Design & Standard Department at the time of prototype approval. Delay in offering the prototype beyond 30 days will be considered as delay in delivery and same late delivery charges will be applicable as for delay in supply of goods.
- (v) Complete oil test will be performed on the oil sample from offered transformer according to IEC-296✓
- (vi) The enameled wire test will be performed during the prototype approval. The minimum B.D value is 4.0 KV
- (vii) ✓ All routine and type tests will be performed during the prototype approval.

b) PROTOTYPE APPROVAL OF DRAWINGS FOR FOREIGN MANUFACTURERS.

The prototype transformer of each rating will be subjected to all routine and type tests as per clause 17 of General Requirements of Tests at manufacturer's lab. and at an independent lab, the credentials of which will be approved by the Engineer before start of mass production.

All expenses like testing fee, expenditure incurred for shipment of transformer from manufacturer's premises to the testing lab., traveling, lodging boarding and daily allowance of two WAPDA/PEPCO Engineers shall be borne by the manufacturer.

16.11 Transformer Oil Test

The oil shall conform to IEC-296 (amended to date) clause-I oil.

Type Tests.

The following tests shall be got tested as per IEC-296 (amended to date) from any reputable lab. at the expenses of the firm.

- ✓ 1. Oxidation stability
- ✓ 2. Dissipation factor

Routine Tests

The following routing tests shall be carried out as per IEC-296 (amended to date) at manufacturer's lab:

- ✓ a) Specific gravity of the oil
- b) Viscosity
- c) Flash point
- d) Acidity value
- e) Dielectric Strength of the oil
- f) Pour point

16.12 Temperature Rise Test for Mass Production and Prototype Approval.

- (a) The HEAT RUN TEST will be conducted by feeding the specified or measured total losses plus 10% at principal tap which ever is higher. The oil temperature will be measured directly for 5, 10, 15, 25, 50, 100 & 200 KVA transformers and in thermometer pocket of copper sheet having thickness of 0.8mm for 400 and 630 KVA transformers.
- (b) The heat run test on each rating will be carried out by WAPDA/PEPCO inspector once in 6 months starting from first of July every year against the purchase orders placed by DISCOs. One test for each rating will be valid for all DISCOs orders for the above period.
- (c) For foreign manufacturers the HEAT RUN TEST will be carried out on each rating of transformers once in each lot.
- (d) For tubular tank, limits of temperature rise of oil and winding will be 40°C & 50°C for mass production and 38°C & 48°C for prototype respectively.
- (e) For corrugated tank, limits of temperature rise of oil and winding will be 38°C & 49°C for mass production, and 37°C & 48°C for prototype respectively.

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16.13.1.1 Short Circuit Test From Mass Production

- a) i) The short circuit test carried out at HV & SC Lab. Rawal, on any one number transformer of each rating against any DISCO purchase order during a financial year shall be acceptable to other DISCOs.
- ii) For Foreign Manufacturers
One transformer of each rating from mass production for each shipment / lot against the tender / contract shall be tested for short circuit withstand capability at H.V & S.C Testing Laboratory, WAPDA Rawal, Islamabad on receipt of transformers in Pakistan in addition to testing at an independent Laboratory during inspection. Acceptance certificate will be issued by the purchaser after satisfactory testing at H.V & S.C Testing Laboratory, WAPDA Rawal, Islamabad.
- b) For DISCO purchase orders, the transformer (s) sent to Testing Lab. for short circuit testing shall be jointly selected at random at any stage from normal production / lot by the representative of Chief Engineer (Material Inspection) WAPDA/PEPCO, Lahore.
- c) The manufacturer must submit a copy of each inspection call to Chief Engineer (Design & Standard) so that joint sealing be carried out at any stage.
- d) All expenses like testing fee, expenditure for shipment of transformer from manufacturer's premises to the testing lab, And traveling boarding loading, daily allowance of two WAPDA/PEPCO Inspectors will be borne by the manufacturer.
- e) Failure in Short Circuit Test
In case the transformer (s) sent to testing lab, fail (s), further supply of failing sizes of transformers will be stopped temporarily until the cause is found and set right. The improvements carried out shall be intimated by the manufacturer to Chief Engineer (Design & Standards) WAPDA/PEPCO Lahore and Chief Engineer (Material Inspection) WAPDA/PEPCO, Lahore. The manufacturer will manufacture the improved version of 30 Nos. or 10% of the quantity of transformers mentioned in the purchase order, whichever is less, out of which one no. transformer will be jointly sealed for short circuit test by the representative of Chief Engineer (Design & Standards) and Chief Engineer (MI). All expenses like testing fee, traveling, boarding lodging and daily allowance of at least two WAPDA Inspector (s) shall be borne by the manufacture for retesting of sealed transformers. Simultaneously, the WARRANTY PERIOD of the transformers already supplied for the failed rating against purchase order / contract shall be increased to period of 18 months from the date of receipt of transformers at consignee's store as against 12 months specified in clause WARRANTY of this tender / purchase order.

And-3

- f) The extended warranty shall be printed by the manufacturers on all subsequent transformers. The Sr. No. of all the transformers already delivered to Stores on which 18 months warranty is subsequently applicable would be limited to all the Field Stores by the Purchaser.
- g) Disqualification of the Manufacturer

If the second transformer(s) as above fail(s), then the manufacturer will be disqualified for further orders for the failing size. Pre-qualification will be considered again only after submission of the report of successful testing of the failing size of the transformer.

- h) Repair Under Warranty Period

The damaged transformers received under warranty period will be jointly inspected by Chief Engineer (Design & Standards) & Chief Engineer (MI) representatives at the manufacturer's premises. The cause of damage of each transformer will be analyzed by the team to fix the responsibility either the damage is due to manufacturing defect or due to mal-operation / mishandling of field staff. If the user found accused for the damage, then the repair cost will be bared by the respective DISCO. Otherwise manufacturer will repair free of cost within four months of receipt. The transportation / handling charges etc. will be to WAPDA's account.

On these repaired transformers under warranty period, all the routine tests shall be carried out for conforming suitability of further use. The dielectric test values for the transformers repair under warranty will be considered as per IEC-60076

16.14 Impulse Voltage withstand Test From Mass Production

The impulse voltage withstand test shall be performed as per IEC 76-3 (amended to date) and P-10:67 (amended to date) on each phase of the transformer with following sequence.

Step 01	Reference Wave (60 KV)
Step 02	Full wave (95 KV)
Step 03 & 04	Two Nos. Chopped waves (110KV)
Step 05	Two No. Full wave (95 KV)

The test voltage shall be of negative polarity.

- A) For Local Manufacturers

Two Nos. transformers of each rating against any DISCO purchase order will be impulse tested during a financial year.

B) For Foreign Manufacturers

For international tenders/contracts, the impulse test shall be carried out once in each lot / shipment on each type or transformer.

17. GENERAL REQUIREMENT OF THE TESTS

- ✓ a) The tests shall be carried out as per recommendations of IEC Publication 76 parts 1 to 5 (amended to date) and WAPDA Specification No. P-10 (amended to date).
- b) All the routine, type and sample tests shall be carried out at the manufacture's works except Short Circuit Test which shall be carried out at an independent laboratory like KEMA of Holland, CESI, Italy, CRIEPT Japan or H.V & S.C Testing Lab., WAPDA Rawal, Islamabad. The manufacturer shall provide all the latest testing facilities and equipment including high accuracy low loss instruments duly calibrated from a reputable lab.
- c) All the testing equipment should be calibrated from a reputable lab annually —
- d) The design tests will be carried out by putting all the measuring meters at the transformers terminals.

17.1 Routine Tests

Following routine tests shall be carried out on each and every transformer by the manufacturer and a record in this regard shall be maintained which will be produced to the WAPDA/PEPCO Inspector on demand.

- ✓ i. Measurement of winding resistance.
- ✓ ii. Measurement of voltage ratio (turns ratio) and vector group.
- ✓ iii. Measurement of Core losses.
- ✓ iv. Measurement of Winding losses and impedance voltage.
- ✓ v. Dielectric Tests.
 - a) Induced over-voltage withstand test.
 - b) Power frequency voltage withstand tests.
- ✓ vi. Bridge protection test (8 KV)

17.2 Type Tests.

Following type tests shall be carried out on prototype sample of a new design by WAPDA Distribution Engineering Department.

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I. ✓ TEMPERATURE RISE TEST

The following prerequisite tests will be carried out.

- a) Measurement of winding resistance.
- b) Measurement of no load and load losses.

✓ ii. IMPULSE VOLTAGE WITHSTAND TEST. ✓ iii. SHORT CIRCUIT TEST

The testing sequence will be as under

- a. Power frequency voltage withstand tests
- b. Induced over voltage withstand test.
- c. Measurement of voltage ratio and vector group relationship
- d. Measurement of winding resistance
- e. Measurement of Core and Winding losses
- f. Short Circuit test
- g. Power frequency voltage withstand tests.
- h. Induced voltage withstand test
- i. Measurements of voltage ratio and vector relationship
- j. Measurements of winding resistance
- k. Measurements of no load and load losses
- l. Delanking and visual inspection.

17.3 Sample Test

The following sample tests shall be conducted by WAPDA Insupector on the transformers offered for inspection from the mass production,

- i. Measurement of winding resistance
- ii. Measurement of voltage ratio (turn ratio) and vector group
- iii. Measurement of no load losses
- iv. Measurement of load losses and impedance voltage.
- v. Dielectric Tests
 - a. Induced voltage withstand test
 - b. Power frequency voltage withstand tests.
- ✓ vi. Paint thickness
- ✓ vii. Birdage protection test at 8 KV.
- ✓ viii. Tank pressure test as per clause 15.2.1
- ✓ ix. Oil test as per IEC -296 (amended to date)
- ✓ x. Tin coating test and other allied tests on connectors.
- xi. Visual and dimensions tests:-
 - a. Overall dimensions of the tank and all extended fillings
 - b. Core assembly
 - c. Weight of HT, LT winding, core, oil and tank etc.

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- xii. Impulse voltage withstand tests
- xiii. Temperature rise test

17.4 Sampling Procedure

Amel-2
Amel-3 17.4.1 Oil sampling shall be carried out once in P.O & IC shall be issued after oil sampling and electrical testing of the transformers without waiting for oil results from an independent laboratory

17.4.2 The oil shall be tested as per ICE-296 (amended to date). The sampling for all tests shall be taken from 5% quantity of offered lot. The sampling of oil shall be done from the transformers tanks.

17.4.3 For line coating test and other allied test on the connectors, the sampling and testing shall be carried out once for local DISCOs purchase order/International Tender

17.4.4 Visual and dimensional test shall be carried out on at least two nos. transformers of each type offered in a lot for international Tenders and on one No. transformer for each DISCOs purchase order

Amel-1 17.4.5 The oil shall be tested as per IEC-296 (amended to date). The sampling for routine tests shall be taken from 5% quantity of offered lot. The sampling of oil shall be done from the transformer's tanks. Type tests i.e., oxidation stability and dissipation factor be conducted twice in financial year on distribution transformer.

17.5 Acceptance and Rejection Criteria

17.5.1 Type Tests

The prototype transformer (s) will be approved for mass production only when it passes all the type tests. If the transformer fails in any of the type tests, the transformer shall be re-designed by the manufacturer and shall offer the same for repeating all the type tests.

17.5.2 Sample Tests

a. Short circuit test (See Clause 16.13)

Amel-3 b. Impulse Test

If the transformer fails in the impulse test, then two more samples of the same rating shall be selected randomly and impulse tested. If any one of the sample fails again than the subsequent supply of the failing rating will be stopped till the fault is set right & verified.

c. Temperature rise test

If the sample transformer fails in the temperature rise then two more samples selected from the same lot shall be subjected to the test. If any of the samples fails then complete lot shall be rejected.

d. Power frequency and induced voltage test

- i. If all the sample transformers pass then the lot shall be accepted.
- ii. If one number transformer fails then re-sampling be done from the remaining lot. If all the sample pass the test, the lot shall be accepted, however, the transformer which failed in the first sampling shall be rejected.
- iii. If any of the transformer failed in the second sampling complete lot shall be rejected.

e. Transformer oil test

- i. If the oil fails in any type test the lot will be rejected
- ii. If the oil fails in any routine tests, then two more samples will be taken from the offered lot and sample tested. If any of the sample fails then the lot will be rejected.

f. Remaining sample test

- i. If one number transformer fails, the lot shall be accepted.
- ii. If two transformers fails, then re-sampling shall be done from the remaining lot, if any of the transformer fails then the complete lot shall be rejected.
- iii. If three Nos. sample fail then complete lot shall be rejected.

17.6 Rejected Lots (for Impulse and temperature rise tests)

- i. For rejected lots, the failed rating transformer will be opened jointly by the representatives of Chief Engineer (Design & Standards) and Chief Engineer (Material Inspection) and cause of failure intimated by the manufacturer will be got checked/verified. After rectifying the fault in all the offered transformers, the manufacturer will submit a certificate to the above effect. One no. transformer will be again jointly sealed and got tested at HV & SC testing Laboratory, WAPDA, Rawat, Islamabad, on the expenses of the manufacturer. If the transformer qualifies, the lot will be accepted after increasing the warranty period double the specified period in warranty clause of the purchase order.

- ii. Simultaneously, the warranty period of transformers already supplied for the failed rating against purchase order/contract shall be increased to period of 18 months from the date of receipt of transformers at consignee's store as against 12 months specified in clause "WARRANTY" of the tender/purchase order.

and -

- iii. The extended warranty shall be printed by the manufacture on all subsequent transformers. The Sr. no of all the transformers already delivered to stores on which 18 months warranty is subsequently applicable would be intimated to all the filed stores by the purchaser.
- iv. If the jointly sealed transformer (s) as above fails (s) then the manufacturer will be disqualified for further orders for the failing size. Prequalification will be considered again only after submission of the report of successful testing of the failing size of transformer from an independent lab, like HV & SC testing Laboratory, WAPDA, Rawat Islamabad.

 (SHAHID WAZ KHAN) Deputy Director (D&S)	 (AZIZ UR REHMAN) Director (D&S)	 (YAQOOB BAIG MIRZA) Chief Engineer (D&S)
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**SCHEDULE OF TECHNICAL DATA FOR DISTRIBUTION
TRANSFORMERS, 11/0.415KV 10, 15, 25, 50, 100, 200, 400 & 630 KVA RATINGS.
WAPDA SPECIFICATIONS**

- 1 Name & address of the manufacturer.
- 2 Experience of transformer 's manufacturing.
- 3 Type/Model.
- 4 Rated voltage at no load.
 - a) Higher voltage side.
 - b) Lower voltage side.
- 5 Conforming standard
- 6 Rated current.
 - a) Higher voltage side.
 - b) Lower voltage side.
- 7 Rated capacity.
- 8 No. of phases.
- 9 Impedance voltage.
- 10 Percentage reactance.
- 11 Type of cooling.
- 12 Regulating taps(%).
(Tappings being located on HV winding.)
- 13 Insulation material & points of application.
- 14 Insulating oil.
Whether it meets the requirement of IEC-296 class-I oil.
- 15 Insulation level. (NIL)
- 16 Power frequency test voltage.
- 17 Impulse test voltage.
 - a) Full wave.
 - b) Chopped wave
- 18 Induced voltage with frequency.
 - a) HT winding.
 - b) LT winding.
- 19 Limits of temperature rise for prototype.
 - a) Winding.
 - b) Core.
 - c) Oil.
- 20 Limits of temperature rise for mass production.
 - a) Winding.
 - b) Core.
 - c) Oil.
- 21 Short circuit withstand standard.



- 22 Reference ambient temperature.
- Max. ambient air temperature.
 - Max. daily average ambient temperature.
 - Max. yearly average ambient temperature.
 - Altitude.
- 23
- Oil weight.
 - Core weight.
 - HT winding.
 - Weight.
 - Dia of wire.
 - With enamel.
 - Without enamel.
 - Outer diameter of coil / packet.
 - Height of Coil / packet.
 - No. of HT winding packets.
 - LT winding.
 - Weight.
 - Size of conductor
 - Paper insulated
 - Bare
 - Outer diameter of coil / packet.
 - Height of coil.
 - No. of winding packets.
 - Liftable weight including weight of winding, weight of core, top cover, bushing & hardware.
 - Weight of empty tank without top cover.
 - Weight complete transformer.
- 24 Vector group.
- 25 Type of test certificate, if any.
- Issuing authority.
 - WAPDA approval letter No. & date.
- 26 Losses.
- Total copper losses at 100% rated load.
 - Total iron losses at 100% voltage.
 - Total losses at 100% rated load & 100% voltage.
 - Total losses at 75% rated load & 100% voltage.
 - Total losses at 50% rated load & 100% voltage.
 - Iron losses at no load & 100% voltage.
 - Iron losses at no load & 110% voltage.
 - Copper losses at 100% rated load 100% voltage.

Minimum Maximum

Watts

Watts

Watts

Watts

Watts

Watts

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27 Efficiencies.

1. For unit power factor.

- a) At 100% rated load.
- b) At 75% rated load.
- c) At 50% rated load.

%
%
%

2. For 0.8 power factor.

- a) At 100% rated load.
- b) At 75% rated load.
- c) At 50% rated load.

%
%
%

28 Voltage regulation.

- a) Voltage regulation in % of the load voltage at full load & at unity power factor.
- b) Voltage regulation in % of the load voltage at full load & at 0.9 lagging power factor.

%
%

29 Provision of fittings.

Whether the following fittings for transformers have been provided.

- a) Rating plate.
- b) Terminal marking.
- c) Lifting lugs.
- d) Earthing terminals for tanks.
- e) Oil filling hole & plug with sealing arrangement.
- f) Oil level indicator.
- g) Support lugs.
- h) Channels.
- i) HT & LT bushings, Name & year of manufacture.
- j) Minimum creepage distance of HT bushing.
- k) Whether bushing manufacturer has provided a certificate that the bushing have been tested fully according to applicable clauses of IEC-233. If yes please attach a copy of certificate. Non submission of certificate will render the bid non responsive.

355 mm

Yes

30 Tank

a) The transformer being offered is with tubular type tank construction or Corrugated type?

a) Whether transformer are of tube type tank construction with bolted cover & are suitable for outdoor pole mounting installation.

Yes

c) Whether transformers are effectively sealed from atmosphere for a top oil temperature range of 0 to 110°C.

Yes

d) Whether completely assembled transformer is designed & tested to withstand without deformation or leakage pressure of 15lbs/in² in case of tubular tank and 5 lb/in² in case of corrugated type tank construction.

Yes

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e) Whether tank is marked outside & inside with white enameled to show minimum & maximum oil levels at 30°C.

Yes

f) To prevent flashovers caused by large birds, whether transformer top covers are effectively coated with a weather proof permanent insulating material having a dielectric & withstand voltage at not less than 8KV. If yes, name the insulating material.

Yes

Araldite / Paint

g) The tank paint is highly resistant in the effects of strong sun light & high temperature & shall have a long life under such priming coat & two finish coats, Which are applied after the rough cleaning of the tank. Whether thickness of the paint coating is greater than 0.12mm.

h) Whether bushing & connectors have been provided on transformers as per WAPDA drawings.

i) Whether all nuts & bolts used for the construction of the tank are HOT DIP Galvanized.

31 No. of cooling tubes & size.

(Attached dimensional drawing).

32 Overall dimensions of transformers.

(Attached dimensional drawing).

33 Tank dimensions.

Height

Width

Length

Approx

Approx

Approx

34 Whether rollers have been fitted with tank as per WAPDA specs.

35 Thickness of tank sheet.

36 Thickness of top cover sheet.

37 Thickness of bottom cover sheet.

38 Total No. of pressure blocks & material.

39 Total No. of tie rods, size & No. of nuts.

40 Total No. of hanging studs, size & No. of nuts.

41 Total No. of core bolts, size & No. of nuts.

42 Whether the end rings provided. If yes, indicate quantity, dimensions & material.

43 Whether tie rods have been covered with insulating sleeves.

44 Any other important information.

45 Whether all the points for non entry of moisture have been achieved as per Annexure - A attached in WAPDA specs. P13:2002.

NOTE:

Non submission of drawing/data as mentioned above will render the bid non-responsive.

The columns which are not applicable shall be filled N.A.

Signature & seal of bidder/ Manufacturer

[Handwritten Signature]

APPENDIX - A

**TECHNICAL INSTRUCTIONS
FOR THE POWDER COATING PROCESS
AND ITS SPECIFIED TESTS ON TOP COVER PLATES OF
DISTRIBUTION TRANSFORMERS
FOR BIRD PROTECTION**

1. SCOPE

These technical instructions cover the requirement of the bird protection through powder coating on top cover plates of three phase, 11/0.415 KV all ratings Distribution Transformers.

2. MATERIAL OF POWDER COATING

Powder should be pure Polyester or Polyester Epoxy. The raw material of powder should be of European Origin such as Belgium or England.

3. APPLICATION OF POWDER COATING

Reference : Technical Brief # 11, Powder Coating Institute, USA.

Powder coatings should be applied by Electrostatic Spraying using classic devices, which can provide a negative tension of 60-90 KV.

Following sequence of surface treatment and curing should be followed:

- | | |
|-------------------|---|
| Step One | De-Rusting: (Acid cleaning or shot blasting) followed by water rinse to remove completely rust and oxides from the top cover plate. |
| Step Two | De-greasing followed by water rinse to prepare the plate surface free from oil or grease. |
| Step Three | Zinc or Iron Phosphating in a hot bath followed by water rinse to prevent the surface from rusting and to make proper paint adhesion. |
| Step Four | Powder application by Electrostatic Spraying using classic devices which can provide a negative tension of 60-90 KV. |
| Step Five | Curing in an oven at 180-200 °C for 20 minutes. |

ROUTINE TESTS

The following routine tests will be performed on each and every Distribution Transformer Top Cover Plate as per inspection criteria.

i. Dielectric Test

The test should be performed in accordance with clause 15.4 of WAPDA specification P-2001 (amended to date) to withstand a dry dielectric voltage of not less than 8 KV.

ii. Paint Coating Thickness

The tests should confirm in accordance to clause 15.5 of WAPDA specification P-2001 (amended to date). The thickness of the paint coating should not be less than 0.12 mm.

TYPE TESTS

i. Cross Cut Adhesion Test

Sample

Two Nos. Transformers in a year against any DISCO purchase order for all rating Distribution Transformers shall be selected at random for this test.

Reference Standard

The test will be performed in accordance to ISO 2409 standards.

Type of Cutting Tool Used

1-3 mm spacing.

After performing the tests the edges of the cuts should be completely smooth and none of the squares of the lattice is detached.

ii. Salt Spray Test

Sample

The test will be performed once in a year against any DISCO purchase order for all rating Distribution Transformers. The test samples of appropriate size following all the above steps of powder coating will be prepared. One of the five

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[Handwritten signature]

[Handwritten signature]

No. samples selected randomly will be got tested.

Reference
Standard

The test will be performed in accordance to ISO 9227 standards.

Observation Time: 500 hours.

After 500 hours salt spray test there should be no corrosion on the sample. There should be no cracks & peelings of the paint.

iii. Impact Test

Samples

This test will be performed twice a year against any purchase order for all rating Distribution Transformers.

Reference

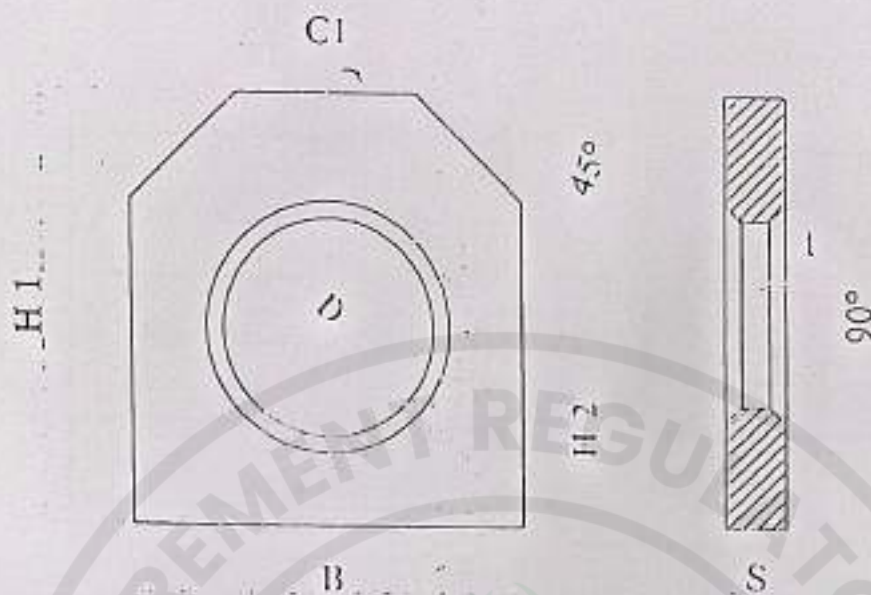
This test will be performed in accordance to ISO 6272.

Standard

The value obtained by impact test should be greater than 25 KG/cm.

NOTE:

All the routine / type tests shall be witnessed by the Inspection Department as per inspection criteria.



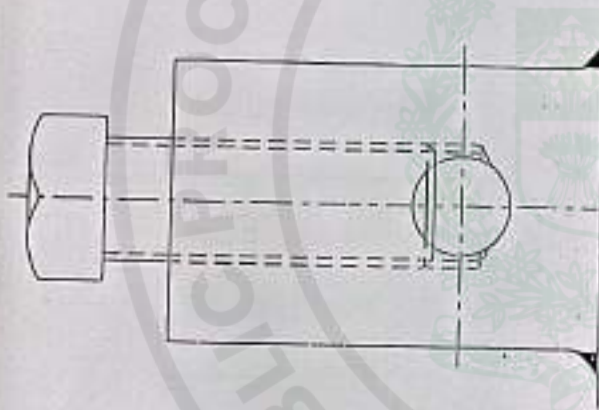
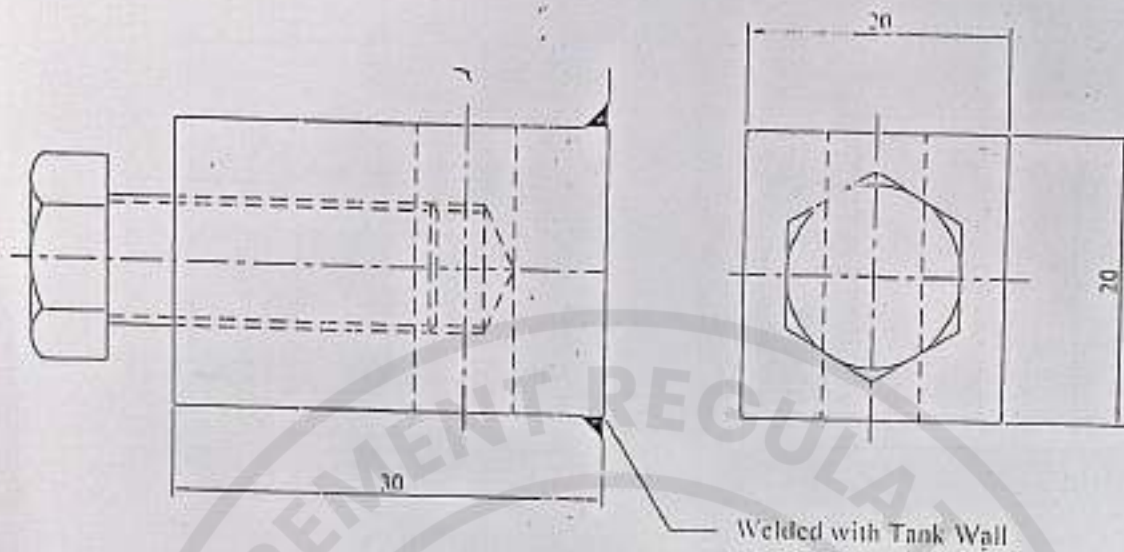
Transformer Capacity	B	D	C1	H1	H2	S	t
10, 15, 25, 50 kVA	70	40	35	75	35	10	2
100 & 200 kVA	100	55	45	100	45	12	3
630 kVA	120	65	55	130	60	15	5

NOTE:

All Dimensions are in (mm)

Lifting Lugs For Distribution Transformers.

DWN:	A.E	SCALE:	DATE:
-TCD:	A.D	ORG#	
*CXD:	DIRECTOR	EW/DF-416	



NOTE:

All Dimensions are in (mm)

Earthing Terminal For
Distribution Transformers.

DWN:

A.E

SCALE:

DATE:

TGD:

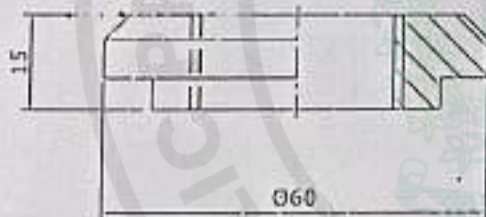
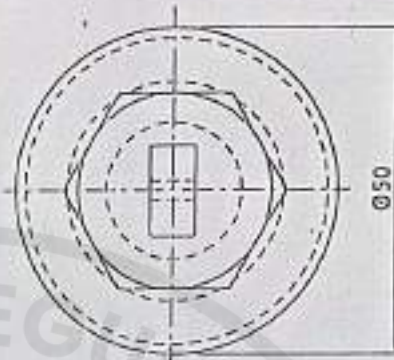
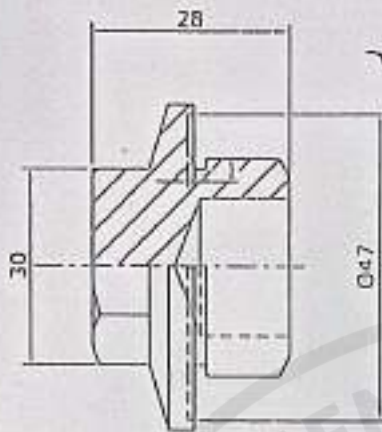
A.D

DRG#

CXD:

DIRECTOR

EW/DF-415



NOTE:

All Dimensions are in (mm)

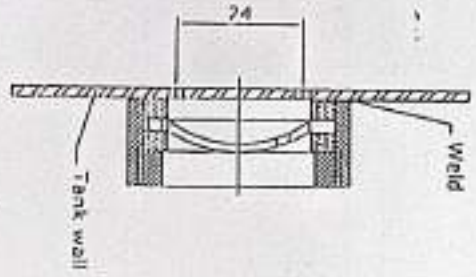
Oil Filling Coller & Plug
for
Distribution Transformers.

DWN:	A.E	SCALE:	DATE:
TCD:	A.D	DRG#	
CXD:	DIRECTOR		

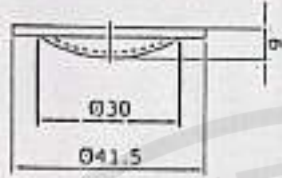
EW/DF-404

9

(33)



ASSEMBLY



EYE



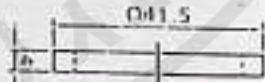
SOCKET



SOCKET



GASKET



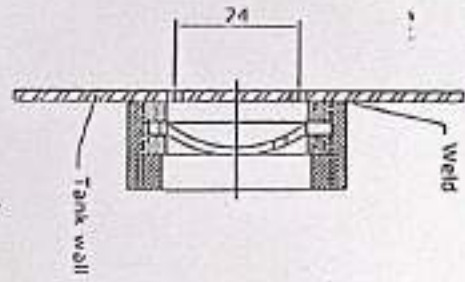
3mm Wide &
5mm Deep

NOTE:

All Dimensions are in (mm)

Oil Level Indicator For
Distribution Transformers

DWN:	A.E.	SCALE:	DATE:
TCD:	A.D.	ORG#	
CXD:	DIRECTOR	DSW/DF- 31	



ASSEMBLY

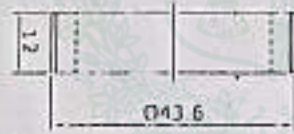
NOTE:

All Dimensions are in (mm)

EYE



SOCKET



SOCKET



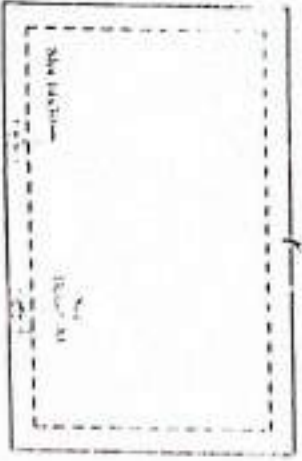
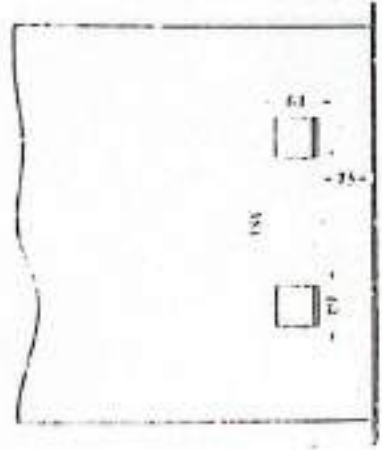
GASKET

Oil Level Indicator For
Distribution Transformers

DWN:	A.E	SCALE:	DATE:
TCD:	A.D	DRG#	
CXD:	DIRECTOR	DSW/DF- 31	

(34)

Support Lug For 25 & 50 KVA



Transformer



Detail-M

Detail-A

Transformer Edge Of



Welded

1" Dia x 2" x 1/8" Thick
E-1000 250000

L.T. Side

Sec Detail -A

L.T. Bushing

Support Lug For 10 & 15 KVA



ALL OTHER DIMENSIONS ARE TO BE DETERMINED
CONFORMING TO THE IEC STANDARDS

Support Lug For 10, 15, 25, 50 KVA
Distribution Transformers

EW/DF--417

SCALE:

DATE:

DWG#

DW/DF-417

OWN:	A.E.
TCO:	A.T.
CRN:	DRF. 3

Type	Dimension mm		Channel Size
	A	B	
10,15 KVA	350	400	75x37
25,50 KVA	400	500	75x37
100,200 KVA	520	500	100x50
630 KVA	670	780	150x75

Mounting Arrangement For Distribution Transformers

DWN:
TCD:
CXD:

A.E
A.D
LIFE OF THE

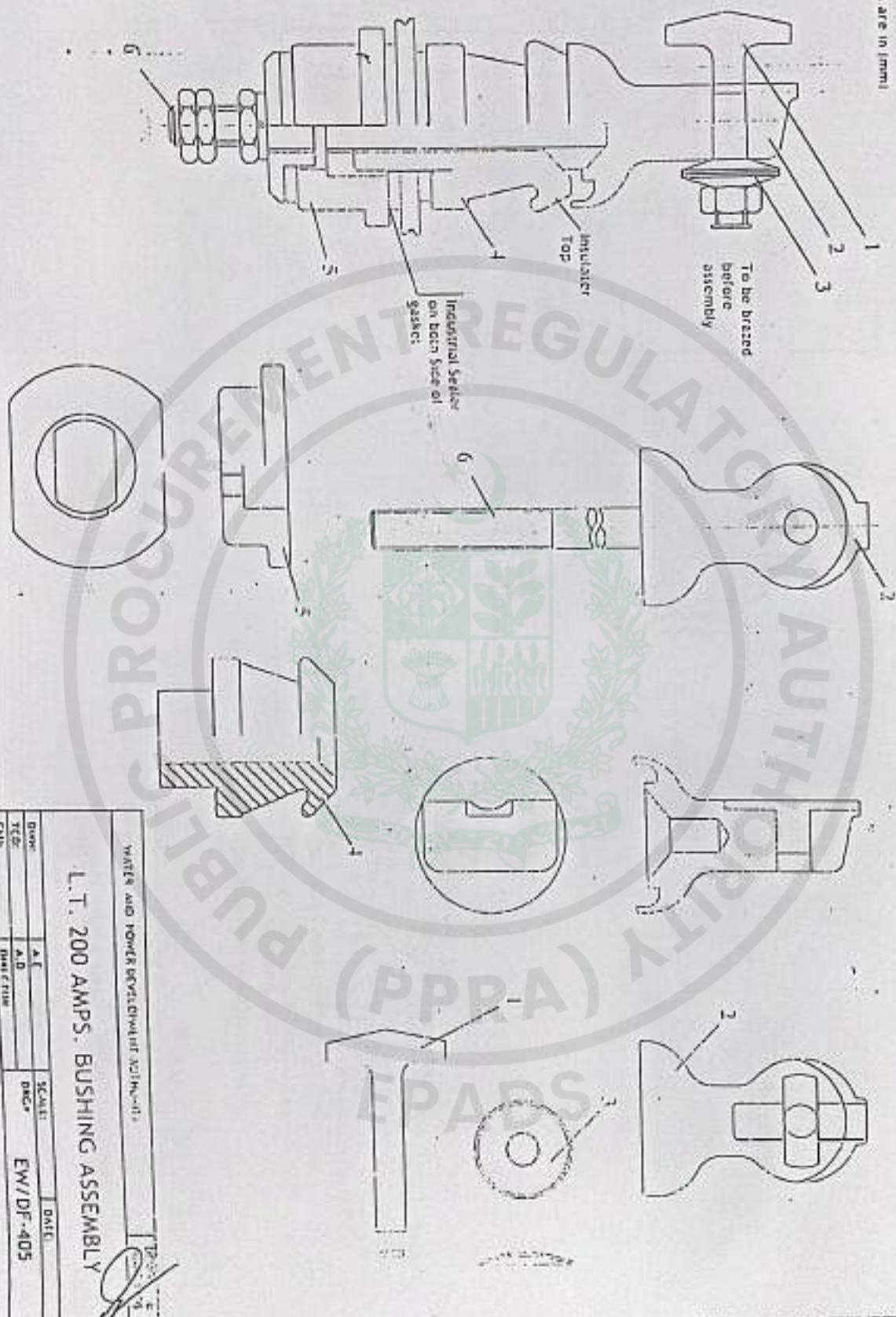
SCALE:
DRG:

DATE:

DW/DF-418

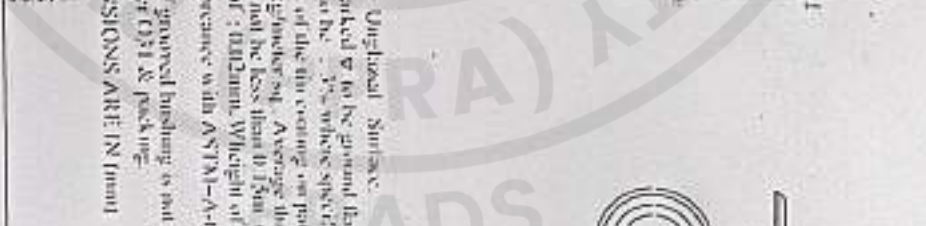
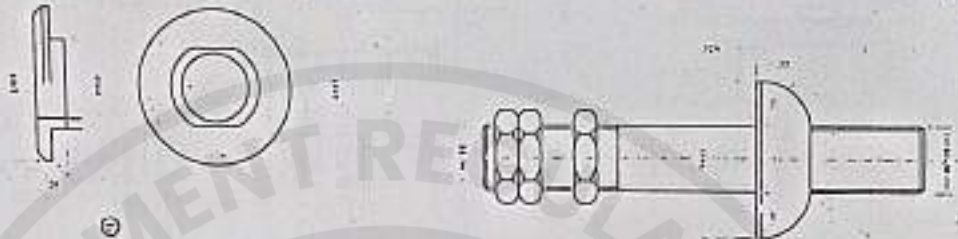
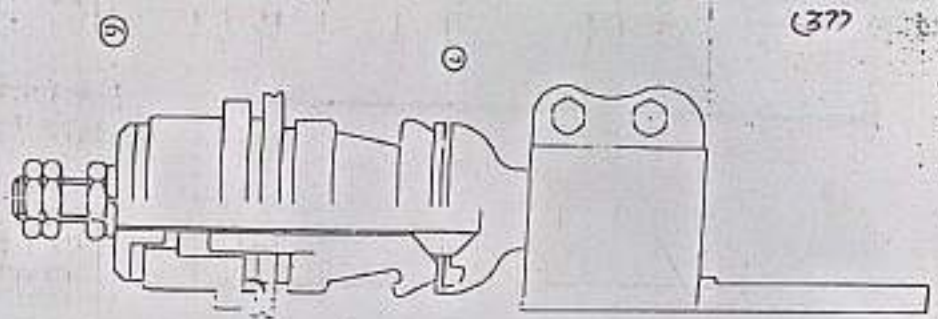
NOTE:
All Dimensions are in (mm)

(36)



WATER AND POWER DEVELOPMENT AUTHORITY			
L.T. 200 AMPS. BUSHING ASSEMBLY			
Drawn	A.J.	SCALE	DATE
TEC	A.D.	DEC	
CLIP	DRW FILE	EW/DF-405	

ASSEMBLY



Notes:

1. Unthreaded Surface.
2. Surface marked W to be ground flat.
3. Tolerances to be $\pm .005$, unless specifically noted otherwise.
4. The weight of the tin coating on part 1, 2, 3 shall be 1.1 kg/ft² sq. Average thickness of coating shall not be less than 0.001 inch with a tolerance of $\pm .002$ inch. Weight of tin coating shall be tested in accordance with ASTM-A-63-68.

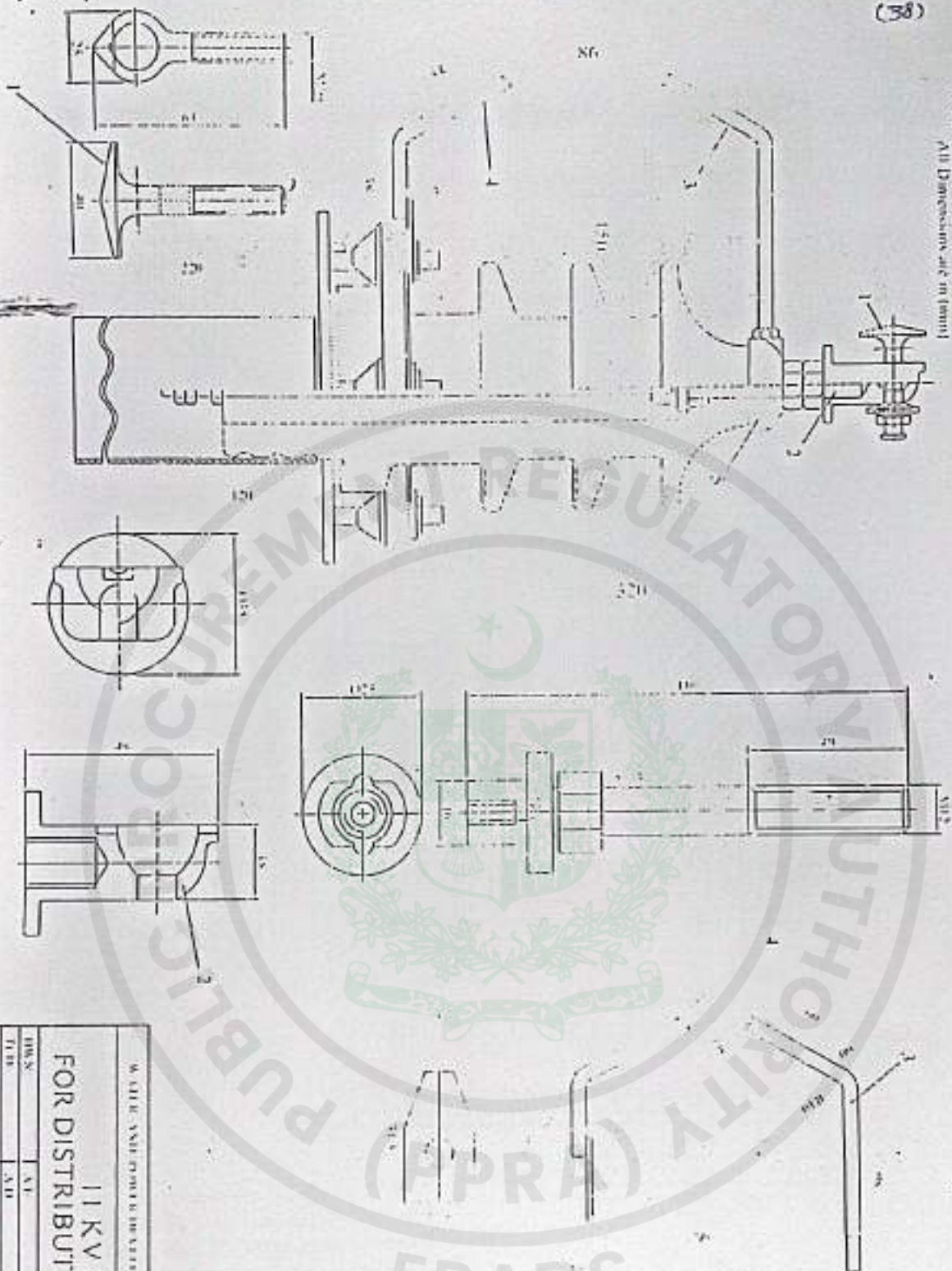
Please note if ground bushing is not available use (1) washer (2) & packing.

ALL DIMENSIONS ARE IN INCH

WATER-AGED POWER DEVELOPMENT FACILITY			
L.T. 1000 AMPS. BUSBING ASSEMBLY			
ITEM NO.	DESCRIPTION	SCALE	DATE
1	WATER-AGED POWER DEVELOPMENT FACILITY	1/2" = 1'-0"	10/1/68
2	WATER-AGED POWER DEVELOPMENT FACILITY	1/2" = 1'-0"	10/1/68
3	WATER-AGED POWER DEVELOPMENT FACILITY	1/2" = 1'-0"	10/1/68
4	WATER-AGED POWER DEVELOPMENT FACILITY	1/2" = 1'-0"	10/1/68
5	WATER-AGED POWER DEVELOPMENT FACILITY	1/2" = 1'-0"	10/1/68
6	WATER-AGED POWER DEVELOPMENT FACILITY	1/2" = 1'-0"	10/1/68
7	WATER-AGED POWER DEVELOPMENT FACILITY	1/2" = 1'-0"	10/1/68
8	WATER-AGED POWER DEVELOPMENT FACILITY	1/2" = 1'-0"	10/1/68
9	WATER-AGED POWER DEVELOPMENT FACILITY	1/2" = 1'-0"	10/1/68

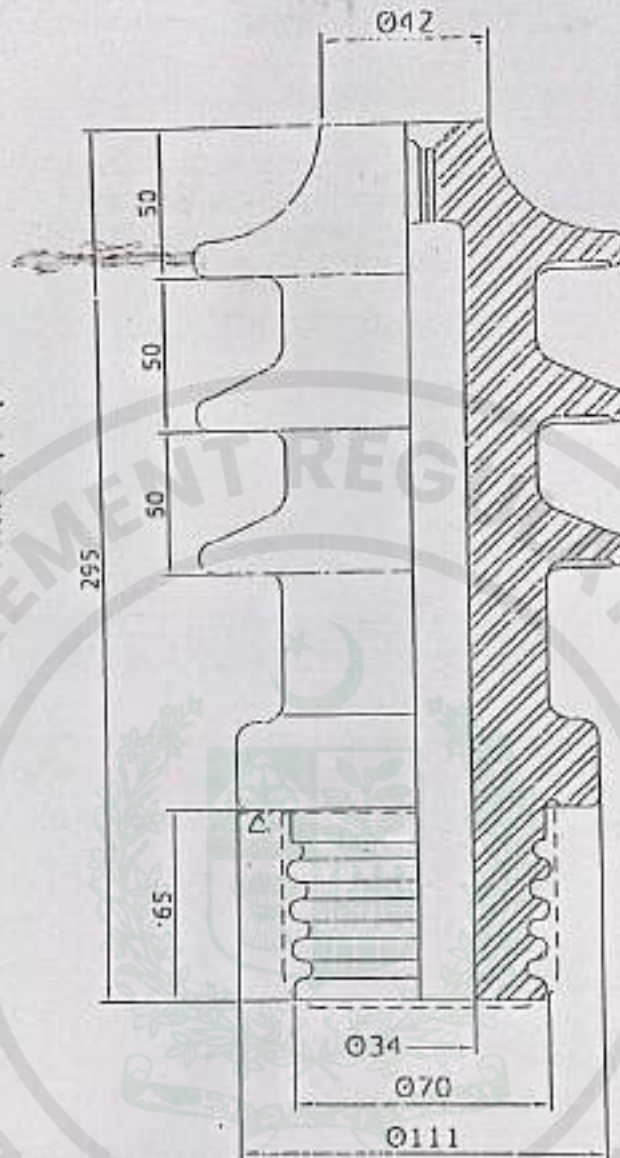
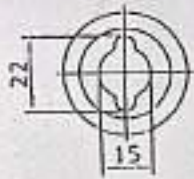
(38)

NOTE: All Dimensions are in (mm)



11 KV BUSHING
FOR DISTRIBUTION TRANSFORMER

MATERIAL AND DIMENSIONS TO BE GIVEN				REVISIONS	
ITEM	NO.	DATE	BY	DATE	REVISIONS
1	1	1/1/2019	1	1/1/2019	1
2	2	1/1/2019	2	1/1/2019	2
3	3	1/1/2019	3	1/1/2019	3
4	4	1/1/2019	4	1/1/2019	4
5	5	1/1/2019	5	1/1/2019	5
6	6	1/1/2019	6	1/1/2019	6
7	7	1/1/2019	7	1/1/2019	7
8	8	1/1/2019	8	1/1/2019	8
9	9	1/1/2019	9	1/1/2019	9
10	10	1/1/2019	10	1/1/2019	10
11	11	1/1/2019	11	1/1/2019	11
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17	17	1/1/2019	17	1/1/2019	17
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96	96	1/1/2019	96	1/1/2019	96
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98	98	1/1/2019	98	1/1/2019	98
99	99	1/1/2019	99	1/1/2019	99
100	100	1/1/2019	100	1/1/2019	100



SECTIONAL ELEVATION

NOTE:

- 1 - - - - - Unglazed Surface
- 2 Unmarked radii to be Considered as ± 2.5
- 3 Tolerance to be $\pm 3\%$ where not specified
- 4 Leakage distance.....350 M.H.
- 5 Δ Surface to be ground flat

H.T TRANSFORMER BUSHING

DWN:	A.E	SCALE:	DATE:
TCD:	A.D	URG:	
CVD:	DIRECTOR		

EW/DF-403

PEPCO

PAKISTAN ELECTRIC POWER COMPANY LIMITED
Office of the Chief Engineer (Design & Standards) PEPCO
17/C-1, 1st Floor, IEEE Building, Faisal Town, Lahore
Ph. # 042/0231041 -- Fax # 042/0231046
Email: cedesign@yahoo.com

No. 74-96 /CEDSD/ 281Dated: 5-1-2008All Chief Executive Officers
DISCOs

Subject: AMENDMENT NO.1 - WAPDA SPECIFICATION NO. DDS-04.2007
FOR OIL IMMERSSED SEALED TYPE TRANSFORMER

The copy of Amendment No.1 dated 05.01.2008 of the WAPDA
Specification DDS-04.2007 for Oil Immersed Sealed Type Distribution Transformer is
enclosed herewith for record and guidance please.

Aziz
5/1/08
(AZIZ UR REHMAN)
DIRECTOR (D&S)

Cc to:-

1. General Manager (C&M) Power PEPCO WAPDA House, Lahore.
2. Chief Engineer (Material Inspection) PEPCO, Sunny View, Lahore.
3. Chief Engineer (P&D) PEPCO, WAPDA House, Lahore.
4. All transformer manufacturers.

Reference: 001/P-2

(41)

WAPDA/PEPCO
SPECIFICATION NO. DDS-84:2007

OIL IMMERSED SEALED TYPE DISTRIBUTION
TRANSFORMER

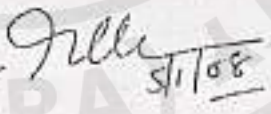
AMENDMENT NO.1

DATED 5TH JANUARY, 2008

Sub Clause 17.4.6 may be added in Clause 17.4 which is as under:-

For sample test at Sr. No. (i) to (viii):

- a. If the offered lot is 5 or below then all the transformers shall be tested
- b. If the offered lot is between 5 to 10 then 5 Nos. transformers shall be sample tested.
- c. If the offered lot is between 11 to 50 then 5+20% of the offered lot shall be sample tested.
- d. If the offered lot is between 51 to 100 then 10+10% of the offered lot shall be sample tested.
- e. If the offered lot is above 100 then 15+10% of the offered lot shall be sample tested.

 (Shah Nawaz Khan) Deputy Director (D&S)	 (Aziz ur Rehman) Director (D&S)	 J. I. Khan Chief Engineer (Design & Standard)
---	---	--

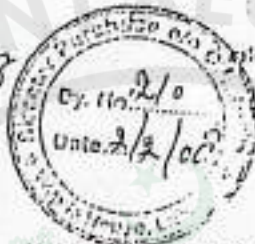
Amendment P-1

PEPCO

PAKISTAN ELECTRIC POWER COMPANY LIMITED
Office of the Chief Engineer (Design & Standards) PEPCO
17/C-1, 1st Floor, IEEE Building, Faisal Town, Lahore
P.L.N 04280231641 - Fax # 04280231646
Email: ce@pepcogroup.com

No. 404-25700512-248

All Chief Executive Officers
WESCOs



Subject: AMENDMENT NO.2 - WAPDA SPECIFICATION P.D. DSS-04-2007
FOR OIL IMMERSSED SEALED TYPE TRANSFORMER

The copy of Amendment No.2 dated 30.01.2008 of the WAPDA
Specification DSS-04-2007 for Oil Immersed Sealed Type Distribution Transformer is
enclosed herewith for record and guidance please.

File
30/1/08
(AZIZ ULLAH KHAN)
DIRECTOR (DSS)

Cc to:-

1. General Manager (C&M) Power PEPCO WAPDA House, Lahore
2. Chief Engineer (Material Inspection) PEPCO, Sunny View, Lahore
3. Chief Engineer (P&I) PEPCO, WAPDA House, Lahore
4. All transformer manufacturers

EPADS

Reference No. 404-25700512-248

WAPDA/PEPCO
SPECIFICATION NO. DDS-84:2007

OIL IMMERSED SEALED TYPE DISTRIBUTION
TRANSFORMER

AMENDMENT NO.2

DATED 30TH JANUARY, 2008

i. CLAUSE 15.3.1

The word "Appendix A" may be added at the end.

ii. CLAUSE 16.4 (b)

The drawing No. WAPDA/406 (with two outputs on 11 sides) may be followed instead of single, but not drawing with similar No.

iii. CLAUSE 16.5 (1)

Copper losses for 100 KVA rating be read as 2020 instead of 202.

iv. clause 16.10 (A) (i) may be read as follow

If the manufacturer does not possess the prototype approval of the drawings from Chief Engineer (D&S), according to the prevalent WAPDA Specification within THREE YEARS, the same shall have to be obtained before the start of mass production.

v. CLAUSE 16.13.1.1 (b) may be read as follow

- i. The damaged transformers under Warranty period will be repaired by the manufacturers free of cost within four months of receipt irrespective of the condition that it is damaged due to WAPDA fault or manufacturers fault. The transportation/ handling charges etc. will be to WAPDA's account.

WAPDA/PEPCO/406

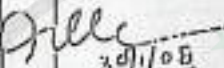
(Page 2)

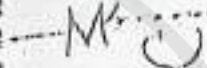
- ii. For the acceptance of these repaired transformers under warranty period all the routine tests shall be carried out for conforming suitability of further use.

vi. CLAUSE 17.4.1 may be read as follow:

Oil sampling shall be carried out once in a purchase order and IC shall be issued only after receiving the successful results from an independent lab.


(Shah Nawaz Khan)
Deputy Director (D&S)


30/1/08
(Aziz ur Rehman)
Director (D&S)


30.1.08
(Raza Muhammad Agha Khan)
Chief Engineer (Design & Standard)



PUBLIC PROCUREMENT

(PPRA)

EPADS

Al-Zammarul-F

PEPCO

PAKISTAN ELECTRIC POWER COMPANY LIMITED
Office of the Chief Engineer (Design & Standards) PEPCO
17/C-I, 1st Floor, IEEEP Building, Faisal Town, Lahore
Ph.# 042/9231641 - Fax # 042/9231646
Email: cedengg@yahoo.com

No. 543-63/CEDSI 2-284

Dated 8.2.2008

All Chief Executive Officers
DISCOs _____



Subject: AMENDMENT NO.3 - WAPDA SPECIFICATION NO. DDS-84:2007
FOR OIL IMMERSED SEALED TYPE DISTRIBUTION
TRANSFORMER.

The copy of Amendment No.3 dated 08-02-2007 of the WAPDA
Specification DDS-84:2008 for Oil Immersed Sealed Type Distribution Transformer is
enclosed herewith for record and guidance please.

Gill
8/2/08
(AZIZ UR REHMAN)
DIRECTOR (M&S)

CC to:-

1. General Manager (C&M) PEPCO WAPDA House, Lahore
2. Chief Engineer (Material Inspection) PEPCO, Sunny View, Lahore
- ✓ 3. Chief Engineer (P&D) PEPCO, WAPDA House, Lahore
4. All transformers manufacturers.

(PPRA)
EPADS
Dir(P)

M:\ppra\ppra\17C-I

SPECIFICATION NO. DDS-84:2007
OIL IMMERSED SEALED TYPE DISTRIBUTION
TRANSFORMER

AMENDMENT NO.3

DATED 8th FEBRUARY, 2008

i. CLAUSE 15.4

The last sentence may be read as follows -

Before paint, prepare the surface of tubular tank/corrugated tank by SHOT BLASTING. The thickness of the paint coating shall not be less than 0.12mm.

ii. CLAUSE 16.13.1.1 (e&f) AND CLAUSE 17.6 (ii & iii)

The warranty period in all cases may be read as 24 MONTHS instead of 18 MONTHS

iii. CLAUSE 16.3 (e)

The last line may be read as follows -

Alternatively, long bushings may be used

iv. CLAUSE 17.4.1

The clause may be read as follow The amendment of the clause in amendment No.2 is superseded

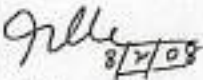
"Oil sampling shall be carried out TWICE in a financial year for type testing and IC shall be issued only after receiving the successful results from an independent lab "

v. CLAUSE 17.5.2

The clause may be read as follows -

"If the transformer fails in impulse test, then two more samples of the same rating shall be selected randomly and impulse tested. If any one of the sample fails again the COMPLETE lot shall be rejected "


 (Shah Nawaz Khan)
 Deputy Director (D&S)


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Amendment P-2

National Transmission and Despatch Company Limited



Chief Engineer (S&S) NTDC

No: CE/S&S/NTDC/ 2/266/3673-3705

Dated: 17-12-2020

Chief Executive Officer,
All DISCOs.

Subject: REVISED NTDC SPECIFICATION NO. DDS-84:2020 FOR OIL IMMERSED HERMETICALLY SEALED DISTRIBUTION TRANSFORMERS

Enclosed please find herewith a copy of revised NTDC specification No. DDS-84:2020 for oil immersed hermetically sealed distribution transformers duly approved by the competent authority for your information and further necessary action.

(Engr. Muhammad Bakhsh Mahaar)
Chief Engineer (S&S) NTDC

DA/

- i) Specification: 34 pages along with
 - a. Annexure-A: 02 pages
 - b. Schedule of technical data: 04 pages
 - c. Drawings: 12 pages

Cc to:-

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8. PS to M.D NTDC 414-WAPDA House Lahore
- ✓ 9. All manufacturers/suppliers of Distribution Transformers
- Master file.

M/s. Trans Power



NTDC SPECIFICATION

DDS-84: 2020

**OIL IMMERSED HERMETICALLY SEALED TYPE
DISTRIBUTION TRANSFORMERS
11/0.415 kV**



**OFFICE OF CHIEF ENGINEER (STANDARDS & SPECIFICATIONS) NTDC,
1ST FLOOR PIA BUILDING LAHORE**





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SPECIFICATION NO. DDS-84:2020
FOR OIL IMMERSED HERMETICALLY SEALED TYPE
DISTRIBUTION TRANSFORMERS

1. FOREWORD:

- 1.1 This specification has been prepared by the office of Chief Engineer (Standards and Specifications) NTDC, Lahore for distribution transformers.
- 1.2 This specification is intended only for the purpose of technical specification to facilitate procurement of material and does not include provision of contract.
- 1.3 All amendments (1-5) in DDS-84:2007 have been incorporated in this specification and it will supersede previous specification DDS-84:2007 (amended-to-date).
- 1.4 This specification is subject to periodic revisions/amendments as and when occasion demands.
- 1.5 Reference Standards:

The transformer shall be supplied and tested in accordance with this specification and the following latest International Electro-technical Commission (IEC) Standards:

- a. IEC Publication 60076, Power Transformer (Part 1-5)
- b. IEC Publication 60137, Bushings
- c. IEC Publication 60296 (Virgin Oil) & IEC 60422 (Used Oil) for Transformer Oil
- d. IEC Publication 60060, High Voltage Test Techniques

2. SCOPE:

- 2.1 This specification covers the requirements of 3-phase, 11/0.415 kV, 50Hz, hermetically sealed distribution transformers, having two windings, with Class-A Insulating materials, and ratings 5, 10, 15, 25, 50, 100, 200, 315, 400 and 630 kVA.

3. DEFINITIONS:

- 3.1 The following definitions are applicable so far as this standard is concerned.

3.1.1 Transformer:

An apparatus for transferring electric energy by means of an electromagnetic alternating field from system of given voltage to systems of desired voltage.

3.1.2 Oil Immersed Type Transformer:

A transformer having the core and winding immersed in either natural mineral oil or synthetic insulating liquid.

**3.1.3 Higher Voltage Winding and Lower Voltage Winding:**

Terms used in reference to two winding transformers to distinguish the winding or the group of windings associated with the higher operating voltage from that associated with the lower operating voltage.

3.1.4 Primary Winding:

That winding which receives energy from the supply circuit.

3.1.5 Secondary Winding:

That winding which receives energy from the primary winding by electromagnetic induction and delivers it as output energy to the load circuit.

3.1.6 Insulation Level:

The test voltage for which the transformer is designed.

Note: For non-impulse tested transformers the insulation level is designated by the value of the separate source power frequency test voltage

3.1.7 Uniformly Insulated Winding:

A winding in which the insulation to earth at all points will withstand the separate source test voltage appropriate to the line end.

3.1.8 Graded Insulated Winding:

A winding in which the insulation to earth is graded from the amount at the line and to a smaller amount at the neutral end and which therefore will withstand separate source test voltage corresponding only to the insulation level at the neutral end.

3.1.9 Principal Tapping:

The tapping which corresponds to the rated voltage of the winding.

3.1.10 Plus Tap:

A tap so located as to introduce into the active part of the winding concerned greater number of turns than those corresponding to the principal tapping.

3.1.11 Minus Tap:

A tap so located as to introduce into the active part of the winding concerned less turns than those corresponding to the principal tapping.

**3.1.12 Terminals:**

That part of the transformer intended to receive external connections.

3.1.13 Sub-Terminal:

A connecting point, other than a permanently jointed and insulated connection, within the casing or tank serving the purpose of effecting connection to a terminal, switch or any other auxiliary apparatus.

3.1.14 Turns Ratio:

The ratio of the number of primary turns to the number of secondary turns is taken as equal to the ratio of the rated primary voltage to the rated secondary voltage, multiplied by a phase factor depending on the method of connecting the windings in the case of poly-phase transformers.

3.1.15 Voltage Ratio:

The ratio of the voltage between line terminals of one winding to the voltage between the terminals of another winding.

3.1.16 Phase Displacement:

The angular difference between the vectors representing the voltage induced between the higher voltage and lower voltage terminals having the same marking letter and the corresponding neutral points (real or imaginary), expressed with reference to the higher-voltage side.

3.1.17 Rating:

Those quantities assigned to the transformer to define its operation under (type of duty and) conditions, specified in those recommendation and on which manufacture's guarantees and tests are based.

3.1.18 Rated Voltage of a Winding:

The voltage applicable to or to be developed at no-load between the line terminals to poly phase transformer, or between the terminals of a single phase transformer.

3.1.19 Rated Primary Voltage:

The terminal voltages applicable under normal operating conditions to the full primary winding if there are no tapping, or to the principal tapping on tapped primary winding. It is the voltage specified by the purchaser.

**3.1.20 Rated Secondary Voltage:**

The voltage developed between the output terminals at no-load by the full secondary winding if there are no tapping's or in a tapped winding, by the part of the winding up-to the principal tapping when rated primary voltage is applied. It is the voltage specified by the purchaser.

3.1.21 Rated Current:

The current flowing through a line terminal of a winding, derived by dividing its rated power by its rated voltage and 1.732.

3.1.22 Rated kVA:

The product of the rated voltage in Kilovolts and rated current in Amperes and 1.732 measured on the output side.

3.1.23 Rated Frequency:

The frequency at which the transformer is designed to operate.

3.1.24 Service Conditions:

Factors outside the control of the manufacturer which may affect the operation of transformer.

3.1.25 Cooling Medium Temperature:

The temperature of the available cooling medium above which the temperatures rise is measured.

3.1.26 Class-A Insulating Materials:

Organic materials such as cotton, paper having temperature limits as per NEMA insulation Class-A.

3.1.27 Thermal Time Constant:

The time which would be required for a transformer to reach a temperature rise equal to that which would be attained under steady- state specified loading conditions in a cooling medium of constant temperature, if the initial rate of temperature rise (when no heat was being dissipated) were maintained.

3.1.28 System Nominal Voltage:

The voltage by which a system is designated.

Note: The nominal voltage of apparatus is not necessarily the same as the system rated voltage.

**3.1.29 System Highest Voltage:**

The highest r.m.s voltage between lines which occurs under normal operating conditions and at any time at any point in the system. It excludes temporary voltage variations due to fault conditions or to the sudden disconnection of large loads.

3.1.30 Impedance Voltage:

The voltage which, when applied to a winding of a transformer with other winding short-circuited, will cause rated current to flow in the winding to which the voltage is applied.

Note: The impedance voltage is the vector sum of the resistance voltage and the reactance voltage. The values for resistance, reactance, and impedance voltage apply only to the pair of winding tested.

3.1.31 Resistance Voltage:

The component of the impedance voltage in phase with the current.

3.1.32 Reactance Voltage:

The component of the impedance voltage in quadrature with the current.

3.1.33 Inherent Regulation:

The difference between rated secondary voltage and the voltage developed at the terminals of secondary winding when, with rated primary voltage applied to the terminals of the primary winding, rated current is delivered at a stated power factor.

3.1.34 OFF Load Tap Changer:

A device for changing the voltage ratio of the windings whilst the transformer is not energized on the primary side and no load being tapped on secondary side.

3.1.35 Type Test:

A test made by the manufacturer to verify a design characteristics not covered by routine tests.

3.1.36 Routine Test:

Tests conducted by the manufacturer on each transformer.

3.1.37 Year:

Financial year (1st July-30th June)

**3.1.38 No-Load (Iron) Loss:**

The active power absorbed when a rated voltage (tapping voltage) at a rated frequency is applied to the terminals of one of the windings, the other winding or windings being open circuited.

3.1.39 Load (Copper) Loss:

The absorbed active power at a rated frequency and reference temperature associated with a pair of windings when rated current (tapping current) is flowing through the line terminals of one of the windings, and the terminals of the other winding are short circuited.

4. SERVICE CONDITIONS:

4.1 Transformer rated in accordance with this specification shall be suitable for operation under service conditions set out in clauses 4.2 & 4.3

4.2 Reference Ambient Temperatures:

The Reference Ambient Temperatures assured for the purpose of this standard are:-

- i. Minimum ambient air temperature -25°C
- ii. Maximum ambient air temperature 50°C.
- iii. Maximum daily average ambient air temperature 40°C.
- iv. Maximum yearly average ambient air temperature 30°C.

4.3 Altitude:

The height above sea-level will not exceed 1000 meters (3,300 feet).

4.4 Unusual Temperature and Altitude:

Transformer may be operated at ambient temperature and altitude higher than the specified values and in consequence its performance may be affected.

5. RATING:

5.1 The manufacturer shall describe ratings to the transformer which shall be marked on the rating plate (see Clause 13). These ratings shall be such that the transformer can deliver its rated current under steady loading conditions without exceeding the limits of temperature rise specified in Clause (10) assuming an applied voltage equal to the rated input voltage and that the supply is at 50 cycles per second at the principal tapping. The output voltage and current shall be of approximately sine-wave form.

5.2 Values of rated power for three phase transformer shall be: 5, 10, 15, 25, 50, 100, 200, 315, 400 and 630 kVA.

**6. METHOD OF COOLING:**

The method of cooling will be natural air, the method of circulation of oil will be by natural thermal head and would be indicated by symbol "ONAN".

7. REGULATING TAPS:

7.1 Unless otherwise specified by DISCOs, 5, 10 & 15 kVA transformers will have three (03) adjusting taps i.e., Normal/Principal, -2.5%, -5%, with switch positions 2, 3 and 4 respectively. For 25, 50, 100, 200, 315, 400 & 630 kVA transformers adjusting taps will be (05) i.e., +2.5%, Normal/Principal, -2.5%, -5% and -7.5% with switch positions 1,2,3,4 and 5 respectively. The tapping being located on the higher voltage winding.

7.2 Tap-changing shall be made by means of an externally operated off circuit switch (OFF Load Tap Changer) capable of being locked in position. It shall be accessible with safety.

7.3 When tapping is used to compensate for variation of voltage, the transformer shall be capable of operation at its rated kVA on any tapping without injury. The tap changing contacts shall be capable of carrying the same currents, due to external short circuits, as the windings in Clause (11).

8. INSULATING MATERIALS:

8.1 Insulating material of class-A will be used in distribution transformer. Low viscosity Insulating oil conforming to latest IEC standards 60296 & IEC 60422 shall be used.

9. INSULATION LEVEL:

9.1 Test voltage shall be based on the system highest voltage of which the transformer forms a part. This value for nominal voltage of 11 kV is 12 kV.

9.2 Power frequency test voltage is 34 kV for HT side and 3 kV for LT side.

9.3 The impulse test voltage is 95 kV and the wave being 1.2/50 microseconds.

9.4 Insulation to Earth:

The insulation of windings to earth will be uniform.

9.5 Transformer for use at Higher Altitude

Where transformers are specially ordered for operation at altitude between 1000-3000 meters (3300 and 10,000 ft.) above sea level, the separate source power frequency test level shall be increased by 1.25% for each 100 meters in excess of 1,000 meters that the installation is above sea level.

**10. LIMITS OF TEMPERATURE RISE:**

- 10.1 Limits of Temperature Rise for both Prototype as well as for Mass Production will be as under:

Winding ----- 50° C

Oil ----- 40° C

10.2 Altitude in Excess of 1000 Meters

When kVA rating of a transformer is required to apply at an altitude in excess of 1000 meters (3300 feet) and the limits of temperature rise are as specified above are not be exceeded at the specified altitude, the permissible limits of temperature rise, when a test is made at the manufacturers works shall be less than the specified values above by the amounts equal to 0.2°C for each 100 meters (330 feet) that the specified altitude exceeds 1000 meters (3,300 feet).

10.3 Higher Ambient Temperature:

For each degree centigrade that the average temperature of air is above 40°C, a transformer may be loaded for any period of time below its kVA rating by an amount equal to 1.5% of its capacity per °C rise in temperature above reference ambient up to a max of 10°C.

11. SHORT CIRCUIT WITHSTAND:**11.1 General:**

The transformer shall be designed and constructed to withstand without damage, the effects of short circuit of magnitude equal to 25 times the symmetrical r.m.s. value of valid current for 2 seconds.

11.2 Dynamic Effects Withstand Ability:

Transformer shall be capable of withstanding the dynamic effects of short circuit of magnitude equal to 25 times the symmetrical r.m.s. value of valid current for 0.5 second duration, unless otherwise specified by purchaser in technical schedule/purchase order, combined with the asymmetrical peak value of the current in the windings which shall be taken as not greater than $2.55 (1.8 \times \sqrt{2})$ times the over current derived. The transformer shall withstand the electromagnetic forces and mechanical stresses arising under short circuit conditions without damage on any tapping under service conditions.

Note: In case of a transformer where the value of resistance relative to that of reactance is significant, a figure lower than 2.55 may be more realistic and the factor $(k \times \sqrt{2})$ shall be calculated from measured X/R ratio as given in IEC 60076-5.

**11.3 Thermal Withstand Ability:**

Calculations for verification of thermal ability to withstand short circuit for 2 seconds as per latest IEC 60076-5 shall be provided by the manufacturer at the time of prototype/mass production of transformer of each design.

12. MARKINGS:**12.1 Designating Letters:**

Letters shall be assigned to phase windings. The same letters shall be used for all windings on each limb of the core.

The higher voltage windings shall be described by a capital (or Block) letter and the lower voltage winding of the same phase by the corresponding small letters. The letters used shall be:-

A B C for higher voltage winding and **a b c** for lower voltage windings. See Fig-1

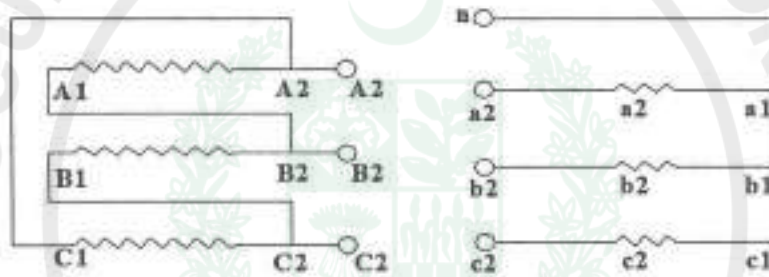


Fig. (1)

When a phase winding is divided into sections, the subscript numbers assigned to the ends and tapping of the windings shall be as per figure 2.

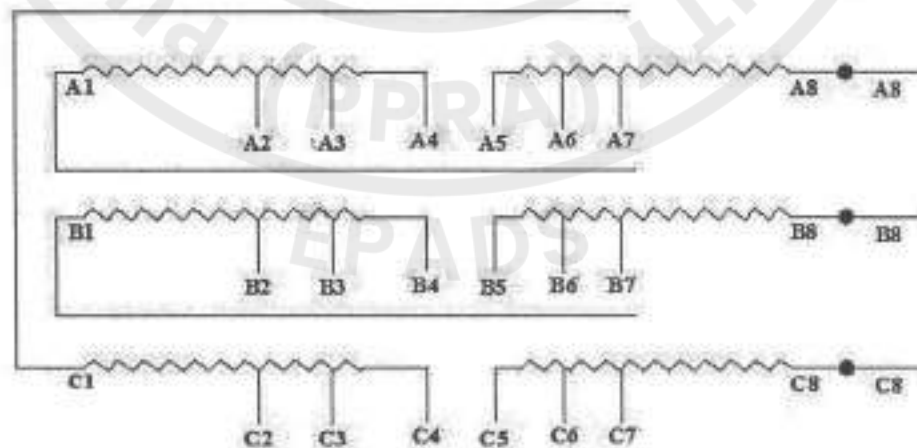


Fig. (2)



Three phase windings with tapplings at middle. Typical designating letters and subscript numbers for tapped windings, showing also terminal connections.

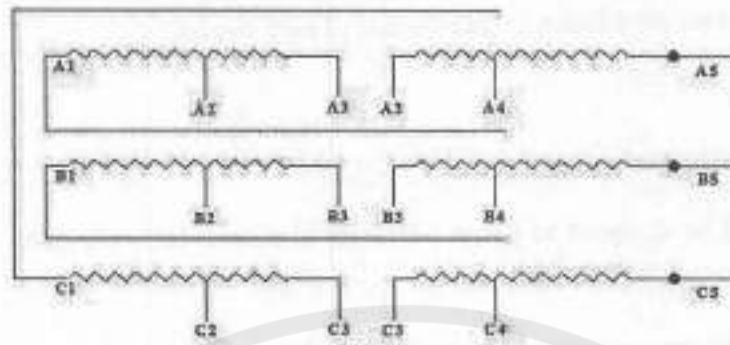


Fig. (3)

Three phase winding with tapplings at middle for 5, 10 & 15 kVA transformers

12.2 Terminal and Sub Terminal Markings for Transformers:

The appropriate designating letters and subscript numbers assigned to the windings and tapping shall be clearly and indelibly marked upon, or adjacent to the terminals and sub terminals with which they are associated.

- The markings for line terminals of transformers, both letter and subscript shall be the same as those of the phase winding to which the line terminal is connected as in fig. 2. When the terminal is connected to more than one sub terminal as in the case of a delta connection, the marking selected shall be shown on the relevant diagram.
- Neutral terminal to be marked with letter 'n' (without a subscript number)

12.3 Position of Terminals:

12.3.1 General:

Viewed from the higher voltage side, arrangement for both sets of terminals shall be alphabetical from left to right for the phase terminals. Where a neutral terminal is fitted, it shall be on the extreme left. (See fig 4)

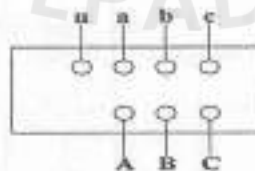


Fig. (4)

Markings and relative positions of terminals



12.4 Vector Diagrams and Symbols:

12.4.1 Reference to vector diagrams shall apply to diagrams below. The vector group symbol being Dyn11 belonging to group with phase displacement of minus 30° .

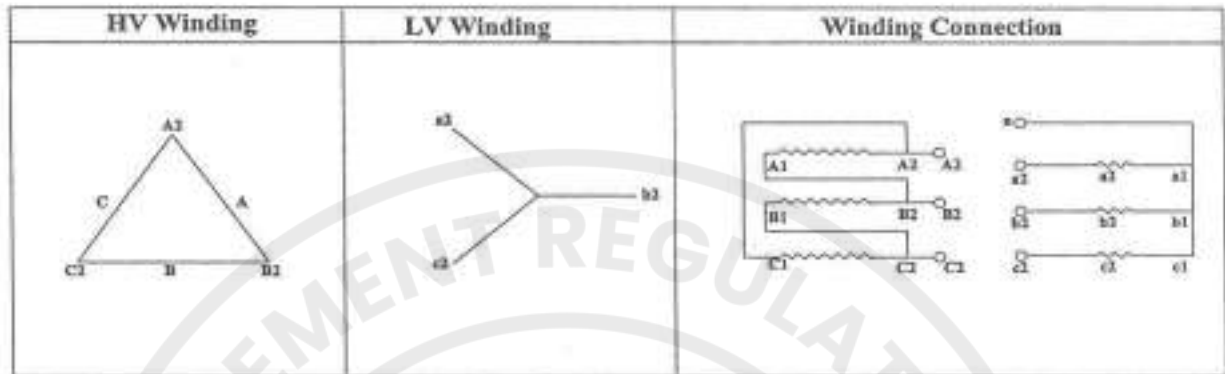


Fig. (5)

Line Terminal markings and vector diagram of Induced voltages

13. RATING PLATE:

13.1 (a) A rating plate shall be provided showing the relative physical position of the terminals, their markings and the approximate position of one external fitting. Plate shall show the relative position number of tap connection corresponding to the different voltages. The rating plate shall also include the manufacturer's diagram of connections.

(b) General arrangement of rating plates shall be as given below.

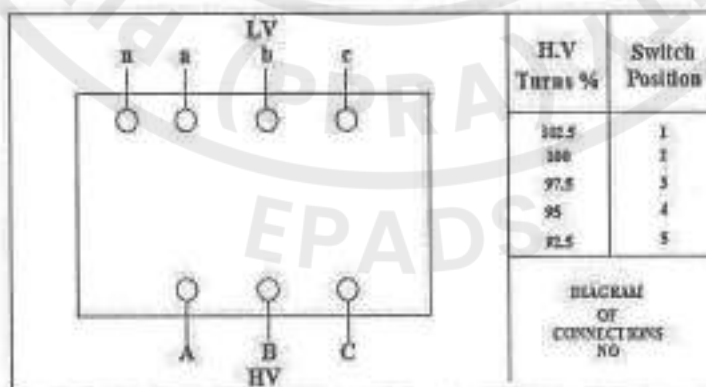


Fig. (6)



- c) The following will be the arrangement for tap switch for 5, 10 & 15 kVA transformers.

HV Turns %	Switch Position
100	2
97.5	3
95	4

13.2 (a) Information to be given on rating plate:

All transformers shall be fitted with rating plate giving the information detailed in items 1 to 17 below:-

1. The number of this standard
2. Manufacturer's name
3. Manufacturer's serial number
4. Rated kVA
5. Number of Phases
6. Frequency
7. Rated voltage at no-load (higher-voltage/Lower voltage)
8. Rated current (higher voltage/lower voltage)
9. Impedance (%age)
10. Winding connections and phase displacement symbols of vector diagram
11. Connection Diagram
12. Type of cooling
13. Weight of complete transformer (kg).
14. Total weight of oil (kg).
15. Weight of core and windings assembly (kg).
16. Year of manufacturing.
17. Name of "DISCO" and purchase order number

(b) Arrangements of information:

The arrangement of the information given on the rating plate shall be as below:

KVA	_____	Type of Cooling	_____
Rated Voltage (KV)	HV _____ LV _____	Frequency	_____
Rated Current (A)	HV _____ LV _____	Impedance %age	_____
Phases	HV _____ LV _____	Weight of Oil	_____
Diagram Drg.No	_____	Weight of Core & Windings	_____
Vector Symbols	_____	Total weight	_____
		year of manufacture	_____
		Maker's Sr.No.	_____
		WAPDA/DISCO P.O.No	_____
		& Date:	_____



(c) An M.S plate of suitable size shall be welded outside transformer body with following information engraved:

1. Name of manufacturer
2. Rating of transformer
3. Sr. No. of transformer
4. DISCO purchase order number and date
5. Year of Manufacturing

14. PROVISION OF FITTINGS:

14.1 Fittings for transformer shall be as specified below:-

Items	Application	Drawing No.
1. Rating Plate	All transformers	
2. P.O No. punch on base channel	All transformers	
3. Lifting lugs	All transformers	S&S/DTF-LL1
4. Earthing terminal for tanks	All transformers	S&S/DTF-ET2
5. Oil filling hole and plug	All transformers	S&S/DTF-OF3
6. Oil level indicator	All transformers	
(i) For Sealed tank type	5, 10, 15, 25, 50, 100 200 & 315 kVA transformer	S&S/DTF-OL4
The oil level indicator Shall show the minimum Oil level at a temperature of 30°C.		
(ii) For Conservator type	400 & 630 kVA	
To indicate the level at a temperature of 30° on transformer filled with conservators, two additional marking "Min." and "Max" to be provided.		
7. Drain plug with sampler	400 & 630 kVA	
8. Support lugs	5,10,15,25,50 kVA	S&S/DTF-SL5
9. Conservator tank	400 & 630 kVA	
10. Air vent/pressure relief Device	All transformers	
11. Dehydrating breather	400 & 630 kVA	
12. Oil thermometer dial type With max temperature indicator	400 & 630 kVA	
13. Rollers	The rollers will be provided on Transformers rated 100 kVA and above on the requirement of purchaser adjusting the cost in P.O. and subsequently mentioning the requirement or otherwise in the P.O.	S&S/DTF-W6

**15. GENERAL REQUIREMENTS:****15.1 Conformance:**

The transformers shall conform to NTDC Specification No. DDS-84:2020 (amended to date) in general and shall be exactly same as designs approved by Chief Engineer Standards & Specifications (S&S).

15.1.1 All questions arising as to the acceptability or otherwise of the equipment and materials offered shall be decided by Chief Engineer (S&S) which shall be final.

15.1.2 Local manufacturers must have valid and latest ISO-9001, ISO-14001, OHSAS-18001/ISO-45001 and ISO-17025 certificates. International manufacturers must have relevant international certifications for quality, environment, occupational health and safety.

15.2 Tank with Top Cover:

5, 10, 15, 25, 50, 100, 200 and 315 kVA transformers shall be of hermetically sealed tank construction with air cushion with bolted cover and shall be suitable for outdoor pole / pad mounting installation. 400, 630 kVA transformers shall be of conservator type tank construction fitted with breather bolted cover and shall be suitable for pad mounting installation.

15.2.1 Transformer of sealed tank construction shall be effectively sealed from atmosphere for a top oil temperature range of 0°C to 110°C.

- i. The completely assembled tubular tank transformer having air cushion shall be designed & tested to withstand without deformation or leakage an over pressure of 15 lbs/in² (PSI) for 15 minutes.
- ii. The completely assembled corrugated fin type transformer with air cushion shall be designed and tested without deformation or leakage an over pressure of 30 kN/m² or 5 lbs/in² (PSI) for 15 minutes.
- iii. Dry Nitrogen gas shall be used for over pressure test to avoid moisture entry.
- iv. Oil level Indicator with marking of min. & max. level of oil in transformer shall be located on the side wall of the transformers up to 315 kVA rating and on the conservator tank in case of 400 & 630 kVA ratings.
- v. **Pressure Relief Device (PRD)/ safety valve** shall be installed on top cover of all rating transformers of tubular/corrugated tank types. The device should operate at 5 lbs/in² (PSI) with $\pm 10\%$ allowed tolerance. PRD shall conform to international standard. Make and design of PRD shall be duly approved by Chief Engineer (S&S) at the time of prototype of transformer.

**15.2.2 Tank Construction (Tubular/Corrugation fins):****(a) Tubular Tank:**

The transformer shall be tube type tank construction with bolted cover. The sheet thickness shall be 3.0 mm (min). The top cover sheet thickness shall be 6 mm, alternatively 4 mm sheet can be used after reinforcement & creating stiffness by bending all sides. The thickness of bottom sheet shall be 4 mm (min). A metallic strip of MS sheet of appropriate size shall be provided round the tubes of the tank for extra protection of all the transformers except for 5, 10 & 15 kVA.

(b) Corrugated Fin Tank:

The transformer shall be corrugated fin type tank construction with bolted cover. The frame (upper & lower) sheet thickness shall be 3.0 mm (min). The fin sheet thickness shall be 1.2 mm with mill variation. The top cover shall be the same as described in "tubular tank" clause 15.2.2(a). An M.S rod of 6mm (min) dia shall be provided on the upper & lower corners of the each fin panel for making it straight & aligned.

15.2.3 Bird Protection:

To prevent flashover caused by large birds, transformer's cover shall be effectively coated with a weather proof permanent insulating material / powder coating having a dry dielectric withstand voltage of not less than 8 kV to withstand 8 kV dielectric test. (Appendix A)

15.2.4 Tank Finish:

The tank finish shall be a Battle-ship grey color. The paint shall be highly resistant to the effects of strong sunlight and high temperature and shall have a long life under such conditions. Before paint, prepare the surface of tubular tank/corrugated tank by Shot Blasting. The thickness of paint-coating shall not be less than 0.12 mm.

15.3 Bushings:

LT and HT Bushings will be used from manufacturers which have valid prototype approval from the office of Chief Engineer (S&S). Bushings and connectors shall be provided on transformers as indicated below:

Transformer's Rating	Drawing No.
LT Bushings 5, 10, 15, 25, 50, 100 kVA	S&S/DTF-LTB200
LT Bushing 200 kVA	S&S/DTF-LTB600/1
LT Bushing 315, 400 kVA	S&S/DTF-LTB1000
LT Bushing 630 kVA	S&S/DTF-LTB2000
HT Bushings all ratings	S&S/DTF-HTB1 & S&S/DTF-HT2

**15.4 Transformer Oil:**

- a) The oil used in the transformers shall conform to latest IEC-60296 & IEC 60422, Class-1 Oil.
- b) To avoid formations of bubbles and entry of moisture to ensure longer service life, it is essentially required to fill transformer oil under vacuum.
- c) The manufacturer shall provide testing facilities at their labs. for following routine oil tests which shall be carried out as per IEC 60422:
 - a) Specific gravity of the oil
 - b) Viscosity
 - c) Flash point
 - d) Acidity value
 - e) Dielectric Strength of the oil
 - f) Pour Point
- d) Oil type testing will be performed at HV & SC Lab. NTDC, Rawat or at an independent ILAC/PNAC accredited lab. or any equivalent accredited labs. approved by Chief Engineer (S&S) as per latest IEC-60296 / IEC 60422 at the expense of the firm. Below mentioned non-exclusive Type tests will be carried out:

Sr. No.	Tests to be performed on oil samples taken from Oil Drums/ Tanks (Virgin Oil)	
1	Viscosity at 40°C	
2	Viscosity at -20°C	
3	Pour Point	
4	Potentially Corrosive Sulphur	
5	Inhibitor Content (for uninhibited oil)	
6	Oxidation Stability	Total Acidity Sludge DDF at 90°C
7	Flash Point	
8	Density at 20°C	
9	PCA Content	
10	2-Furfural & related compounds	

Sr. No.	Tests to be performed on oil samples taken from Transformer Tank	
1	Appearance	
2	Color	
3	Breakdown Voltage (kV/ 2.5mm gap)	
4	Water Contents (mg/kg)	
5	Acidity (mg KOH/ g)	
6	Dielectric Dissipation Factor (DDF) (40 Hz to 60 Hz at 90°C)	
7	Resistivity 90°C (GΩm)	
8	Interfacial Tension (mN/ m)	
9	Total PCBs Content(mg/ kg)	
10	Corrosive Sulphur	

- e) All the necessary documents for the purchase of oil should also be submitted to S&S and MI Departments at the time of prototype and mass production respectively.

15.5 The kVA rating of the transformers up to 630 kVA shall be stenciled in white on both sides of the transformers in 4 inches bold letters.

Encls:

Lifting Lug

Drawing No. S&S/DTF-LL1

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Filling Plug & Collar
Support Lug for 5,10,15,25
& 50kVA Distribution Transformer
Mounting Arrangement for
Distribution transformers

Drawing No. S&S/DTF-OF3

Drawing No. S&S/DTF-SL5

Drawing No. S&S/DTF-MA7

16. SPECIAL REQUIREMENTS:**16.1 Provision of wheels**

The transformer of ratings up to 50 kVA will be supplied without wheels and above 50 kVA rating transformers shall be supplied with wheels subject to the conditions mentioned in clause 14.1 (13).

16.2 Core Material:

- a. Transformer core shall be made of high grade non-ageing prime CRGO (Cold rolled grain oriented) Electrical Steel Sheet.
- b. CRGO electrical steel sheet thickness shall not be more than 0.27 mm with maximum permissible watt loss value of 1.1 Watts/kg at 1.7 Tesla and 50Hz.
- c. CRGO core material shall be from Europe, U.K, U.S.A, Japan, South Korea and Russia manufacturing firms. The core manufacturing firm and importer both shall certify that they are not blacklisted anywhere in the world. New aspiring CRGO core manufacturing firms will have to obtain qualification/approval letter from Chief Engineer (S&S) for use of their core in transformer manufacturing for the first time after fulfilling the following criteria:
 - (i) CRGO manufacturer must possess at least Fifteen (15) years manufacturing experience of CRGO Electrical steel sheet.
 - (ii) CRGO manufacturer must have state-of-the-art in-house manufacturing process including Blast furnace as per relevant latest international standards.
 - (iii) CRGO manufacturer must provide sufficient documents regarding export of CRGO material to other countries.
 - (iv) The testing lab at premises of CRGO manufacturer shall have the equipments duly calibrated from ILAC or equivalent international standardizing body to carry out below mentioned non-exclusive core tests as per relevant international standards IEC/ASTM etc.:
 1. Magnetic Properties
 2. Surface Insulation Resistivity
 3. Stacking Factor
 4. Mechanical Properties
 5. Ageing Test of Insulation Coating



- (v) CRGO core manufacturers will provide the required certified documents regarding above mentioned criteria from Sr. No (i) to Sr. No (iv).
- (vi) Tests mentioned at Sr. No. (iv) will be carried out at independent international ILAC/APAC accredited lab. or any equivalent accredited International labs. approved by Chief Engineer (S&S) which shall also be duly witnessed by representative(s) of the office of Chief Engineer (S&S).
- d. All requisite documents shall be provided by CRGO manufacturers/importer. Any CRGO manufacturing firm premises may also be visited by the representative(s) of the office of Chief Engineer (S&S) at the cost of CRGO manufacturer in order to verify the manufacturing and testing facilities.
- e. All the expenses like testing fee, expenditure incurred for shipment of CRGO core material from manufacturer's premises to the testing lab., travelling, boarding lodging and daily allowance of representative(s) of the office of Chief Engineer (S&S) shall be borne by the manufacturer/ importer.

16.3 Prevention of Moisture Entry:

The manufacture must design their transformer to prevent the Moisture Entry as follows:

- a) Gasket
 - i. NBR (Nitrile butadiene rubber) rubber seal (double) with a metal seat on the spindle of tap changer driving rod to hold the NBR rubber must be provided. NBR must conform to ASTM F-104 (amended to date) with the following properties:
 - a) Change in mass (+15%, -5%)
 - b) Hardness (60 – 90 Shore A)
 - c) Compressibility (25% - 35%)
 - ii. NBR Gasket /NBR rubberized cork sheet conforming to latest ASTM F-104 be provided under the cover plate of the transformer and HT & LT bushings. A certificate from the Gasket manufacturer for authenticity of quality of NBR shall be provided for each lot of the offered transformers for International Tenders and for each local purchase order of DISCOs.
- b) Nuts & Bolts:
 - i. High Tensile Galvanized Steel Bolts conforming to WAPDA Specification DDS-10 (Amended to-date) be provided for the transformer cover plates.
 - ii. All Nuts and Bolts used for the Tank Assembly shall be hot dipped galvanize according to P-82 having the weight of zinc coating as under:-

Individual	305 gram/m ²
Average (3 Samples)	380 gram/m ²



- c) Araldite/Epoxy applied on portion of screws of upper arcing horn before tightening
- d) Electro Galvanizing of Steel Parts

On both ends of the Tie Rods, Hanging Studs & Core Bolts, Lock Nuts with spring/lock washers are to be used. All threads of Tie Rods, Hanging Studs & Core Bolts be punched after proper tightening. All steel washers, nuts, tie rods shall be electro-galvanized.

- e) Check nut should be used on HT through-bolt under the HT connectors.
- f) The top end of HT Bushing shall be filled with Araldite 2 to 3 inches after fitting of Through-bolts so that moisture/water should not enter from the outside. A space of 50 to 75 mm of the insulation tube at the bottom may be kept empty. Alternatively long bushings may be used.
- g) Industrial sealant shall be applied on the side wall oil gauge in case of non-rubber gaskets.
- h) The holes of HT/LT bushings on the top cover sheet should be pressed upward.

16.4 Other Assembly Fittings

a) HT/LT Connectors:

HT/LT connectors shall be tested during stage inspection according to WAPDA specification P-72 (amended to date). The material of HT/LT connectors shall be of brass with minimum tin coating of 30 microns conforming to BS 1872:84. Nut of LT connector should be oriented outward for the safety of Lineman.

- b) Special connectors with two outputs on LT side of 200 kVA transformers which shall accommodate 2 Nos. 120 mm sq. conductor or equivalent size cable must be provided. The drawing No. S&S/DTF-LTB600/2 (with two outputs on LT side) may be followed instead of single output drawing.

c) Locking Arrangements:

Locking arrangements be provided to HT & LT connectors by welding / press fitting of metallic washer of brass at end of bolt.

d) Insulating Material:

Pressboard, pressure blocks, winding coil drums, oil duct strips and separator shall be used either made of press board or laminated Wood/Bakelite Blocks conforming to International Standards.

**e) Conductor Risers:**

Flexible conductor risers connecting LT windings to transformer terminals must be electrical grade.

f) Earthing Terminal:

The dia of hole for earthing terminal shall be 12 mm.

g) Sealing of Oil Filling Plug and PRD:

The arrangement of sealing of oil filling plug and PRD shall be provided.

h) Sealing Arrangement of Transformer:

Two through-hole bolts shall be provided on the adjacent sides of the top cover to seal the transformer.

i) Hanging Rods:

The lifting rods, yoke clamping bolts and tie rods shall be of appropriate size to sustain forces during short circuit.

j) Inner/ Outer Rods:

Inner/ outer tie rods of core-coil assemblies shall be at least 12mm up to 100 kVA, 16mm for 200, 315 kVA and 20 mm for 400 & 630 kVA transformers.

16.5 Core & Winding Losses:

Maximum allowable losses at rated voltage and rated frequency corrected at 75° C for 11/0.415 kV Distribution Transformers are given in the table below:

kVA Rating	5	10	15	25	50	100	200	315	400	630
Iron Losses (Watts)	44	52	68	98	140	248	396	604	740	1080
Copper Losses (Watts)	140	256	348	512	936	1616	2728	3760	4480	6520

16.5.1 Capitalization (Evaluation):

The above losses are maximum allowable and there would be no positive tolerance. Bids with higher losses than the above specified values would be treated as non-responsive. However, the manufacturer can offer losses less than above specified values. The purchaser will evaluate offers with losses lower than the maximum allowable losses on Total Owning Cost (TOC) basis in accordance with the formula given below:

$$\text{TOC} = \text{Quoted price} + (\text{K1} \times \text{Iron Losses}) + (\text{K2} \times \text{Copper Losses})$$

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Where:

Iron Losses (K1): Rs.2, 99,948 per kW

Copper Losses (K2): Rs.145,299 per kW

1. No tolerance is allowed on the guaranteed losses declared by the manufacturer in the bid for both, prototype and mass production.
2. A penalty at four times the rate of the capitalized cost of no load and load losses indicated above shall be payable by the supplier for the losses in excess of the guaranteed values up to 10% for acceptance of lot. For losses exceeding by 10%, the offered lot will be rejected.
3. Manufacturers will be required to offer new prototype sample of transformer for approval for each of the rating/design with any change/improvement in design of the transformers.

16.6 Efficiency of Transformer:

- (i) Where a statement of the efficiency of transformer is required, the following losses are included:

- (1) No load loss, which is considered to be constant at all loads.
- (2) Load loss, which varies with load.

The total loss 'on load' is the sum of 1 and 2. The efficiency to be declared is given by the following expression for rated kVA and unity power factor.

$$\text{Efficiency} = \frac{\text{Output in KW}}{\text{Output} + \text{Losses}} \times 100$$

- (ii) The measured no-load current must not exceed +30 % of the design/guaranteed value.

16.7 Raw Material and Stage Inspection during mass production:

- i. For tin coating and other raw material tests, the sampling and testing shall be carried out by Chief Engineer (M.I) once for local DISCOs purchase order/International Tender.
- ii. Stage inspection including HT & LT Bushing, CRGO core (thickness, Watt Loss/kg), NBR and Connectors etc. will be carried out by Chief Engineer (M.I) during stage inspection.
- iii. The methodology and sampling criteria for raw material and stage inspection shall be laid down by Chief Engineer (M.I).

**16.8 Fuse Ratings:**

Fuse rating shall be printed on the tank of the transformer in white colour as given below.

USE.....K (Color Code)

Fuse at 11 kV Side

The value of the fuse rating and colour codes for different kVA capacities shall be selected from the table given below:

Designation	Current Rating (Amp).	Transformer Rating (kVA)	Color Code
01 K	01	5, 10 & 15	Black
03 K	03	25 & 50	Green
10 K	10	100	Blue
15 K	15	200	Orange
30 K	30	315 & 400	White
40 K	40	630	Grey

The size of the letters shall be appropriate to be visible from ground.

17. PROTOTYPE APPROVAL:

- 17.1 If the manufacturer does not possess the prototype approval of the new design and rating from Chief Engineer (S&S), according to the prevalent NTDC Specification, the same shall have to be obtained before start of mass production.
- 17.2 The manufacturer may request for new prototype before the expiry date on the basis of some improvements.
- 17.3 It is mandatory to supply details pertaining to design, short circuit performance, temperature rise of oil and winding, tank details (No. of tubes/Fins), detail of CRGO core material used and its manufacturer, weight of complete transformer, weight of oil, weight of core, weight of windings, etc. to Standards and Specifications Department at the time of prototype approval along with set of drawings.
- 17.4 The prototype approval shall be valid for a period of One (01) year for the first time for each rating. Manufacturer will submit Performance Certificate from end user after one year to Chief Engineer (S&S). Onward Prototype approval will be valid for Three (03) years.
- 17.5 Local manufacturer shall be pre-qualified from the respective DISCO and shall possess educational purchase order from any DISCO when applying for prototype approval for the first time.
- 17.6 In case of foreign manufacturers, the transformer of each design of each rating will be subjected to all routine, type and sample tests as per clause 18 of General Requirements of Tests at manufacturer's Lab. In case of having requisite testing

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facilities except short circuit test which will be conducted at an independent international ILAC/APAC accredited lab. or any equivalent accredited international labs. approved by Chief Engineer (S&S). All the expenses like testing fee, expenditure incurred for shipment of transformer from manufacturer's premises to the testing lab., travelling, boarding lodging and daily allowance of two Engineers shall be borne by the manufacturer.

18. GENERAL REQUIREMENT OF TESTS:

18.1 General:

18.1.1 The tests shall be carried out as per DDS-84:2020 (Amended to date) and latest international standards as mentioned in clause 1.5.

18.1.2 All routine, type and sample tests will be conducted at the manufacture's works having requisite testing facilities except short circuit test which will be conducted at HV & SC Lab. NTDC, Rawat or at an independent ILAC/PNAC accredited lab. or any equivalent accredited labs. approved by Chief Engineer (S&S). The prototype sample transformer will qualify only if it passes all routine, type and sample tests otherwise the manufacturer will redesign the transformer and reoffer it again for prototype approval.

18.1.3 Pad and pole mounted transformers of same rating will be considered separate design as per their prototype approval and shall be tested separately including annual type tests.

18.1.4 Transformer with losses lower than the specified losses for each rating in clause 16.5 will be considered as separate design during prototype and mass production and shall be tested separately including annual type tests.

18.1.5 All testing equipment should be calibrated annually from ILAC/APAC/PNAC accredited lab. or any equivalent accredited labs. approved by Chief Engineer (S&S) and the manufacturer shall have valid calibration certificates.

18.1.6 The design tests will be carried out by putting all the measuring meters at the transformers terminals.

18.1.7 The enameled wire test will be performed during prototype testing as per IEC 60317 with break down value not less than 4.0 kV.

18.2 Routine Tests:

Following routine tests shall be carried out on each and every transformer by the manufacturer at his premises and a record in this regard shall be maintained which will be produced to the Inspector on demand.

- i. Measurement of winding resistance.
- ii. Measurement of voltage ratio (turns ratio) and vector group.



- iii. Measurement of Core losses.
- iv. Measurement of Winding losses and impedance voltage.
- v. Dielectric Tests.
 - a) Induced over-voltage withstand test.
 - b) Power frequency voltage withstand tests.
- vi. Bird protection test (8 kV)
- vii. Pressure Relief Device Operation (at 5 PSI)
- viii. Oil Routine test (15.4 (c))

18.3 Type Tests:

18.3.1 Following type tests shall be carried out during prototype testing and during mass production in a financial year as per relevant clause.

- i. Oil Type Testing (clause 18.6.1)
- ii. Temperature Rise Test (Clause 18.6.2)
- iii. Impulse Voltage Withstand Test (Clause 18.6.3)
- iv. Short Circuit Test (Clause 18.6.4)

18.4 Sample Tests:

The following sample tests shall be conducted by NTDC/PEPCO Inspector on the selected sample transformers from mass production.

- i. Measurement of no load losses (100% lot quantity)
- ii. Measurement of load losses and impedance voltage (100% lot quantity)
- iii. Measurement of winding resistance
- iv. Measurement of voltage ratio (turn ratio) and vector group
- v. Dielectric Tests
 - a. Induced voltage withstand test
 - b. Power frequency voltage withstand tests
- vi. Paint thickness (Clause 15.2.4)
- vii. Bird protection test at 8 kV.
- viii. Tank pressure test (Clause 15.2.1)
- ix. Pressure Relief Device Operation (5 PSI)
- x. Oil routine test (15.4 (c))
- xi. Visual and dimensions tests:-
 - a. Overall dimensions of the tank and all extended fittings
 - b. Core assembly
 - c. Weight of HT, LT winding, core, oil and tank etc.

**18.5 Sampling Procedure for Sample Tests:****18.5.1 For Sample tests from Sr. No. (i) to (ii):**

These tests shall be performed on the 100% offered quantity.

18.5.2 For Sample tests from Sr. No. (iii) to (ix):

- a. If the offered lot is 5 or below then all the transformers shall be tested.
- b. If the offered lot is between 6 to 10 then 5 Nos. transformers shall be sample tested.
- c. If the offered lot is between 11 to 50 then 5+20% of the offered lot shall be sample tested.
- d. If the offered lot is between 51 to 100 then 10+10% of the offered lot shall be sample tested.
- e. If the offered lot is above 100 then 15+10% of the offered lot shall be sample tested.

18.5.3 Oil sample test shall be carried out as per clause 15.4 (c). The samples shall be taken from 5% quantity of offered lot. The sampling of oil shall be done from the transformer's tanks.

18.5.4 Visual and dimensional test at Sr. No (xi) shall be carried out on at least two nos. transformers of each design of each rating type offered in a lot for international Tenders. Two (02) No. transformers of for Lot of International Tenders will be selected and opened from the offered transformers by inspectors, one transformer in the beginning and other at any stage and internal details will be compared with approved drawings.

For local purchase orders of DISCOs One (01) No. transformer of each design of each rating will be selected in each purchase order for dimensional checks.

18.6 Sampling and Test Procedure for Type Tests:**18.6.1 Oil type Test:**

- (i) The oil shall conform to latest IEC-60296 & IEC 60422 class-I oil.
- (ii) For mass production of local manufacturers type test for oil shall be carried out as per clause 15.4(d) TWICE in a financial year i.e. once in each half from any lot/inspection call of each rating which shall be valid for all DISCOs/Private purchase orders of all designs i.e., low loss/Pad-mounted transformers of same rating. ICs shall be issued only after receiving the successful results.



- (iii) For mass production of foreign manufacturers oil type test will be carried out on each rating of transformers once in each lot.

18.6.2 Temperature Rise Test:

- (i) The Temperature Rise Test shall be carried out by feeding declared guaranteed losses at principal tap. However, if total measured losses at any other tap are higher than guaranteed losses at principal tap then temperature rise test will be performed at that tap by feeding the higher losses. The oil temperature will be measured directly for 5, 10, 15, 25, 50, 100, 200 & 315 kVA transformers and in thermometer pocket of copper sheet having thickness of 0.8mm for 400 and 630 kVA transformers. The following prerequisite tests will also be carried out.
- a) Measurement of winding resistance.
 - b) Measurement of no load and load losses.
- (ii) For mass production of local manufacturers the temperature rise test of each design of each rating on one number transformer will be carried out jointly TWICE in a financial year i.e. once in each half from any lot/inspection call by the offices of C.E (M.I) and C.E (S&S) once against DISCOs purchase order. One test for each design of each rating will be valid for all DISCOs purchase orders for the above period. Temperature rise for private purchase orders will be carried out on randomly selected one no. of transformer for every 30 no. transformers by the office of C.E(M.I).
- (iii) For mass production of foreign manufacturers the temperature rise test will be carried out on each design of each rating on one number transformer once in each lot.

18.6.3 Impulse Voltage withstand Test:

- (i) The impulse voltage withstand test shall be performed as per latest IEC 60076-3 and clause 9.3 on each phase of the transformer with following sequence and conditions:

Step 01	Reference Wave (60 kV)
Step 02	Full wave (95 kV)
Step 03 & 04	Two Nos. Chopped waves (110 kV)
Step 05	Two No. Full wave (95 kV)

The test voltage shall be of negative polarity.

- (ii) For mass production of local manufacturers the impulse test of each design of each rating on one number transformer will be carried out jointly TWICE in a financial year i.e. once in each half from any lot/inspection call by the office of C.E (M.I) and C.E (S&S) against DISCOs/ Private purchase orders. One test for each design of each rating will be valid for all DISCOs/ Private purchase orders for the above period.



- (iii) For mass production of foreign manufacturers, the impulse test will be carried out on each design of each rating on one number transformer once in each lot.

18.6.4 Short Circuit Test:

- (i) Short circuit tests are not included as a standard requirement. To verify the ability of the transformer to withstand the short circuit conditions, the transformer shall be subjected to dynamic short circuit withstand test as per clause 11.2 at HV & SC-Lab. NTDC, Rawat or at ILAC/PNAC accredited lab. or from any equivalent accredited lab. duly approved by Chief Engineer (S&S). Transformer shall be tested as per below mentioned testing sequence. It will qualify only when it passes all these tests:
- Measurement of winding resistance
 - Measurement of voltage ratio and vector group relationship
 - Measurement of no load and load losses
 - Power frequency voltage withstand tests
 - Induced over voltage withstand test.
 - Short Circuit test
 - Measurements of winding resistance
 - Measurements of voltage ratio and vector relationship
 - Measurements of no load and load losses
 - Power frequency voltage withstand tests.
 - Induced voltage withstand test
 - Detanking and physical inspection of transformer assembly for any visual deterioration if any.
- (ii) For mass production of local manufacturers the short circuit test shall be carried out on one number transformer of each design of each rating against any DISCO/private purchase order once in a financial year from any lot/inspection call and shall be acceptable to other DISCOs/private purchase orders.
- (iii) For mass production of foreign manufacturers one transformer of each design of each rating for each shipment / lot against the tender / contract shall be tested for short-circuit withstand capability at HV & SC Lab. NTDC, Rawat or at ILAC/PNAC accredited lab. or from any equivalent accredited lab. duly approved by Chief Engineer (S&S) in addition to in-house testing during inspection. Acceptance certificate will be issued by the purchaser after satisfactory testing.
- (iv) For DISCO's purchase order/Private purchase, the transformer sent to the lab. for short circuit testing shall be picked randomly and sealed jointly at any stage from any production / lot by the representatives of C.E (M.I) and C.E



(S&S) and will be witnessed by the said offices. All expenses like testing fee, expenditure for shipment of transformer from manufacturer's premises to the testing lab., travelling, boarding lodging and daily allowance of two NTDC/PEPCO Inspectors will be borne by the manufacturer.

19. ACCEPTANCE AND REJECTION CRITERIA:

19.1 For Prototype Approval

The prototype transformer will be approved for mass production only when it passes all the routine, type and sample tests. If the transformer fails in any of the tests, the transformer shall be re-designed by the manufacturer and shall offer the same for repeating all the tests.

19.2 For Annual Type Tests during mass production:

The following criteria will be applied during mass production for annual type tests:

19.2.1 Oil Type Test

If the oil fails in any type test, then complete lot shall be rejected. Thereafter, oil samples will be retaken from the next offered lot of same rating and shall be subject to type test again.

19.2.2 Temperature Rise and Impulse Tests

- i. In case the selected transformer fails in testing, then two more samples of the same rating and design shall be selected randomly from the same lot and shall be subjected to the test. If any one of the sample fails again the COMPLETE lot shall be rejected and ongoing inspection and supply of failed rating and design of transformers will be stopped temporarily. The failed transformer will be opened jointly by the representatives of Chief Engineer (MI) and Chief Engineer (S&S) and cause of failure intimated by the manufacturer will be got checked/verified. After rectifying the fault in all the offered transformers, the manufacturer will submit a certificate to the above effect. Thereafter, the manufacturer will re-offer the improved version of previously offered lot with same serial numbers. One (01) No. transformer will be again jointly sealed and got tested at HV & SC testing Laboratory, NTDC, Rawat, Islamabad, on the expense of the manufacturer. If selected transformer qualifies the test, the inspection of offered lot will resume.

Henceforth, manufacturer will ensure future mass production as per improved version of transformers.

- ii. If the transformer fails again then the offered lot shall be rejected and the prototype of subject transformer rating and design will be cancelled.

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Manufacturer will have to obtain fresh prototype after making improvements in transformer design and thereafter will start mass production accordingly as per new prototype approval.

19.2.3 Short Circuit Test

- i. In case the transformer sent to testing lab. fails, offered lot will be rejected and ongoing inspection and supply of failed rating and design of transformers will be stopped temporarily until the cause is identified in the submitted joint report by representatives of the office of Chief Engineer (S&S) and Chief Engineer (M.I). The stage inspection of these transformers will be completed by office of Chief Engineer (MI) keeping in view the nature of fault. Thereafter, the manufacturer will re-offer the improved version of previously offered lot with the same serial numbers, out of which One (01) No. transformer will again be jointly sealed for short circuit test by the representative of Chief Engineer (S&S) and Chief Engineer (M.I). If selected transformer qualifies the test, the inspection of offered lot will resume.

Henceforth, manufacturer will ensure future mass production as per improved version of transformers.

- ii. If second transformer selected for short circuit test as above fails again, the offered lot shall be rejected and the prototype of subject transformer rating and design will be cancelled. Manufacturer will have to obtain fresh prototype after making improvements in its transformer design and thereafter will start mass production accordingly as per new prototype approval.

19.3 For Sample Tests during Mass Production

The following criteria will be applied during mass production for Sample tests:

- a. Power Frequency and Induced Voltage withstand Tests
 - i. If all the sample transformers pass then the lot shall be accepted.
 - ii. If one number transformer fails then re-sampling be done from the remaining lot. If all the sample pass the test, the lot shall be accepted, however, the transformer which failed in the first sampling shall be rejected.
 - iii. If any of the transformers fails in the second sampling then complete lot shall be rejected.
- b. If the oil falls in any routine tests, then two more samples will be taken from the offered lot and tested. If any of the samples fails, then the lot will be rejected.
- c. Remaining Sample Tests
 - i. If one number transformer fails, the lot shall be accepted.



- ii. If two transformers fails, then re-sampling shall be done from the remaining lot, if any one of the transformer fails then the complete lot shall be rejected.
- iii. If three Nos. sample fail then complete lot shall be rejected.
- iv. Following criteria will be applicable while measurement of losses (Iron and copper):
 - (1) If the individual losses of all the sample transformers are equal or below the guaranteed losses, the complete lot shall be accepted.
 - (2) If individual losses of one sample transformer exceed the limits by more than 10% of guaranteed losses, complete lot shall be rejected.
 - (3) If individual losses (Iron and Copper) of one sample transformer are higher than the guaranteed losses by not more than 10%, then a penalty at four time the rate of K1 and K2 (whichever is applicable) shall be charged on the complete lot.

19.4 Warranty Period Extension

- i. In case of rejection of lot due to failure in temperature rise, impulse test and short circuit tests as mentioned in clause 19.2.2 (i) and 19.2.3 (i) respectively, the WARRANTY PERIOD of the subsequent and already supplied transformers during validity period of tests, for the failed rating and design against all purchase orders / contracts shall be DOUBLED from the date of receipt of transformers at consignee's store against period specified in clause "WARRANTY" of the tender / purchase order. The extended warranty shall be printed by the manufacture on all subsequent transformers. The Sr. no of all the transformers already delivered to stores on which DOUBLE warranty following the "WARRANTY" clause of the purchase order is subsequently applicable would be intimated to all the field stores by the purchaser.
- ii. In case of cancellation of the prototype as mentioned in clause 19.2.2 (ii) and 19.2.3 (ii), the WARRANTY PERIOD of already supplied transformers will be DOUBLED as mentioned above and subsequent transformers to be supplied as per new prototype will have regular WARRANTY as mentioned in Purchase Order.

19.5 Repair Under Warranty Period:

- i. The damaged transformers under warranty period will be repaired by the manufacturers free of cost within four months of receipt irrespective of the condition that it is damaged due to DISCO fault or manufacturer fault. The transportation / handling charges etc. will be to DISCO's account.
- ii. For the acceptance of these repaired transformers under warranty period, all the routine tests shall be carried out for conforming the suitability of further use.



- iii. The damaged transformers under WARRANTY PERIOD (DOUBLED) as per clause 19.4 (ii) will be replaced free of cost with newly improved design (fresh prototype approval). No repair of transformers in this case will be accepted.

20.0 SIGNATORIES

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Engr. Javed Mahmood GM (Asset Management) North, NTDC (Member SRC)	Engr. Tahir Mahmood GM (Design & Engineering) NTDC (Convener SRC)	





APPENDIX— A

TECHNICAL INSTRUCTIONS FOR THE POWDER COATING PROCESS AND SPECIFIED TESTS ON TOP COVER PLATES OF DISTRIBUTION TRANSFORMERS FOR BIRD PROTECTION

1. SCOPE

These technical instructions cover the requirement of the bird protection through powder coating on top cover plates of three phase, 11/0.415 kV all rating Distribution Transformers.

2. MATERIAL OF POWDER COATING

Powder should be pure Polyester or Polyester Epoxy. The raw material of powder should be of European Origin such as Belgium or England.

3. APPLICATION OF POWDER COATING

Reference: Technical Brief #11, Powder Coating Institute, USA.

Powder coatings should be applied by Electrostatic Spraying using classic devices. Which can provide a negative tension of 60-90 kV.

Following sequence of surface treatment and curing should be followed:

- | | |
|-------------------|---|
| Step One | De-Rusting: (Acid cleaning or shot blasting) followed by water rinse to remove completely rust and oxides from the top cover plate. |
| Step Two. | Degreasing followed by water rinse to prepare the plate surface free from oil or grease. |
| Step Three | Zinc or Iron Phosphating in a hot bath followed by water rinse to prevent the surface from rusting and to make proper paint adhesion. |
| Step Four | Powder application by the Electrostatic Spraying using classic devices which can provide a negative tension of 60-90 kV. |
| Step Five | Curing in an oven at 180-200°C for 20 minutes. |

4. TESTS AND TEST SAMPLES(Powder Coating /Araldite)

ROUTINE TESTS

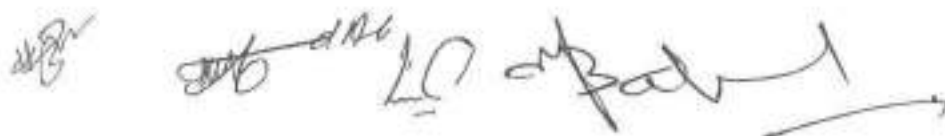
The following routine test will be performed on each and every Distribution Transformer Top Cover Plate as per inspection criteria.

i. Dielectric Test

The test should be performed in accordance with clause 15.2.3 of NTDC specification DDS-84-2020 (amended to date) to withstand a dry dielectric voltage of not less than 8 kV.

ii. Paint Coating Thickness

The test should confirm in accordance to clause 15.2.4 of NTDC specification DDS-84-2020 (amended to date). The thickness of the paint coating should not be less than 0.12mm.



TYPE TESTS

i. Cross Cut Adhesion Test

Sample Two Nos. Transformers in a year against any DISCO purchase order for all rating Distribution Transformers shall be selected at random for this test.

Reference Standard The test will be performed in accordance to ISO 2409 standards.

Type of Cutting Tool Used: 1-3 mm spacing.

After performing the tests the edges of the cuts should be completely smooth and none of the squares of lattice is detached.

ii. Salt Spray Test

Sample The test will be performed once in a year against any DISCO purchase order for all rating Distribution Transformers. The test samples of appropriate size following all the above steps of powder coating will be prepared. One of the five No. samples selected randomly will be got tested.

Reference Standard The test will be performed in accordance to ISP 9227 Standards.

Observation time 500 hours.

After 500 hours salt spray test there should be no corrosion on the sample. There should be no cracks & peelings of the paint.

iii. Impact Test

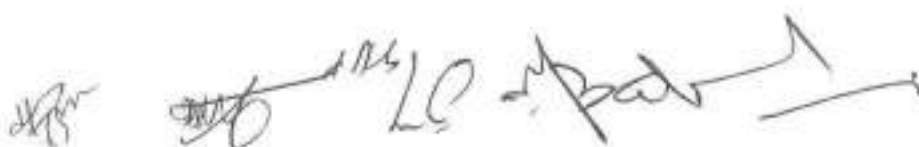
Samples This test will be performed twice a year against any purchase order for all rating Distribution Transformers.

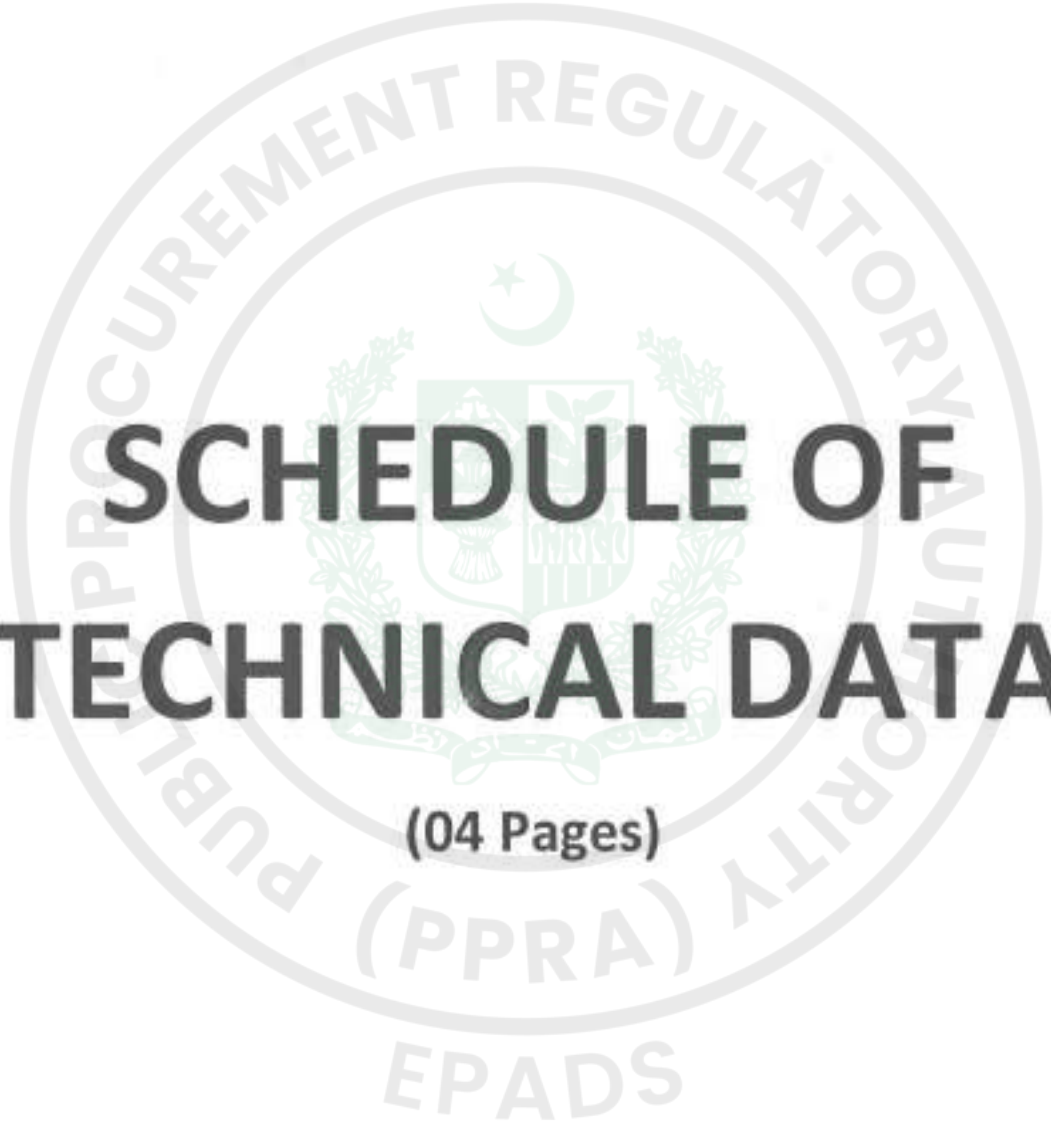
Reference This test will be performed in accordance to ISO 6272.

Standard The value obtained by the impact test should be greater than 25 kg/cm.

Note:

All the routine/type tests should be witnessed by the Inspection Departments as per inspection criteria.





SCHEDULE OF TECHNICAL DATA

(04 Pages)

SCHEDULE OF TECHNICAL DATA
FOR 3 PHASE, 11000/415 VOLTS DISTRIBUTION TRANSFORMERS
NTDC SPECIFICATION DDS:84:2020

1. Name & address of the manufacturer. _____
2. Experience of transformers manufacturing. _____
3. Type/Model. _____
4. Rated Voltage at no load.
 - a. Higher voltage side. _____
 - b. Lower voltage side. _____
5. Conforming standards. _____
6. Rated current.
 - a. Higher voltage side _____
 - b. Lower voltage side _____
7. Rated capacity. _____
8. No of phases. _____
9. Impedance voltage. _____
10. Percentage reactance. _____
11. Type of cooling. _____
12. Regulating taps(%).
(Tapping being located on the high voltage winding) _____
13. Insulation material & points of applications _____
14. Insulating oil
(Whether it meets the requirement of latest IEC-60422&60296 Class-I Oil) _____
15. Insulation level (BIL) _____
16. Power frequency test voltage. _____
17. Impulse test voltage.
 - a. Full wave _____
 - b. Chopped wave _____
18. Induced voltage with frequency.
 - a. HT winding _____
 - b. LT winding _____
19. Limits of temperature rise for prototype.
 - a. Winding _____
 - b. Oil _____
20. Limits of temperature rise for mass production.
 - a. Winding _____
 - b. Oil _____
21. Short circuit withstand standard _____
22. Reference ambient temperature.
 - a. Max. ambient air temperature _____
 - b. Max. Daily average ambient temperature _____
 - c. Max. Yearly average ambient temperature _____
 - d. Altitude _____
23.
 - a. Oil weight _____
 - b. Core weight _____



SCHEDULE OF TECHNICAL DATA
FOR 3 PHASE, 11000/415 VOLTS DISTRIBUTION TRANSFORMERS
NTDC SPECIFICATION DDS:84:2020

c. HT winding	i. Weight (with insulation) _____ ii. Size of copper conductor _____ Paper insulated/BARE _____ Height of coil/package _____ iii. No. of HT winding packets _____	
d. LT winding	i. Weight (with insulation) _____ ii. Size of copper conductor _____ Paper insulated/Enameled _____ Bare _____ iii. Outer diameter of coil/package _____ iv. Height of coil/package _____ v. No. of LT winding packets _____	
e. Lifiable weight including weight of winding, weight of core, tap cover, bushings and hardware.		_____
f. Weight of empty tank (Without top cover and wheel)		_____
g. Weight of complete transformer		_____
24. Vector Group		_____
25. Type test certificate, if any (also same rating with different losses)		_____
a. Issuing authority		_____
b. S&S, NTDC approval letter No. & Date		_____
26. Losses.		
a. Total copper losses at 100% rated load		Watts
b. Total iron losses at 100% voltage		Watts
c. Total losses at 100% rated load and 100% voltage		Watts
d. Total losses at 75% rated load and 100% voltage		Watts
e. Total losses at 50% rated load and 100% voltage		Watts
f. Iron losses at no load and 100% voltage		Watts
g. Iron losses at no load and 110% voltage		Watts
h. Copper losses at 100% rated load and 100% voltage		Watts
27. Efficiencies		
1. For unit power factor		
a. At 100% rated load		%
b. At 75% rated load		%
c. At 50% rated load		%
2. For 0.8 power factor		
a. At 100% rated load		%
b. At 75% rated load		%
c. At 50% rated load		%

SCHEDULE OF TECHNICAL DATA
FOR 3 PHASE, 11000/415 VOLTS DISTRIBUTION TRANSFORMERS
NTDC SPECIFICATION DDS:84:2020

28. Voltage regulation

- a. Voltage regulation in percent of the load voltage at full load & at unity power factor _____ %
- b. Voltage regulation in percent of no load, full load at 0.9 lagging power factor _____ %

29. Provision of fittings

Whether following fittings for transformer has been provided:-

- a. Rating plate _____
- b. Terminal marking _____
- c. Lifting lugs _____
- d. Earthing terminal for tank/ Qty. _____
- e. Oil filling hole & plug with sealing arrangement _____
- f. Oil level indicator _____
- g. Support lugs _____
- h. Channels _____
- i. HT & LT bushings, Name & Year of manufacture _____
- j. Pressure Relief Device (Make and setting) _____
- k. Conservator Tank with Silica Gel _____

30. Tank

Attach the copy of the certificate that transformer is effectively sealed from atmosphere

- a. Whether completely assembled transformer is designed and tested to withstand, without deformation or leakage pressure of 15 lbs/inch² or 5 lbs/inch² (for Tubular/Corrugated) _____
- b. Whether tank is marked outside with white paint to show min and max level of oil at 30°C. _____
- c. To prevent flashover caused by large bird, whether transformer top cover are affectively coated with a weather proof permanent insulating material having a dielectric and withstand voltage at not less than 8kV. _____
- d. The tank paint is highly resistant in the effect of storm, sun light and high temperature and shall have a long life under such priming coat and two finish coats, which are applied after the rough clearing of the tank _____
- e. Whether thickness of the paint coating is >0.12mm _____
- f. Whether bushings and connectors have been provided on transformer as per NTDC drawings _____
- g. Whether all nuts and bolts used for the construction of the tank are Galvanized. _____

31. No. of cooling tubes and size. (Attached dimensional drawings) _____

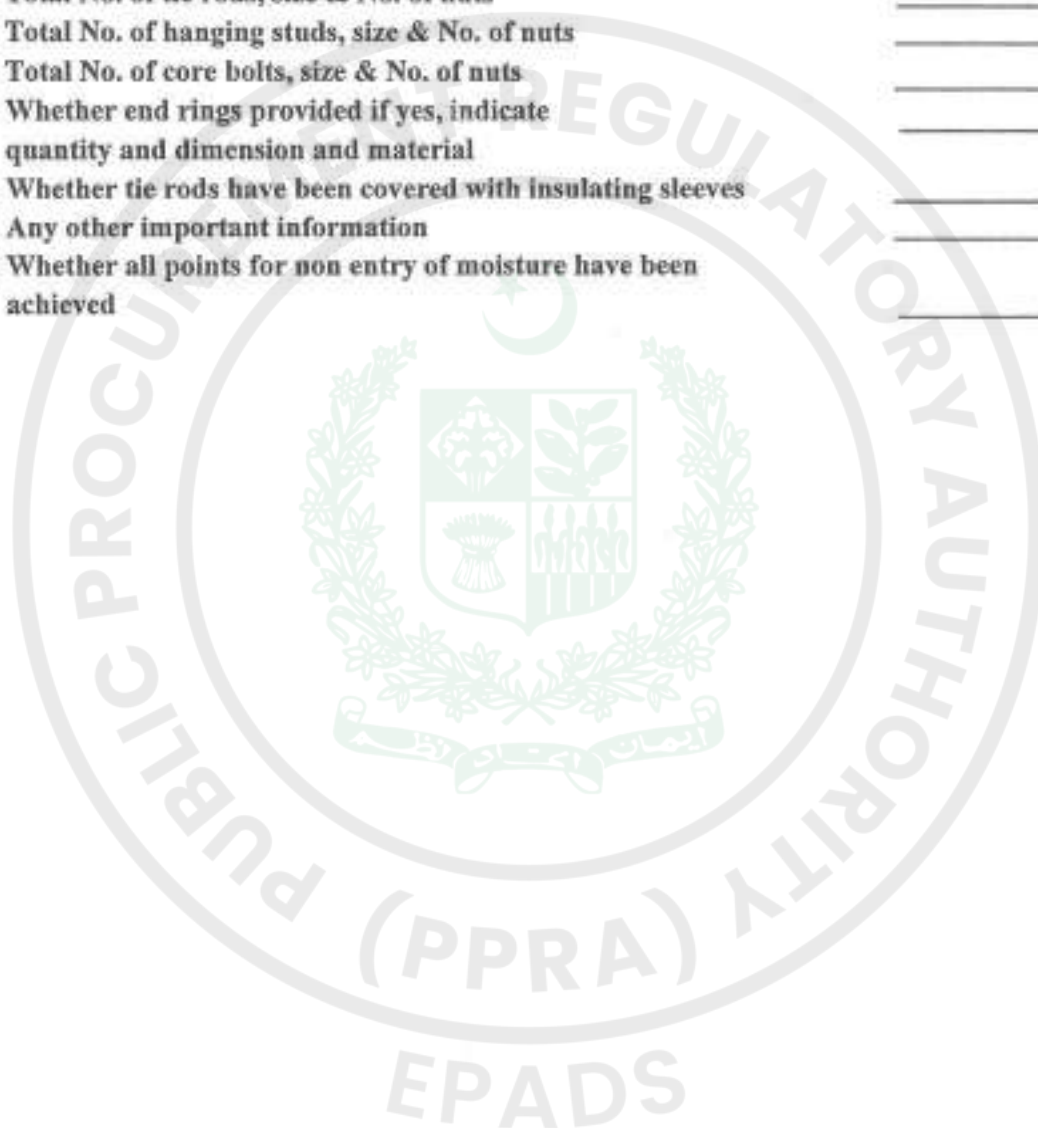
32. Over all dimensions of transformers (L x W x H) _____

33. Tank dimension (inside)

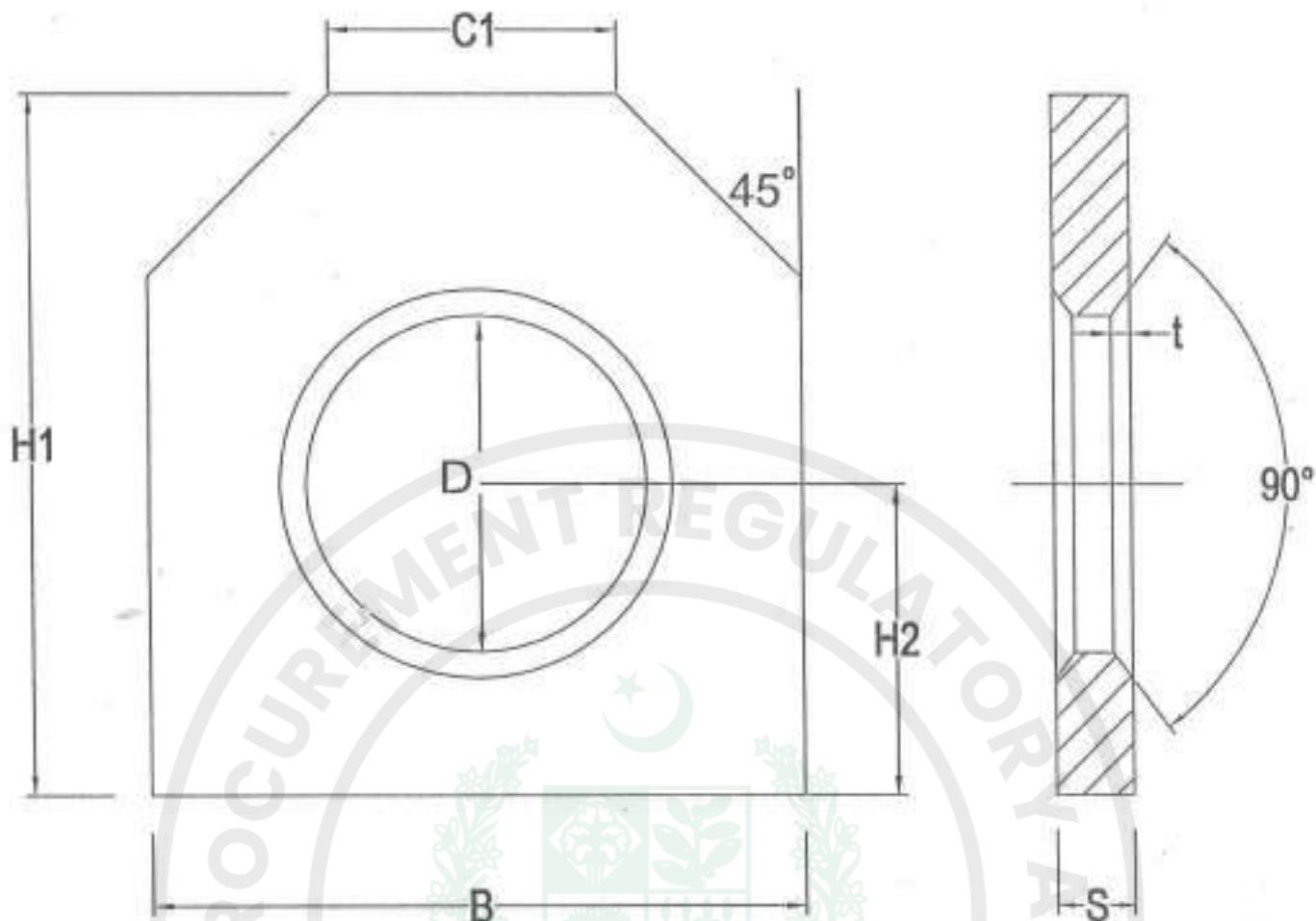
- a. Height _____

SCHEDULE OF TECHNICAL DATA
FOR 3 PHASE, 11000/415 VOLTS DISTRIBUTION TRANSFORMERS
NTDC SPECIFICATION DDS:84:2020

- | | |
|---|-------|
| b. Width | <hr/> |
| c. Length | <hr/> |
| 34. Whether roller have been fitted with tank | <hr/> |
| 35. Thickness of tank sheet | <hr/> |
| 36. Thickness of top cover sheet | <hr/> |
| 37. Thickness of bottom cover sheet | <hr/> |
| 38. Total No. of pressure blocks and material | <hr/> |
| 39. Total No. of tie rods, size & No. of nuts | <hr/> |
| 40. Total No. of hanging studs, size & No. of nuts | <hr/> |
| 41. Total No. of core bolts, size & No. of nuts | <hr/> |
| 42. Whether end rings provided if yes, indicate quantity and dimension and material | <hr/> |
| 43. Whether tie rods have been covered with insulating sleeves | <hr/> |
| 44. Any other important information | <hr/> |
| 45. Whether all points for non entry of moisture have been achieved | <hr/> |







Transformer Capacity	B	D	C1	H1	H2	S	t
5 to 50 kVA	70	40	35	75	35	10	2
100 & 200 kVA	100	55	45	100	45	12	3
315, 400 & 630 kVA	120	65	55	130	60	15	5

MATERIAL: Mild Steel (M.S)

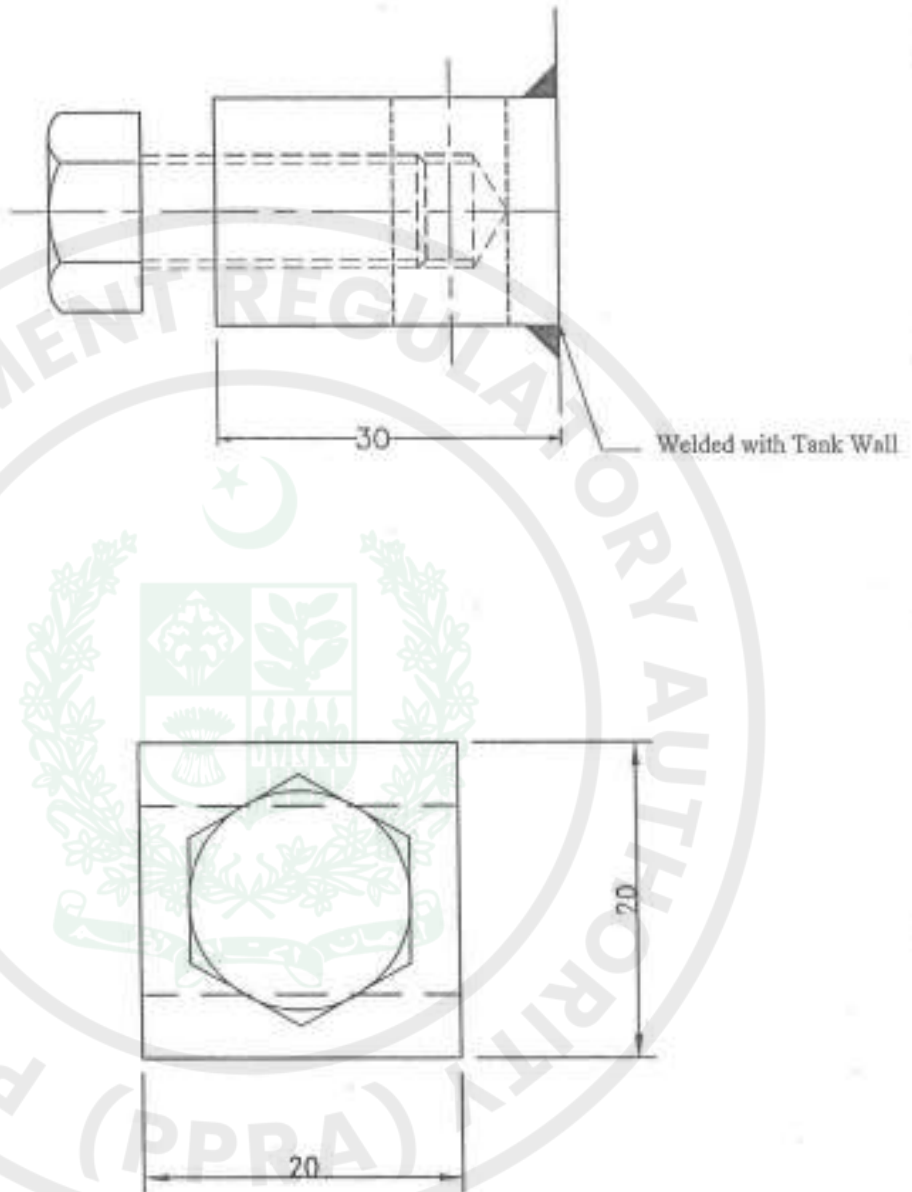


NATIONAL TRANSMISSION AND DESPATCH COMPANY (NTDC)

Specification:	DDS-84/2020 (amended-to-date)	Note:	All Dimensions are in "mm"
Prepared by	Checked by	Verified by	Dated
ENGR. M. HANAN AZAM A.M (S&S)	ENGR. MUBEEN ASGHAR D.M (S&S)	ENGR. AMJAD ALI ADDL. C.E (S&S)	07-12-2020
DRAWING TITLE	Lifting Lugs		
SCALE: NTS	DWG No.: S&S/DIF-LLI	Revision	00

Approved by:

Engr. Muhammad Bakhsh Mashaar
Chief Engineer (S&S) NTDC

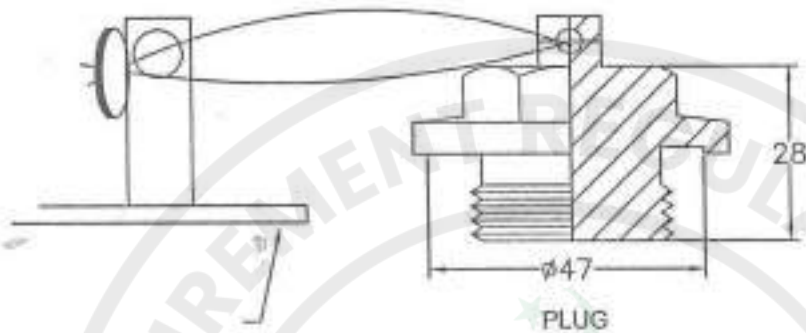
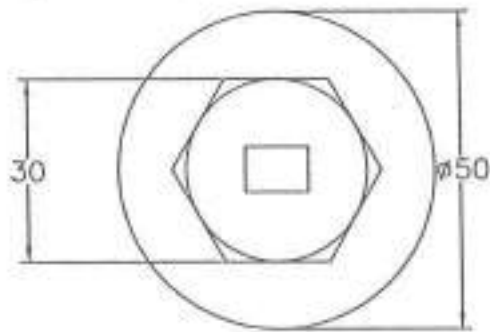


NATIONAL TRANSMISSION AND DESPATCH COMPANY (NTDC)

Specification:	DDS-84:2020 (amended-to-date)	Note:	All Dimensions are in "mm"
Prepared by	Checked by	Verified by	Dated
ENGR. M. HANAN AZAM A.M (S&S)	ENGR. MOBEEN ASGHAR D.M (S&S)	ENGR. AMJAD ALI ADDL. C.E (S&S)	07-12-2020
DRAWING TITLE	EARTHING TERMINAL		
SCALE : NTS	DWG No.: S&S/DTF-E12	Revision	00

Approved by:

Engr. Muhammad Bakhsh Mashaar
Chief Engineer (S&S) NTDC

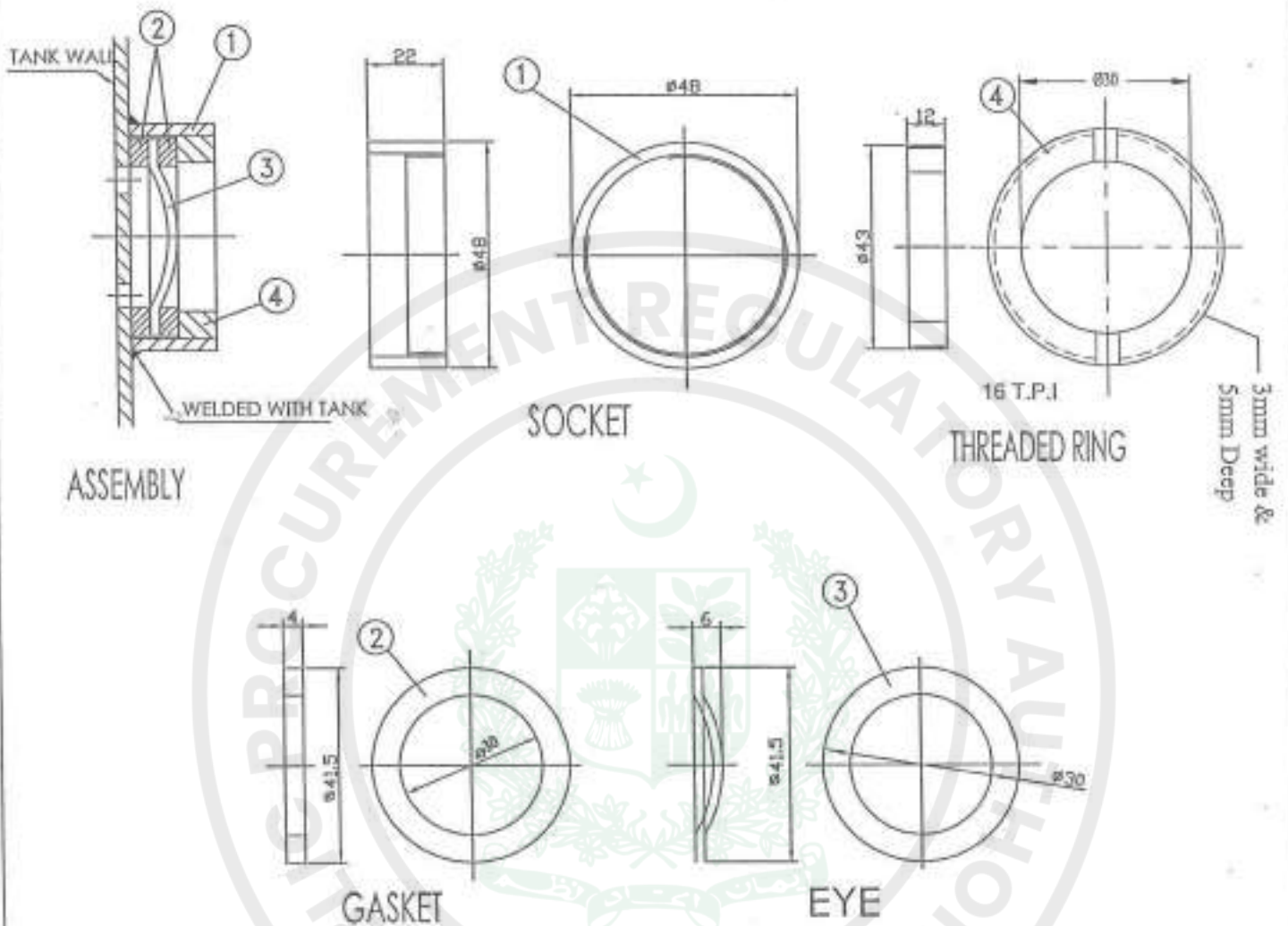


NATIONAL TRANSMISSION AND DESPATCH COMPANY (NTDC)

Specification:	DD5-84:2020 (amended-to-date)	Note:	All Dimensions are in "mm"
Prepared by:	Checked by:	Verified by:	Dated:
ENGR. M. HANAN AZAM A.M (S&S)	ENGR. MUBEEN ASGHAR D.M (S&S)	ENGR. AMJAD ALI ADDL. C.E (S&S)	07-12-2020
DRAWING TITLE: OIL FILLING PLUG & COLLAR			
SCALE: NTS	DWG No.: S&S/DIT-OF3	Revision	00

Approved by:

Engr. Muhammad Bakht Majeed
Chief Engineer (S&S) NTDC



SR NO.	DESCRIPTION	MATERIAL	QTY (NOS.)
1	SOCKET	M.S	01
2	GASKET	NEOPRENE RUBBER	02
3	EYE	PERSPEX	01
4	THREAD RING	M.S	01



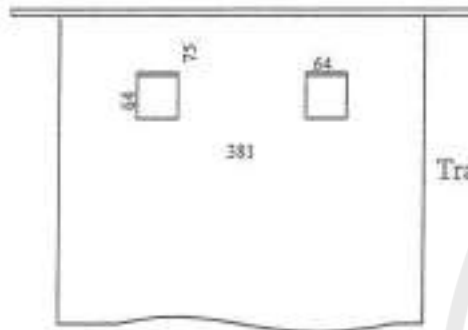
NATIONAL TRANSMISSION AND DESPATCH COMPANY (NTDC)

Specification:	DD5-84:2020 (amended to date)	Note:	All Dimensions are in "mm"
Prepared by:	Checked by:	Verified by:	Dated:
ENGR. M. HANAN AZAM A.M (S&S)	ENGR. MUBEEN ASGHAR D.M (S&S)	ENGR. AMJAD ALI ADDL. C.E (S&S)	07-12-2020
DRAWING TITLE	OIL LEVEL INDICATOR		
SCALE : NTS	DWG No.:	S&S/DTF-OIL4	Revision 00

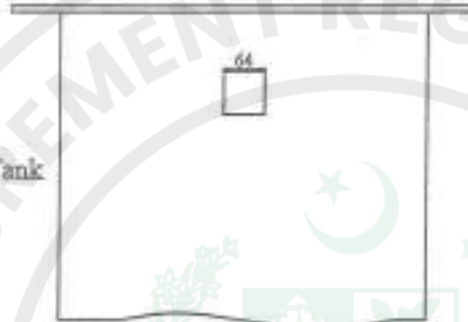
Approved by:

Engr. Muhammad Bakhsh Mahoor
Chief Engineer (S&S) NTDC

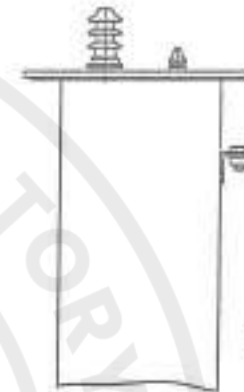
Support Lug For 25 & 50kVA



Support Lug For 5, 10 & 15 kVA



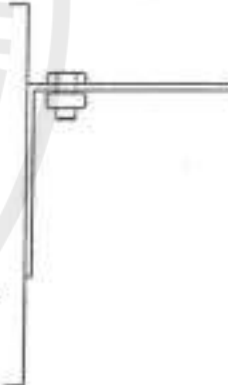
Transformer Tank



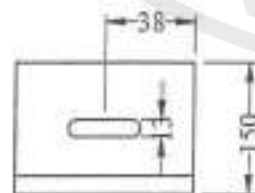
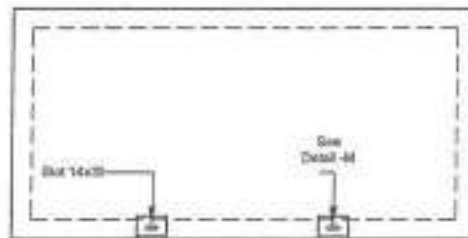
See
Detail -A

L.T Side

Detail -A



Edge of
Transformer



Detail -M

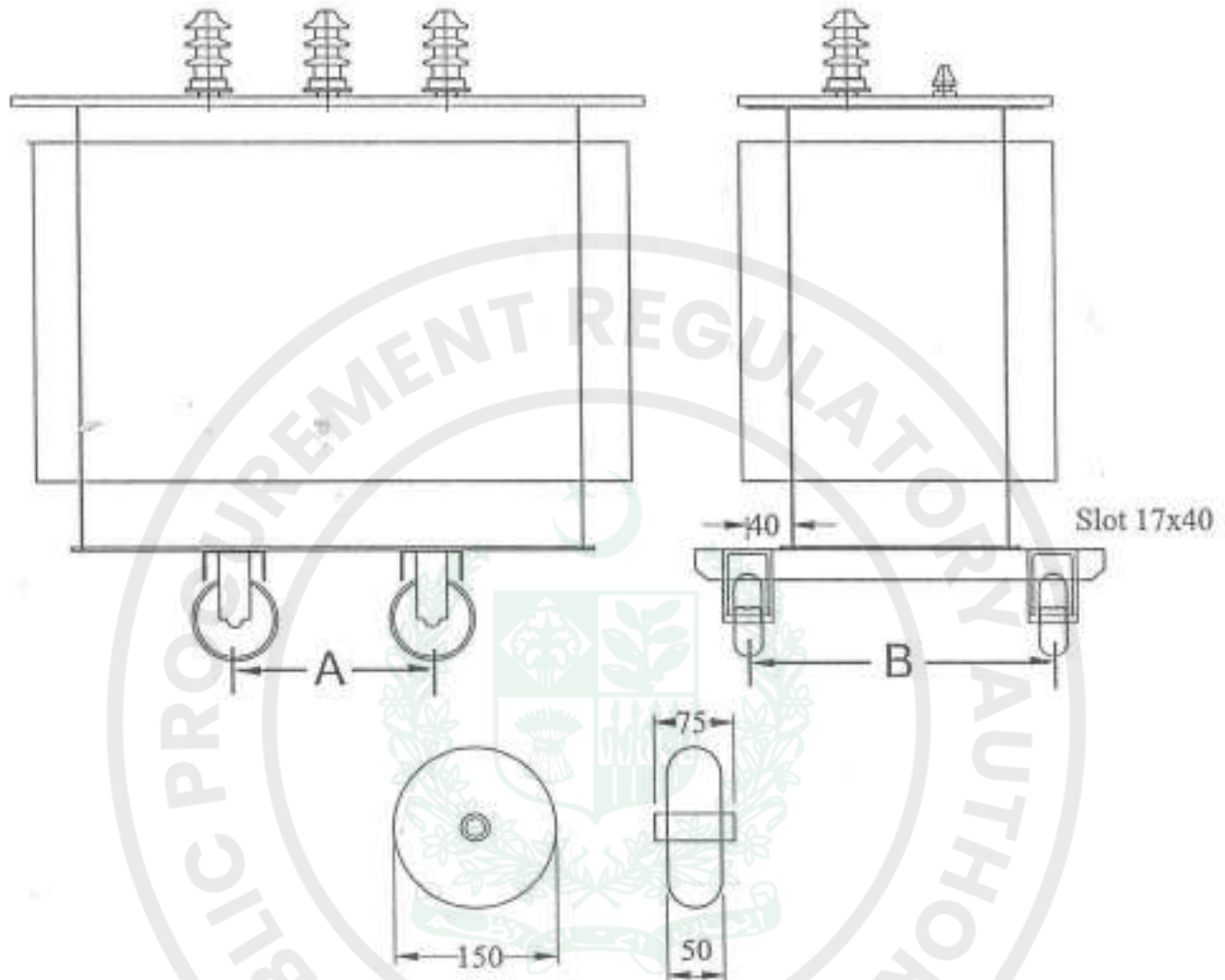
Approved by:

Engr. Muhammad Bekhsh Maheer
Chief Engineer (S&S) NTDC



NATIONAL TRANSMISSION AND DESPATCH COMPANY (NTDC)

Specification:	DS-84:2020 (amended-to-date)	Note:	All Dimensions are in "mm"
Prepared by	Checked by	Verified by	Dated
ENGR. M. HANAN AZAM A.M (S&S)	ENGR. MUBEEN ASGHAR D.M (S&S)	ENGR. AMJAD ALI ADOL. C.E (S&S)	07-12-2020
DRAWING TITLE	Support Lug for 5,10,15,25,50 kVA Distribution Transformers		
SCALE : NTS	DWG No.: S&S/DTF-SL5	Revision	00



Type	Dimension mm		Channel Size
	A	B	
5,10,15 kVA	350	400	75x37
25,50 kVA	400	500	75x37
100,200 kVA	520	500	100x50
315, 400, 630 kVA	670	780	150x75

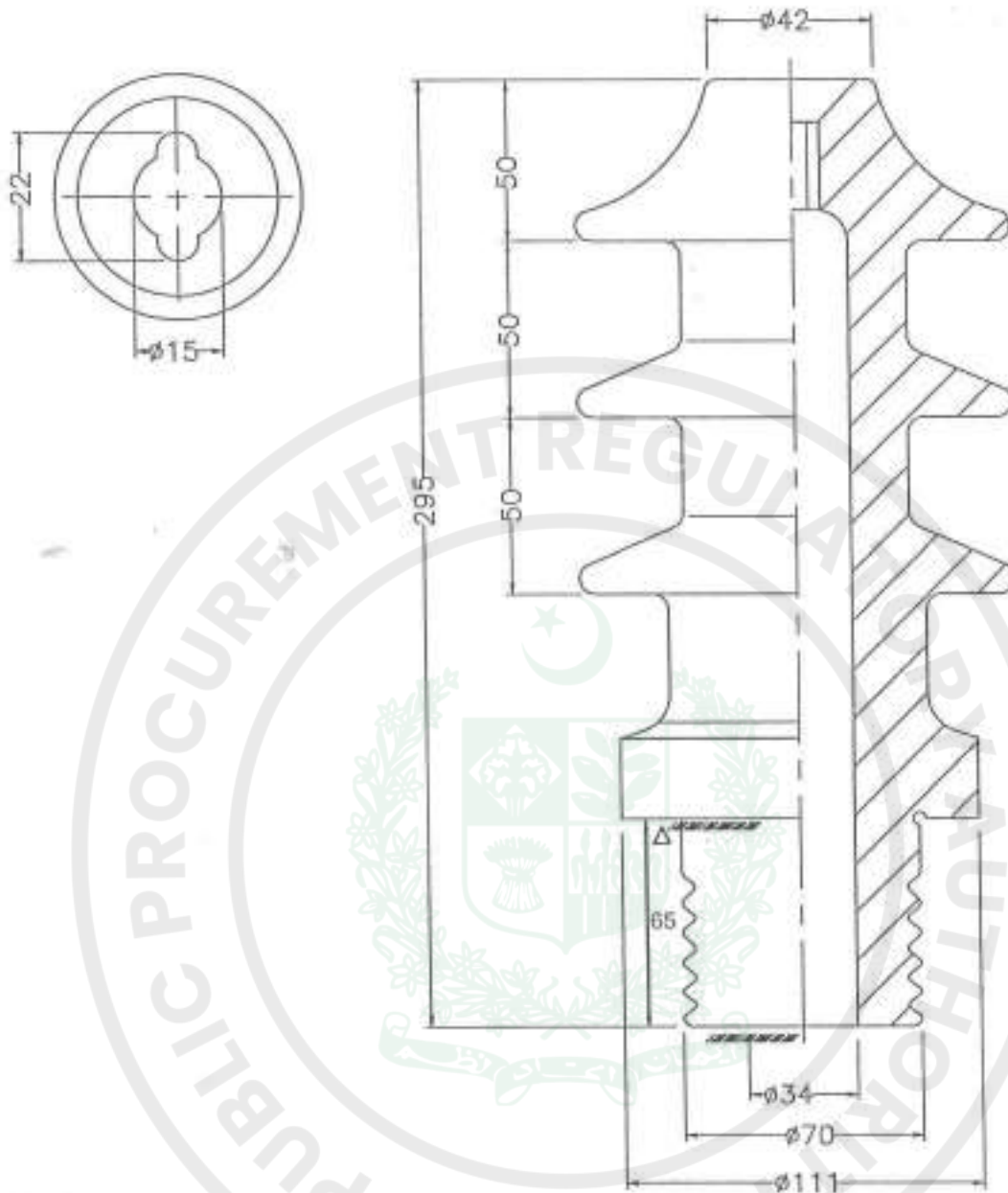


NATIONAL TRANSMISSION AND DESPATCH COMPANY (NTDC)

Specification:	DD5-84/2020 (amended-to-date)	Note:	All Dimensions are in "mm"
Prepared by	Checked by	Verified by	Dated
ENGR. M. HANAN AZAM A.M (S&S)	ENGR. MUBEN ASGHAR D.M (S&S)	ENGR. ANJAD ALI ADDL. C.E (S&S)	07-12-2020
DRAWING TITLE	Mounting Arrangement of Distribution Transformers		
SCALE : NTS	DWG No.: S&S/DTF-MA7, S&S/DTF-W6	Revision	00

Approved by:

Engr. Muhammad Bakhsh Mahaar
Chief Engineer (S&S) NTDC



NOTE:

- 1 ----- Unglazed Surface
- 2 Unmarked radii to be Considered as +2.5r
- 3 Leakage distance350mm
- 4 Δ Surface to be ground flat

SECTIONAL ELEVATION

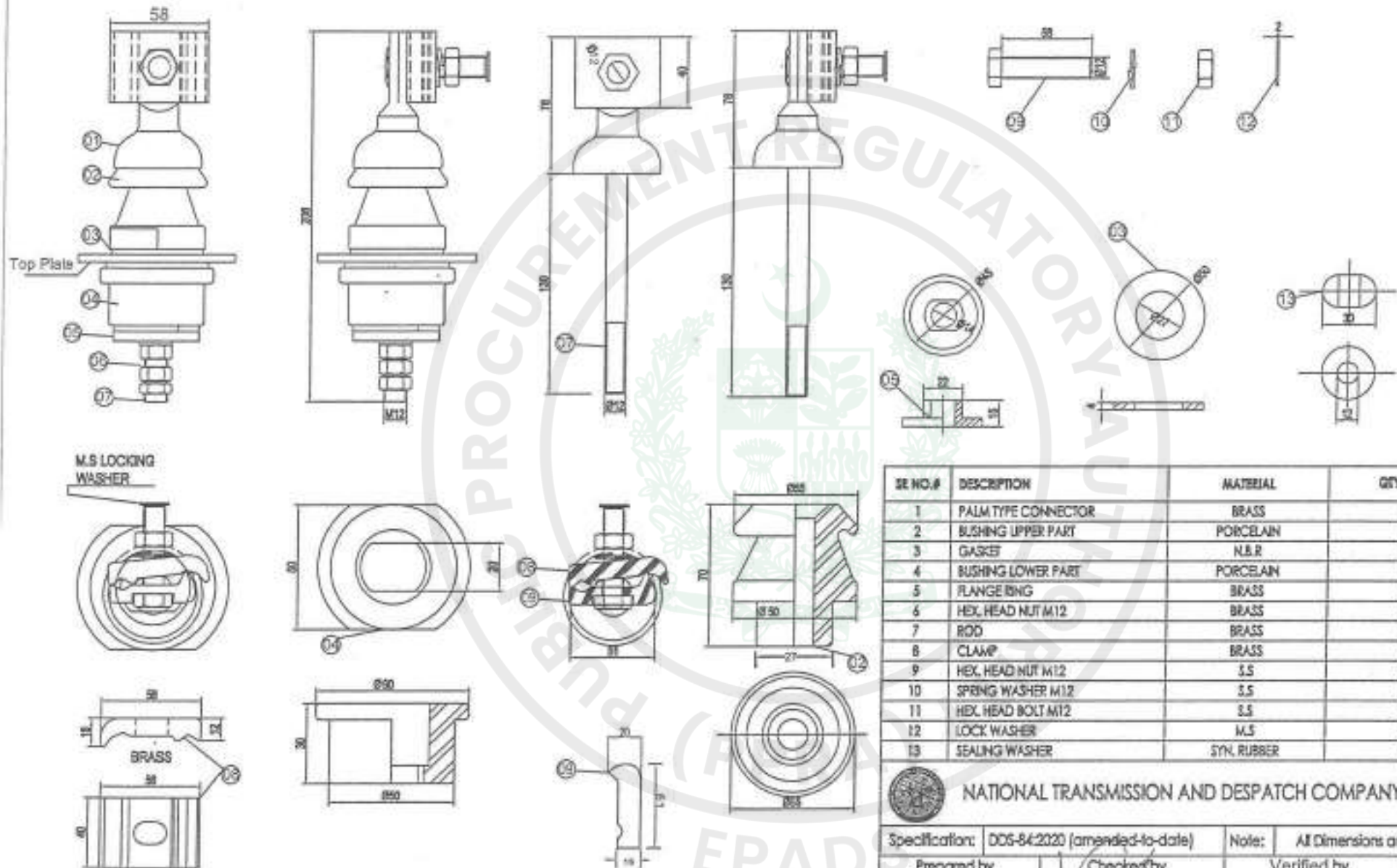


NATIONAL TRANSMISSION AND DESPATCH COMPANY (NTDC)

Specification:	DO5-84-2020 (amended to date)	Note:	All Dimensions are in "mm"
Prepared by:	Checked by:	Verified by:	Dated:
ENGR. M. HANAN AZAM A.M (S&S)	ENGR. MUBEEN ASGHAR D.M (S&S)	ENGR. AMJAD ALI ADDL. C.E (S&S)	07-12-2020
DRAWING TITLE	HT Bushing for all ratings		
SCALE : NTS	DWG No.: S&S/DTF-HTB-1	Revision	00

Approved by:

Engr. Muhammad Bakhtsh Mahaar
Chief Engineer (S&S) NTDC



Approved by:

[Signature]

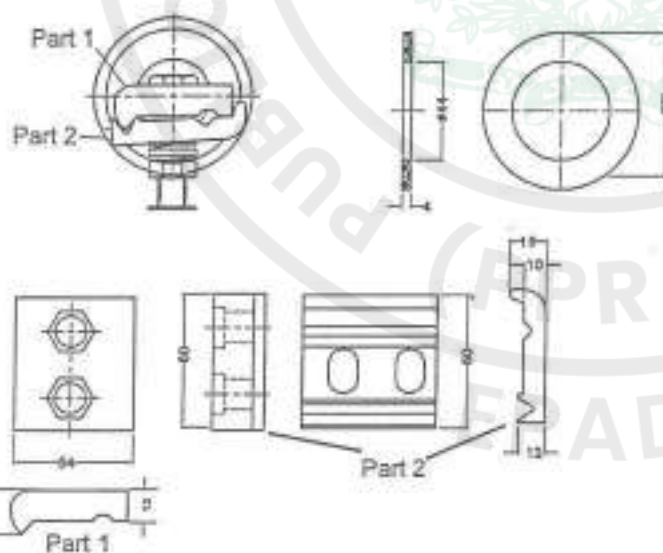
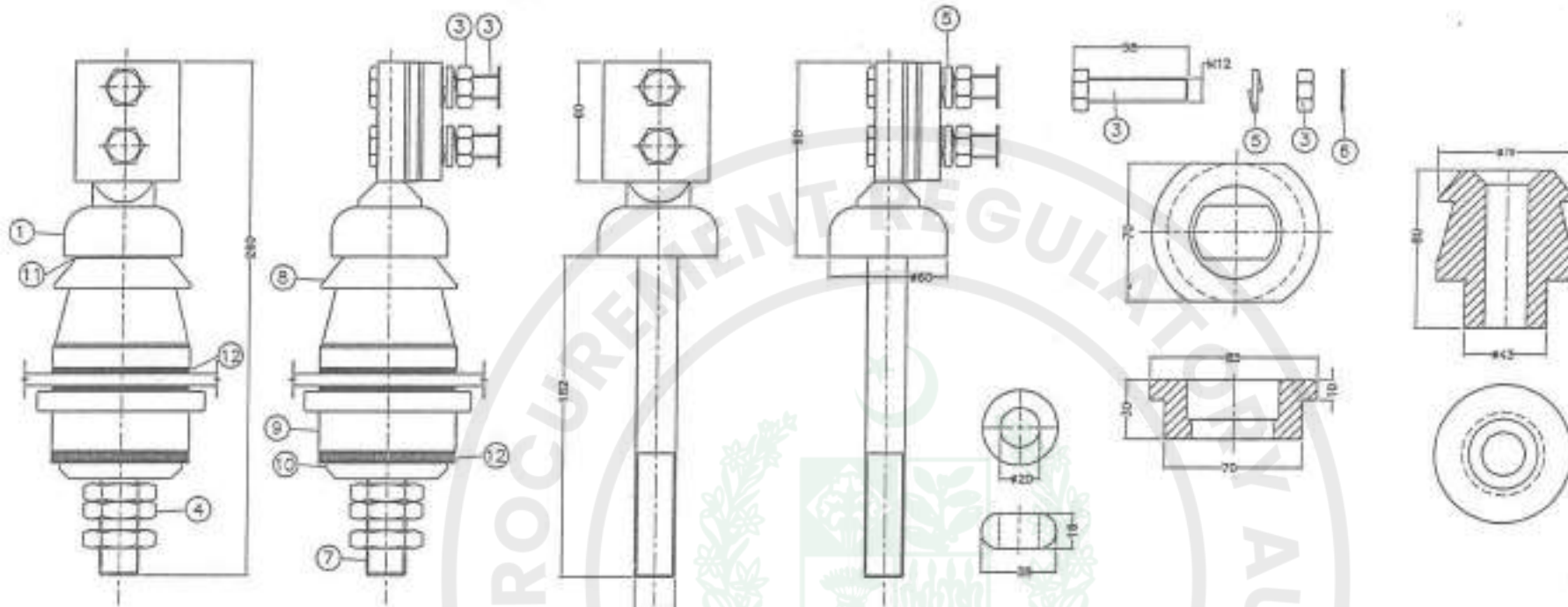
Engr. Muhammad Bakhsh Mahaar
Chief Engineer (S&S) NTDC

SE NO.#	DESCRIPTION	MATERIAL	QTY (NO.)
1	PALM TYPE CONNECTOR	BRASS	01
2	BUSHING UPPER PART	PORCELAIN	01
3	GASKET	N.B.R	03
4	BUSHING LOWER PART	PORCELAIN	01
5	FLANGE RING	BRASS	01
6	HEX. HEAD NUT M12	BRASS	03
7	ROD	BRASS	01
8	CLAMP	BRASS	01
9	HEX. HEAD NUT M12	S.S	01
10	SPRING WASHER M12	S.S	01
11	HEX. HEAD BOLT M12	S.S	01
12	LOCK WASHER	M.S	01
13	SEALING WASHER	SYN. RUBBER	01

NATIONAL TRANSMISSION AND DESPATCH COMPANY (NTDC)

Specification: DGS-84/2020 (amended-to-date) Note: All Dimensions are in "mm"

Prepared by	Checked by	Verified by	Dated
ENGR. M. HANAN AZAM A.M (S&S)	ENGR. MUBEEN ASGHAR D.M (S&S)	ENGR. AMJAD ALI ADDL. C.E (S&S)	07-12-2020
DRAWING TITLE		LT Bushing for 5 to 100 KVA ratings	
SCALE : NTS	DWG No.: S&S/DTF-LTB200	Revision	00



SR NO.#	DESCRIPTION	MATERIAL	QTY (NOS.)
1	PALM TYPE CONNECTOR	BRASS	1
2	CLAMP	BRASS	1
3	HEX NUT & BOLT M12	S.S	1
4	HEX NUT & BOLT M20	BRASS	3
5	SPRING WASHER	S.S	2
6	LOCK WASHER	M.S	2
7	ROD	BRASS	1
8	BUSHING UPPER PART	PORCELAIN	1
9	BUSHING LOWER PART	PORCELAIN	1
10	FLANGE RING	BRASS	1
11	SEALING WASHER	SYN. RUBBER	1
12	GASKET	K.B.R	3

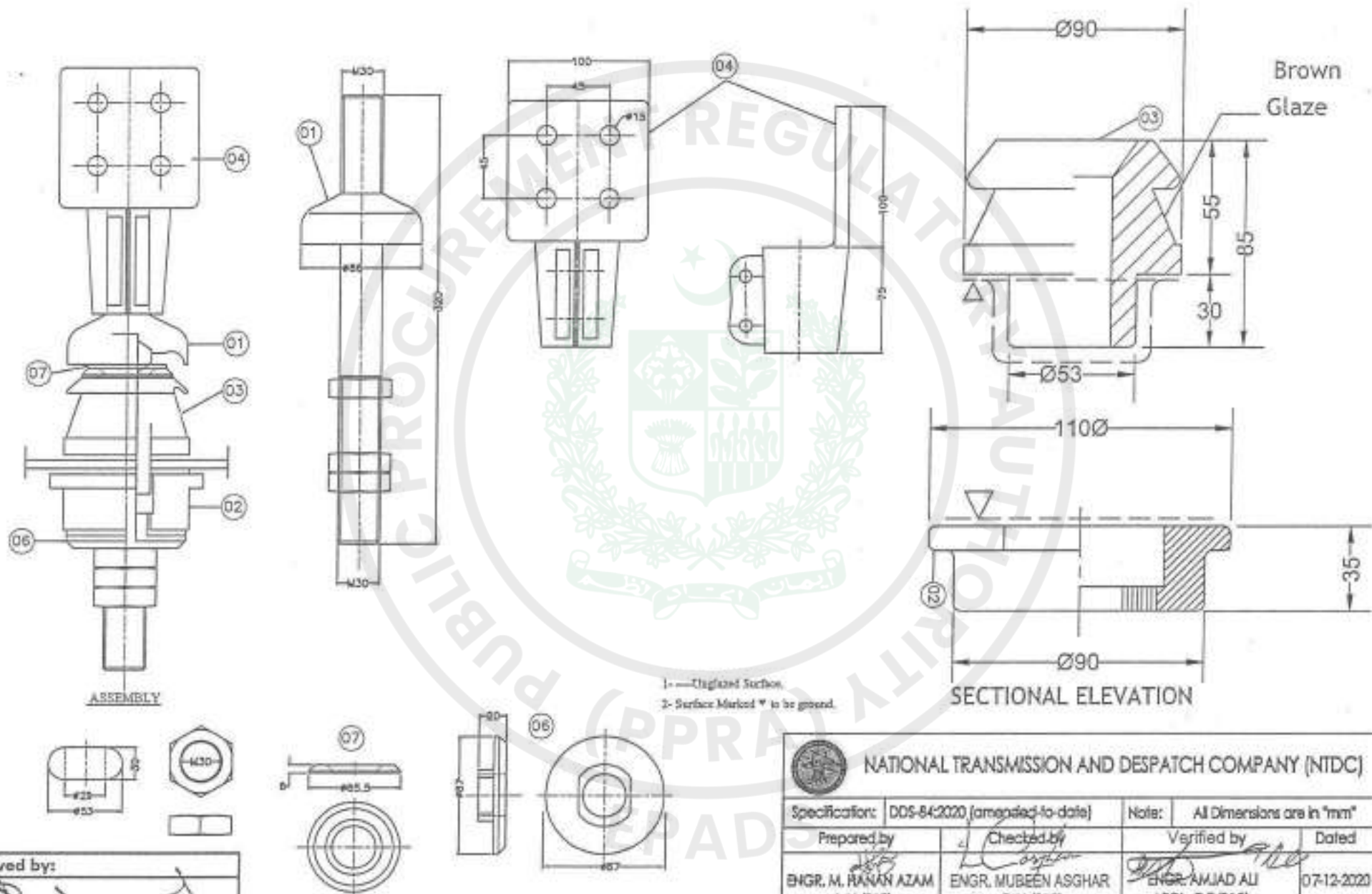


NATIONAL TRANSMISSION AND DESPATCH COMPANY (NTDC)

Specification:	DD5-84/2020 (amended-to-date)	Note:	All Dimensions are in "mm"
Prepared by	Checked by	Verified by	Dated
ENGR. MUHAMMAD AZAM A.M (S&S)	ENGR. MUBEEN ASGHAR D.M (S&S)	ENGR. AMJAD ALI ADDL. C.E (S&S)	07-12-2020
DRAWING TITLE	LT BUSHING 200KVA		
SCALE: NTS	DWG No.: S&S/DTF-LTB600/1	Revision	00

Approved by:

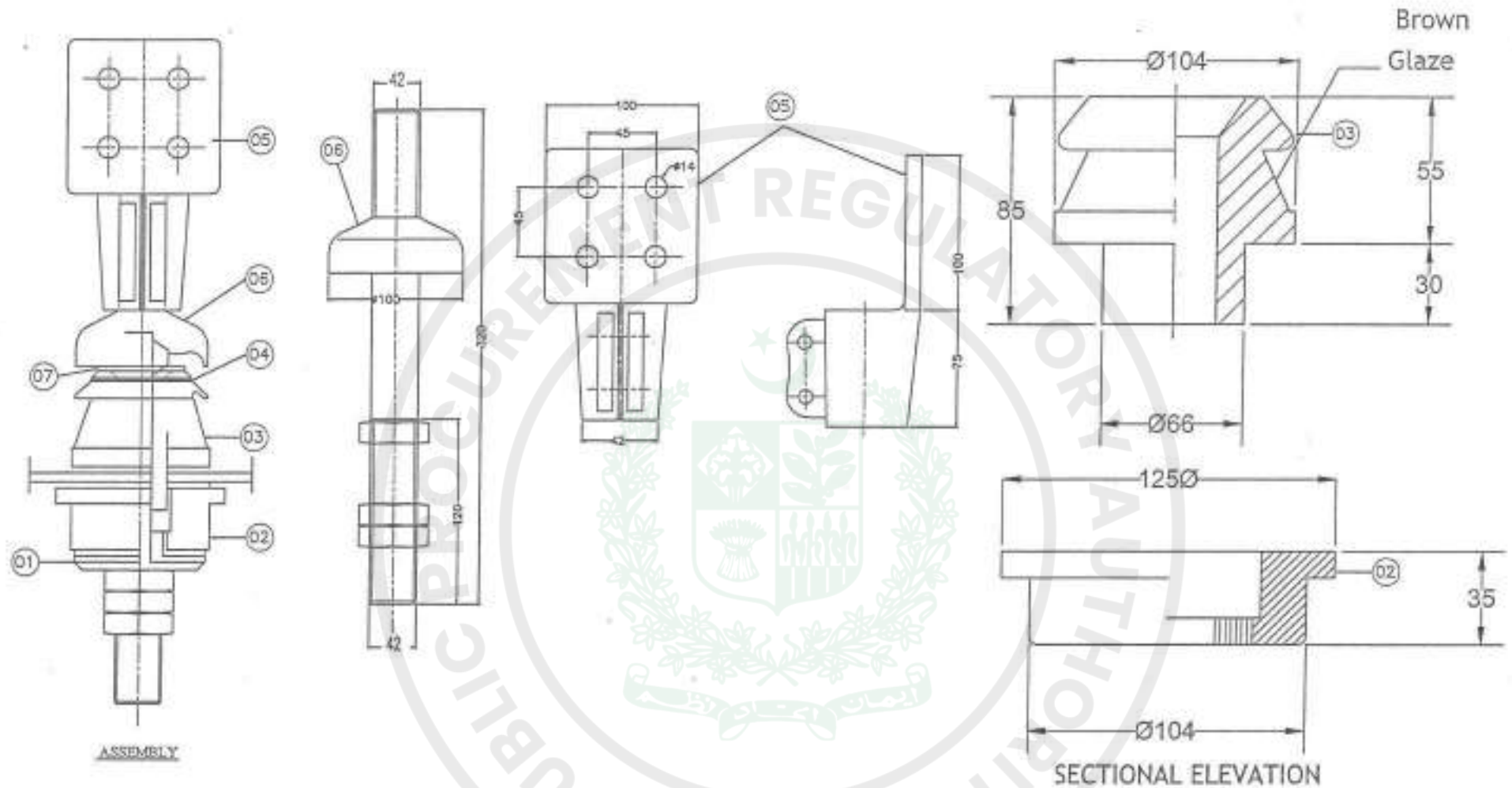
Engr. Muhammad Bakhsh Maher
Chief Engineer (S&S) NTDC



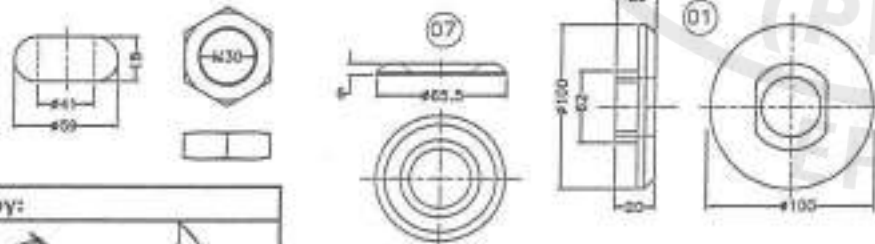
Approved by:

Engr. Muhammad Bakhsh Mahaar
Chief Engineer (S&S) NTDC

NATIONAL TRANSMISSION AND DESPATCH COMPANY (NTDC)			
Specification:	DOS-84:2020 (amended to date)	Note:	All Dimensions are in "mm"
Prepared by	Checked by	Verified by	Dated
ENGR. M. HANAN AZAM A.M (S&S)	ENGR. MUBEEN ASGHAR D.M (S&S)	ENGR. AMJAD ALI ADOL. C.E (S&S)	07-12-2020
DRAWING TITLE		LT Bushing for 315, 400 KVA transformers	
SCALE: NTS	DWG No: S&S/DTF-LTB1000	Revision	00



1- Unglazed Surface.
2- Surface Marked 'w' to be ground not finished



Approved by:

Engr. Muhammad Bakhsh Mahaar
Chief Engineer (S&S) NTDC

NATIONAL TRANSMISSION AND DESPATCH COMPANY (NTDC)			
Specification:	DD-84/2020 (amended to date)	Note:	All Dimensions are in "mm"
Prepared by	Checked by	Verified by	Dated
ENGR. M. HANAN AZAM A.M (S&S)	ENGR. MUBEN ASGHAR D.M (S&S)	ENGR. AJAZ ALI ADDL. C.E (S&S)	07-12-2020
DRAWING TITLE		LT Bushing for 630 kVA transformers	
SCALE: NTS	DWG No: S&S/DTF-LTB2000	Revision	00

Past Experience / Contracts

Contracts over <i>[insert amount]</i> during the last three years:				
Procuring Agency	Value	Year	Goods/Services Supplied	Country of Destination



Historical Contract Non-Performance, and Pending Litigation and Litigation History

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

☐ Not debarred due to deviation from commitment of Bid Securing Declaration- ☐ Not debarred due to non-performance			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and PKR equivalent)
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Reason(s) for nonperformance: <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>
Pending Litigation, in accordance with Section III, Qualification Criteria and Requirements			
☐ Pending litigation in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.3 as indicated below.			
Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), US\$ PKR Equivalent (exchange rate)

<i>[insert year]</i>	<i>[insert amount]</i>	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Agency" or "Supplier"]</i> Status of dispute: <i>[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]</i>	<i>[insert amount]</i>
☐ No consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4. ☐ Consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4 as indicated below.			
Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount (currency), PKR Equivalent (exchange rate)
<i>[insert year]</i>	<i>[insert percentage]</i>	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Agency" or "Supplier"]</i> Court/ arbitral award decision: <i>[Indicate if the award decision was against the Applicant or any member of a joint venture.]y]</i>	<i>[insert amount]</i>

Current Contract Commitments / Works in Progress

Bidders and each member to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments					
No.	Name of Contract	Employer's Contact Address, Tel, Fax	Value of Outstanding Work [Current Eq. PKR]	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [Eq. PKR/month]
1					
2					
3					
4					
5					

Financial Situation and Performance

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: [insert full name]

Date: [insert day, month, year]

Joint Venture Member Name: [insert full name]

IFP No. and title: [insert IFP number and title]

Page [insert page number] of [insert total number] pages

1. Financial data

Type of Financial information in (currency)	Historic information for previous [insert number] years, [insert in words] (amount in currency, currency, exchange rate*, PKR equivalent)				
	Year 1	Year 2	Year 3		
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					
Cash Flow from Operating Activities					

* Refer ITA 14 for the exchange rate

3. Financial documents

The Applicant and in case of JV, members of JV shall provide copies of financial statements for [number] years pursuant Section III, Qualifications Criteria and Requirements. The financial statements shall:

- (a) reflect the financial situation of the Applicant or in case of JV member, and not an affiliated entity (such as parent company or group member).
 - (b) be independently audited or certified in accordance with local legislation.
 - (c) be complete, including all notes to the financial statements.
 - (d) correspond to accounting periods already completed and audited.
- ☐ Attached are copies of financial statements¹ for the [number] years required above; and complying with the requirements.

¹ If the most recent set of financial statements is for a period earlier than 12 months from the date of Application, the reason for this should be justified.

Average Annual Turnover (Annual Sales Value)

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

Annual Turnover Data			
Year	Amount Currency	Exchange rate* (If applicable)	PKR equivalent
<i>[indicate calendar year]</i>	<i>[insert amount and indicate currency]</i>		
		Average Annual Turnover **	

* Refer ITA for date and source of exchange rate.

** Total PKR equivalent for all years divided by the total number of years. See Section III, Qualification Criteria and Requirements, ITA.