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Kenya Power

11kV SHUNT CAPACITORS – SPECIFICATION

A Document of the Kenya Power & Lighting Co. Plc.

January 2026

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0.1 CIRCULATION LIST

COPY NO.	COPY HOLDER
1	Manager, Standards
2	Electronic copy (pdf) on Kenya Power server (http://172.16.1.40/dms/browse.php?fFolderId=23)

REVISION OF KPLC STANDARDS

In order to keep abreast of progress in the industry, KPLC standards shall be regularly reviewed. Suggestions for improvements to approved standards, addressed to the Manager, Standards Department, are welcome.

0.2 AMENDMENT RECORD

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)
Issue 1, Rev 0	2026-01-28	New Issue	Eng. Benson Dianga	Eng. Faith Gicugu

FOREWORD

This Specification has been prepared by the Standards Department and System Protection all of The Kenya Power and Lighting Plc (KPLC) and it lays down requirements for 11kV Shunt capacitors.
It shall be the responsibility of the suppliers and manufacturers to ensure that the offered designs are of the highest quality and guarantees excellent service to KPLC, good workmanship and good engineering practice in the manufacture of the 11kV Shunt capacitors for KPLC.
There are no other specifications in this series.

Users of this KPLC specification are responsible for its correct interpretation and application.

The following are members of the team that developed this specification:

Name	Department
Samuel Gathege	System Protection
Zacheus Oluoch	Electrical Plant
John Muchoki	System Protection
Benson Dianga	Standards

1. SCOPE

1.1 This specification covers the design, manufacture, and quality assurance of 11kV shunt capacitors, including the submission of a completed and signed Schedule of Guaranteed Technical Particulars **(GTPs)** by the manufacturer for tender evaluation and technical compliance assessment.

1.2 The specification defines the minimum technical, performance, and quality requirements for 11kV shunt capacitors acceptable for use by The Kenya Power & Lighting Company Plc (KPLC). The supplier shall be fully responsible for ensuring the adequacy of the design, compliance with this specification, adherence to applicable IEC standards and statutory regulations, and implementation of good engineering practice and high standards of workmanship.

1.3 The scope further includes the assembly, supply, delivery, installation, testing, commissioning, and maintenance support of the 11kV shunt capacitors, together with the submission of all required technical data and GTP schedules for approval prior to manufacture and acceptance. The specification does not purport to include all the necessary provisions of a contract.

1.4 This specification covers types given in clause 4.3

The type required will be stated in the schedule of requirements in the tender

2. NORMATIVE REFERENCES

The following standards contain provisions, which, through reference in this text, constitute provisions of this specification. For dated editions, the cited edition shall apply. For undated editions, the latest edition of the referenced document shall apply.

IEC 60871-1: Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V – Part 1: General

IEC 60871-2: Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V – Part 2: Endurance testing

IEC 60871-3: Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V – Part 3: Internal fuses

IEC 60871-4: Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V – Part 4: Internal fuses for capacitor units

IEC 60296: Fluids for electrotechnical applications – Mineral insulating oils for electrical equipment

IEC/ISO 17025: General requirements for the competence of testing and calibration laboratories

ISO 1461: Hot dip galvanized coatings on fabricated iron and steel articles – Specifications and test methods

IEC 60529: Degrees of protection provided by enclosures (IP Code)

IEC/TS 60815-1: Selection and dimensioning of high-voltage insulators intended for use in polluted conditions – Part 1: Definitions, information and general principles

IEC 60417: Graphical symbols for use on equipment

IEC 60071-1: Insulation coordination – Part 1: Definitions, principles and rules

IEC 60071-2: Insulation coordination – Part 2: Application guidelines

3. DEFINITIONS AND ABBREVIATIONS

For the purpose of this specification the definitions given in the reference standards shall apply.

4. REQUIREMENTS

4.1 SERVICE CONDITIONS

4.1.1 Site Conditions.

The shunt capacitors shall be suitable for continuous outdoor operation in tropical areas inland, cities and suburbs of cities, along the coast and with the following conditions:

i. Altitude: Up to 2,200 metres above sea level.
ii. Temperature: Average of +30°C with a minimum of -1°C and max +40°C
iii. Humidity: Up to 95%
iv. Pollution: Design pollution level to be taken as "Very Heavy?' (Pollution level according to IEC 60815
v. Isokeraunic level: 180 Thunderstorm days per year

4.1.2 System Conditions

The shunt capacitors will be connected to overhead system operating at a nominal voltage of 11kV with maximum system voltage (highest voltage for equipment) of 12kV, 50Hz and exposed to overvoltage of atmospheric origin.

4.2 MATERIAL DESIGN AND CONSTRUCTION

4.2.1 The shunt capacitors shall be designed, manufactured and tested to IEC 60871-1 and the requirements of this specification.

4.2.2 All materials used shall be new and of the best quality and of the class most suitable for working under the conditions specified and shall withstand the variations of temperatures and atmospheric conditions arising under working conditions without undue distortion or deterioration or the setting up of undue stresses in any part, and also without affecting the strength and suitability of the various parts for the work which they have to perform.

4.2.3 The design shall ensure satisfactory operation under such sudden variations of load and voltage as may be met with under working conditions on the system, including those due to short circuits.

4.2.4 All parts of the shunt capacitors, including insulators with their mountings, shall be designed so as to avoid pockets in which water can collect.

4.2.5 The shunt capacitors shall be outdoor; polypropylene film impregnated with non-PCB fluid and hermetically sealed type. The insulator portion of the shunt capacitors can shall be made of high-grade porcelain.

4.2.6 The shunt capacitors shall be suitable for vertical installation on a steel structure.
4.2.7 All parts and components of the shunt capacitors shall be resistant to atmospheric corrosion.
4.2.8 The shunt capacitors shall have primary, and earth terminals.

4.2.9 Primary Terminal

4.2.9.1 The primary terminal shall be of high conductivity copper, tin-plated, suitable for connection of both copper and aluminum conductors.

4.2.9.2 It shall have palm clamp connectors suitable for both stranded conductor and tube connection. Conductor overall diameter shall be 18.3mm to 25mm and bus bar tubes of 76.2mm diameter.

4.2.9.3 The shunt capacitors shall be complete with protection fuses and discharge resistors.

4.2.9.4 The shunt capacitors shall be designed and constructed to withstand without damage, when energized at rated voltage, the mechanical and thermal effects of an external short-circuit for the duration of 3s.

4.2.9.5 The shunt capacitors shall have ratings as per clause 4.3.

4.3 Ratings

The ratings of the shunt capacitors shall be as indicated in Table 1.

Table 1

Specification Description	Parameters
Nominal primary rated voltage	11000/√3 volts
Reactive Power Rating (Kvar)	460-470
Capacitance	29-35μF
Rated Frequency	50 Hz
Capacitance tolerance	±5%
Dielectric loss factor	<0.5 W/kvar
Minimum creepage distance of insulator	341mm
Minimum lightening impulse withstand voltage	95kV peak
Minimum power frequency withstand voltage	28kV (r.m.s.)
Rated short circuit withstand	31.5 kA, 3 s
Maximum allowable overvoltage	1.1Un
Maximum allowable overcurrent	1.3 In
Temperature Class	Up to 55°C
Dielectric Type	polypropylene film impregnated with non-PCB fluid
Protection	Internal / external fuses
Self-discharge characteristic of built-in discharge resistor after power disconnection	<75V within 5 minutes
Rated voltage factor	1.2 Continuous

Specification Description		Parameters
		1.5 for 30 sec.
Permissible partial discharges (PD)	PD test voltage r.m.s = Um	≤10 pC
	PD test voltage r.m.s = 1.2Um/ √3	≤5 pC

Notes:
The shunt capacitors unit shall be installed at altitude of 2200m ASL and if tests will be carried out at altitudes below 1000m, the limits of temperature rise given in Table 1 above shall be reduced by 0.4% for each 100m that the altitude at the operating site exceeds 1000m

5.0 TESTS AND INSPECTION

5.1 The shunt capacitors units shall be inspected and tested in accordance with the requirements of this specification and IEC 60871-1. It shall be the responsibility of the supplier to perform or to have performed the tests specified.

5.2 Copies of previous Type Test Certificates and Type Test Reports issued by a third party testing laboratory that is accredited to ISO/IEC 17025 shall be submitted with the tender for the purpose of technical evaluation. The accreditation certificate for the third party testing laboratory shall also be submitted with the tender (all in English Language).Copies of Type Test Reports to be submitted shall include the following tests as per IEC 60871-1 & IEC 60871-2:

a) Temperature rise test; Thermal stability test Ensures the shunt capacitors can operate continuously at rated voltage and current without overheating or thermal runaway

b) Short-circuit withstand capability test; Short-circuit discharge test Tests mechanical and electrical robustness when subjected to fault conditions

c) Lightning impulse test (with both positive and negative polarity — fifteen consecutive impulses of each polarity); Impulse voltage test Simulates lightning strikes or switching surges to confirm dielectric strength against transient overvoltages

d) Wet test for outdoor type shunt capacitors-.

e) Determination of errors; Loss angle (tan δ) measurement at elevated temperature Checks dielectric losses when the shunt capacitors is heated, confirming efficiency and insulation integrity

f) Discharge test Verifies that built-in discharge devices safely reduce residual voltage to protect operators and equipment

g) Determination of errors; Loss angle (tan δ) measurement at elevated temperature Checks dielectric losses when the shunt capacitors is heated, confirming efficiency and insulation integrity

h) Overvoltage cycling test (Moved to IEC 60871-2 in later editions) Assesses endurance under repeated overvoltage stresses.

i) Type tests on fuses chosen and used for shunt capacitors overcurrent protection

5.3 Routine test reports for the shunt capacitors units to be supplied shall be submitted to KPLC for approval before shipment/delivery of the goods. KPLC Engineers will witness tests at the factory before shipment.

Tests to be witnessed by KPLC Engineers at the factory shall be in accordance with IEC 60871-1 and shall include the following:

a) Verification of terminal markings;

b) Power-frequency withstand test

c) Partial discharge measurement;

d) Test of internal discharge device: Confirms resistors safely discharge residual voltage.

e) AC voltage test between terminals and container: Ensures insulation between live parts and casing.

f) Voltage test between terminals: Verifies insulation strength across terminals.

g) Loss angle (tan δ) measurement: Checks dielectric losses to ensure efficiency.

h) Capacitance measurement: Confirms rated capacitance is within tolerance.

i) Sealing test: Ensures hermetic sealing against moisture ingress.

j) Over current tests on effectiveness of the protection fuses installed on shunt capacitors

k) Visual inspection of complete shunt capacitors unit.

5.4 Upon delivery of the shunt capacitors units, KPLC will inspect them and may perform or have performed any of the relevant tests in order to verify compliance with the specification. The supplier shall replace/rectify without extra or additional charge to KPLC, shunt capacitors units which upon examination, test or use fail to meet any of the requirements in the specification

6.0 MARKING AND PACKING

6.1 Marking

6.1.1 The shunt capacitors units shall be fitted with a permanent rating plate indicating the following:

a) The manufacturer's name or identification mark;

b) Year of manufacture

c) The type reference number and serial number;

d) The rated primary voltage;

e) The rated frequency (50Hz);

f) The rated reactive power capacity (kvar)

g) Rated capacitance (uF)

h) Rated capacitance tolerance

i) The highest system voltage (12kV);

j) The rated insulation level (28kV (rms)/95kVp);

k) The class of insulation;

l) The short-time current ratings and time;

m) Rated temperature

All the marking shall be by engraving (or superior method) and shall be permanent and legible.

6.1.2 The terminals shall be marked clearly and indelibly and in accordance with IEC 60871-1.

6.2 Packing

The shunt capacitors units shall be delivered packed in wooden crates firmly bound together to avoid damage during transportation and storage

APPENDICES

A. TESTS AND INSPECTION (Normative)

A.1. The 11kV shunt capacitor units shall be inspected and tested in compliance with IEC 60871-1 Type test certificates for all tests required under IEC 60871-1 shall be submitted with the tender, demonstrating compliance with dielectric strength, thermal stability, short-circuit withstand, and discharge requirements. The type test Certificates shall be from an independent ISO/IEC 17025 accredited laboratory

A.2. Copies of Type Test Certificates & Type Test Reports issued by a third party testing laboratory that is accredited to ISO/IEC 17025 shall be submitted with the tender for the purpose of technical evaluation. A copy of the accreditation certificate to ISO/IEC 17025 for the testing laboratory shall also be submitted. Any translations of certificates and test reports into English language shall be signed and stamped by the Testing Laboratory that carried out the tests.

A.3. The Routine tests shall be as per IEC 60871-1 and shall be carried out on each capacitor unit .The following routine tests shall be performed and certified reports submitted:

a) Capacitance and dielectric loss (tan δ) measurement

b) Power-frequency voltage test between terminals

c) Power-frequency voltage test between terminals and earth

d) Discharge device verification

e) Sealing / leak test (for oil-filled units, if applicable)

A.4. KPLC shall have the right to witness the FAT at the manufacturer's works. FAT shall include visual inspection, mechanical checks, and verification of routine tests for compliance with IEC 60871-1.No unit shall be dispatched without successful completion of FAT and written authority for dispatch.

A.5. The 11kV Shunt Capacitor units shall be coordinated with 11 kV vacuum capacitor switches, ensuring the short-time withstand current rating (3 s) of the switch meets or exceeds the prospective fault current at the installation point. The switch and capacitor bank shall be capable of safe operation under rated switching, overvoltage, and fault conditions as per IEC 62271 series.

A.6. All test reports, FAT records, type test certificates, and technical documentation shall be provided in English. Documentation shall include ratings, serial numbers, and manufacturer's declaration of conformity with IEC 60871-1.

APPENDIX B: QUALITY MANAGEMENT SYSTEMS.

B.1. The 11kV shunt capacitor manufacturer shall submit a quality assurance plan (QAP) that will be used to ensure that the shunt capacitors design, material, workmanship, tests, service capability, maintenance and documentation, will fulfill the requirements stated in the contract documents, standards, specifications and regulations. The QAP shall be based on and include relevant parts to fulfill the requirements of ISO 9001:2015.

B.2. The Manufacturer's Declaration of Conformity to applicable standards and copies of quality management certifications including copy of valid and relevant ISO 9001 : 2015 certificate shall be submitted with the tender for evaluation.

B.3. The bidder shall indicate the delivery time of the shunt capacitors units, manufacturer's monthly & annual production capacity and experience in the production of the type and size of items being offered.

B.4. The bidder shall provide a detailed list & contact addresses (including e-mail) of the manufacturer's previous customers for similar type of shunt capacitors units sold in the last five years as well as reference letters from at least four of the customers shall be submitted with the tender for evaluation.

APPENDIX C: DOCUMENTATION

C.1. The bidder shall submit its tender complete with technical documents required by **Appendix D** (Guaranteed Technical Particulars) for tender evaluation. The technical documents to be submitted (all in English language) for tender evaluation shall include the following:

a) Guaranteed Technical Particulars;
b) Copies of the Manufacturer's catalogues, brochures, drawings and technical data;
c) Letter of Warranty by the manufacturer

d) Letter of Authorization by the manufacturer
e) Sales records for the last five years and at least four customer reference letters;
f) Details of manufacturing capacity and the manufacturer's experience;
g) Copies of required type test reports by a third party testing laboratory accredited to ISO/IEC 17025;
h) Copy of accreditation certificate for the testing laboratory.

C.2. The successful bidder (supplier) shall submit the following documents/details to The Kenya Power & Lighting Company for approval before manufacture:

a) Guaranteed Technical Particulars,
b) Design Drawings with details of shunt capacitors to be manufactured for KPLC,
c) Quality assurance plan (QAP) that will be used to ensure that the design, material , workmanship, tests, service capability, maintenance and documentation will fulfil the requirements stated in the contract documents, standards, specifications and regulations. The QAP shall be based on and include relevant parts to fulfil the requirements of ISO 9001 :2015
d) Detailed test program to be used during factory testing,
e) Marking details and method to be used in marking the shunt capacitors,
f) Manufacturer's undertaking to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the shunt capacitors for The Kenya Power & Lighting Company
g) Packaging details (including packaging materials and their dimensions).
h) Statement of Deviation to the specified design

C.3. A set of three (3) original hard cover installation and technical manuals for the shunt capacitors shall be supplied with the equipment during delivery.

C.4. Other details required that shall be supplied with the equipment are

i. Weight of completely assembled shunt capacitors
ii. Material of outer casing / tank (to suit stated service conditions)
iii. Deviations from tender specifications (indicate supporting documents submitted)

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APPENDIX D : GUARANTEED TECHNICAL PARTICULARS (Normative)

To be filled and signed by the Manufacturer and submitted together with relevant copies of the Manufacturer's catalogues, brochures, drawings, technical data, sales records for previous five years, four customer reference letters, details of suppliers' capacity and experience; and copies of complete type test certificates and test reports for tender evaluation, all in English Language)

Tender No. .....

Bidder's name and Address.....

Clause Number	Description	Bidder's Offer (indicate details of the capacitor unit offered)
	Name of the Manufacturer, address and Country of manufacturer	State
	Name & address of Bidder	State
	Type/Model Number offered	State
1.	Scope	State
	It shall be the responsibility of the supplier to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the shunt capacitors for The Kenya Power & Lighting Company	State
2	Applicable Standards	State
3	Terms and Definitions	State
4.0	**REQUIREMENTS**	
4.1.1	Site Conditions	State
4.1.2	System Conditions	State
4.2	**MATERIAL DESIGN AND CONSTRUCTION**	
4.2.1	Design Standard	Specify
4.2.2	Materials	Specify
4.2.3	Variations of load & voltage design	Specify
4.2.4	Rain water management	Specify
4.2.5	Outdoor, polypropylene film impregnated with non-PCB fluid & hermetically sealed type	Specify
	Insulator portion of porcelain	Specify
4.2.6	Vertical installation on a steel structure	Specify
4.2.7	All parts & components to be corrosion resistant	Specify
4.2.8	Primary, and earth terminals	Specify
4.2.9	**Primary Terminals**	

Clause Number	Description		Bidder's Offer (indicate details of the capacitor unit offered)
4.2.9.1	Primary terminal to be high conductivity copper, tin plated		Specify
4.2.9.2	Primary terminal to have palm clamp connector		Specify
4.2.9.3	clamp suitable for conductor overall diameter of 18.3mm to 25mm and tubes of 76.2mm diameter		Specify
	The shunt capacitors assembly shall be complete with protection fuses and discharge resistors		Specify
4.2.9.4	Short-circuit withstand, 3 s		
4.3	**RATINGS**		
a	Nominal Primary Voltage		Specify
b	Reactive power rating		Specify
c	Capacitance		Specify
d	Rated Frequency		Specify
e	Dielectric loss factor		Specify
f	Minimum Creepage Distance of Insulator		Specify
g	Lightning impulse withstand voltage on primary (kV_P)		Specify
h	Power frequency withstand voltage, primary winding, r.m.s, dry		Specify
i	Rated short circuit withstand		Specify
j	Dielectric type		Specify
k	Protection Fuses (Internal or External)		Specify
l	Temperature class		Specify
m	Self-discharge characteristics of built in discharge resistors		Specify
n	Rated Voltage Factor	Continuous	Specify
		30 seconds	Specify
o	Permissible partial discharges (PD)	PD test voltage (rms) = Um	Specify
		PD test voltage (rms)=$1.2U_m/\sqrt{3}$	Specify
5.0	**TEST AND INSPECTION**		
5.1	Test Standard		State
	Responsibility of testing of shunt capacitors & manufacturer's capability to test		State
5.2	Copies of type test reports to IEC 60871-1 submitted with tender for evaluation. The test report shall be of : a) Temperature rise test;		Provide

Clause Number	Description	Bidder's Offer (indicate details of the capacitor unit offered)
	b) Short-circuit withstand capability test; c) Lightning impulse test (with both positive and negative polarity — fifteen consecutive impulses of each polarity); d) Wet test for outdoor type shunt capacitors-. e) Determination of errors; Loss angle (tan δ) measurement at elevated temperature Checks dielectric losses when the shunt capacitors is heated, confirming efficiency and insulation integrity f) Discharge test Verifies that built-in discharge devices safely reduce residual voltage to protect operators and equipment g) Determination of errors; Loss angle (tan δ) measurement at elevated temperature Checks dielectric losses when the shunt capacitors is heated, confirming efficiency and insulation integrity h) Overvoltage cycling test (Moved to IEC 60871-2 in later editions) Assesses endurance under repeated overvoltage stresses. i) Sealing test: Ensures hermetic sealing against moisture ingress. j) Type tests on fuses chosen and used for shunt capacitors overcurrent protection	

Clause Number	Description		Bidder's Offer (indicate details of the capacitor unit offered)
5.3	Tests to IEC 60871-1 to be carried out during Factory Acceptance Testing: a) Verification of terminal markings; b) Power-frequency withstand tests c) Partial discharge measurement; d) 5.3.4 Test of internal discharge device: Confirms resistors safely discharge residual voltage. e) AC voltage test between terminals and container: Ensures insulation between live parts and casing. f) Voltage test between terminals: Verifies insulation strength across terminals. g) Loss angle (tan δ) measurement: Checks dielectric losses to ensure efficiency. h) Capacitance measurement: Confirms rated capacitance is within tolerance. i) Sealing test: Ensures hermetic sealing against moisture ingress. j) Over current tests on effectiveness of the protection fuses installed on shunt capacitors k) Visual inspection of complete shunt capacitors		List
5.4	Inspection and test by KPLC during delivery by supplier before acceptance to stores		
6.0	**MAKING AND PACKING**		
6.1	Marking	List of Items to be marked to include those required by clause 6.1 of this specification	Provide
		Method of marking to ensure it is permanent and legible	State Compliance
		6.1.2 The terminals shall be marked clearly and indelibly and in accordance with IEC 60871-1.	State Compliance
6.2	Packing	Each shunt capacitors shall be packed in wooden crate firmly bound together to avoid damage during transportation and storage	State Compliance
APPENDICES			
	APPENDIX A: TESTS AND INSPECTION (Normative)		
A.1	Inspection and tests of the 11kV shunt capacitor units shall be in compliance with IEC 60871-1 .Type test certificates for all tests required under IEC 60871-1 shall be submitted with the tender, to		Provide

Clause Number	Description	Bidder's Offer (indicate details of the capacitor unit offered)
	demonstrate compliance with dielectric strength, thermal stability, short-circuit withstand, and discharge requirements. The type test Certificates shall be from an independent ISO/IEC 17025 accredited laboratory	
A.2	Submission of Copies of Type Test Certificates & Type Test Reports issued by a third party testing laboratory that is accredited to ISO/IEC 17025 shall be submitted with the tender for the purpose of technical evaluation. A copy of the accreditation certificate to ISO/IEC 17025 for the testing laboratory shall also be submitted.	State Compliance
A.3	The Routine tests as per IEC 60871-1 to be carried out on each capacitor unit including; a) The Capacitance and dielectric loss (tan δ) measurement b) Power-frequency voltage test between terminals c) Power-frequency voltage test between terminals and earth d) Discharge device verification e) Sealing / leak test (for oil-filled units, if applicable)	State Compliance
A.4	FAT at the manufacturer's works.	State compliance
A.5	Coordination with 11kV vacuum capacitor switches, to ensure the short-time withstand current rating (3 s) of the switch meets or exceeds the prospective fault current at the installation point. Safe operation under rated switching, overvoltage, and fault conditions as per IEC 62271 series.	
A.6	FAT records, type test certificates, and technical documentation in English. Inclusions in the documentations conformity with IEC 60871-1	State
	APPENDIX B: QUALITY MANAGEMENT SYSTEMS.	
B1	The 11kV shunt capacitor manufacturer to Submit Quality Assurance Plan (QAP) to be used to ensure that the shunt capacitors design, material, workmanship, tests, service capability, maintenance and documentation, will fulfill the requirements stated in the contract documents, standards, specifications and regulations. The QAP shall be based on and include relevant parts to fulfill the requirements of ISO 9001:2015.	State compliance

Clause Number	Description	Bidder's Offer (indicate details of the capacitor unit offered)
B2	The Manufacturer's Shall submit a Declaration of Conformity to applicable standards through a copy of Quality Management Certifications including copy of valid and relevant ISO 9001: 2015 certificate. The certifications shall be submitted with the tender for evaluation.	Submit
B3	The bidder shall indicate the delivery time of the shunt capacitors units, manufacturer's monthly & annual production capacity and experience in the production of the type and size of items being offered.	Submit
B4	The bidder shall provide a detailed list & contact addresses (including e-mail) of the manufacturer's previous customers for similar type of shunt capacitors units sold in the last five years as well as reference letters from at least four of the customers shall be submitted with the tender for evaluation.	Provide
	APPENDIX C: DOCUMENTATION.	
C1	The bidder shall submit its tender complete with technical documents required in the list below i) Guaranteed Technical Particulars; j) Copies of the Manufacturer's catalogues, brochures, drawings and technical data; k) Letter of Warranty by the manufacturer l) Letter of Authorization by the manufacturer m) Sales records for the last five years and at least four customer reference letters; n) Details of manufacturing capacity and the manufacturer's experience; o) Copies of required type test reports by a third party testing laboratory accredited to ISO/IEC 17025;	List

Clause Number	Description	Bidder's Offer (indicate details of the capacitor unit offered)
C.2	The successful bidder (supplier) shall submit the following documents/details to The Kenya Power & Lighting Company for approval before manufacture: i) Guaranteed Technical Particulars, j) Design Drawings with details of shunt capacitors to be manufactured for KPLC, k) Quality assurance plan (QAP) that will be used to ensure that the design, material ,workmanship, tests, service capability, maintenance and documentation will fulfil the requirements stated in the contract documents, standards, specifications and regulations. The QAP shall be based on and include relevant parts to fulfil the requirements of ISO 9001 :2015 l) Detailed test program to be used during factory testing, m) Marking details and method to be used in marking the shunt capacitors, n) Manufacturer's undertaking to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the shunt capacitors for The Kenya Power & Lighting Company o) Packaging details (including packaging materials and their dimensions). p) Statement of Deviation to the specified design	List
C.3	A set of three (3) original hard cover installation and technical manuals for the shunt capacitors shall be supplied with the equipment during delivery	Provide
C.4	Weight of complete shunt capacitors, kg	State
	Material of outer casing / tank (to suit stated service conditions)	State
	Weight of fluid, kg	State
	Deviations from tender specifications (indicate supporting documents submitted)	State

NOTE:

1) Bidders shall give full details of the item(s) on offer as per the specification and applicable standards. The details provided shall conform to the test reports and their certificates, as well as labeled drawings complete with dimensions, catalogues and/or brochures for the purpose of tender evaluation.

2) Bidders should note that the above Guaranteed Technical Particulars Schedules must be fully completed and submitted with the bid. Wherever there is conflict between the GTPs and the clauses in the specification, the clauses in the specification take precedence. Failure to complete the schedules shall lead to rejection of the bid.

3) Guaranteed values shall be specified.

** Words like 'agreed', 'confirmed', 'As per KPLC specifications', Yes, etc. shall not be accepted and shall be considered non-responsive.*

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Manufacturer's Name, Signature, Stamp and Date