DOCUMENT NO.: KP1/7B.2/TSM/ST/09/017-1

Kenya Power

SPECIFICATION FOR POLY-DACRON, POLYPROPYLENE AND COMPOSITE BRAIDED ROPES FOR LIVE-LINE WORK

A Document of the Kenya Power & Lighting Plc

OCTOBER, 2026

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Head of Section: Sub-Transmission, Central office	Head of Department: Transmission, Central office
Signed:	Signed:
Date: 2026-10-19	Date: 2026/10/19

0.1 Circulation List

Copy No.	Copy Holder
1	Manager, Transmission
2	Senior Engineer, Sub-transmission

REVISION OF KPLC STANDARDS

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.

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Head of Section: Sub-Transmission, Central office	Head of Department: Transmission, Central office
Signed:	Signed:
Date: 2026-10-19	Date: 2026/10/19

0.2 Amendment Record

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)
0	2026-10-19	New issue	Eng. Alistair Akute	Eng. George Korir

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0.3 Foreword

This specification has been prepared by the Standards Department in collaboration with the Transmission Department and the Live Line Section of The Kenya Power and Lighting Company Plc. The specification lays down requirements for Poly-Dacron, Polypropylene and Composite Braided Ropes for Live-Line Work. It is intended for use by KPLC to procure ropes that live-line teams use as hand lines, bull lines, stringing lines and tool ropes on energised overhead lines. The principal item is the 3/4 in (19 mm) composite braided rope of 64.5 kN (14,500 lb) tensile strength, supplied in coils on wooden reels.

Live-line working avoids planned outages, which shortens the time customers are without supply and improves network performance indices such as SAIDI (System Average Interruption Duration Index). Where a rope is used to hoist tools or position conductors close to energised parts, it forms part of the insulation between the lineman and the live part. A rope that is dirty, wet, damaged or of poor quality can carry leakage current or break under load, with fatal consequences for the crew.

Poly-dacron (polyester) rope is a flexible synthetic rope with good dielectric properties and high resistance to mildew, rot and chemical damage. Polypropylene rope is light and moisture resistant, with good dielectric strength, but water held between the strands is a definite hazard. Composite braided rope has polyester fibres plied over polyolefin fibres in each of 12 braided strands, giving low stretch, high strength for its weight and good grip on capstans. This specification therefore stipulates the minimum requirements for the construction, strength, dielectric performance, packing, testing and documentation of live-line ropes that are acceptable for use on the KPLC power network.

It shall be the responsibility of the suppliers and manufacturers to ensure adequacy of the design, good workmanship and good engineering practice in the manufacture of the live-line rope.

Users of Kenya Power specifications are responsible for their correct interpretation and application.

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

Name	Department	Signature	Date
Nicodemus Otore	Transmission		19/10/2026
Callen Buruchara	Distribution / Live Line		19/10/2026

Head of Section: Sub-Transmission, Central office	Head of Department: Transmission, Central office
Signed:	Signed:
Date: 2026-10-19	Date: 2026/10/19

1. SCOPE

1.1 This specification covers technical requirements for poly-dacron (Type 1), polypropylene (Type 2) and composite braided (Type 3) ropes, in the sizes in Table 1, that shall be used by KPLC live-line teams on energised overhead lines of 66 kV to 220 kV. The ropes shall be supplied in standard 600 ft (183 m) coils on wooden reels. The principal item is the 3/4 in (19 mm) Type 3 rope of 64.5 kN (14,500 lb) tensile strength.

1.2 The specification covers requirements for design, inspection and tests, packing, warranty and training for the live-line ropes.

1.3 Brand names or catalogue numbers referred to in this specification are intended to be descriptive only and not restrictive. The Tenderer may adopt higher standards, brand names, and or catalogue numbers in its Tender, provided that it demonstrates to KPLC's satisfaction that the substitutions ensure equivalence to the requirements.

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 will apply; for undated editions the latest edition of the referenced document shall apply.

Standard	Title
ASTM F1701	Unused polypropylene rope with special electrical properties
CI 1201	Cordage Institute – Fiber Rope, General Standard
IEC 60060-1	High-voltage test techniques – Part 1: General definitions and test requirements
IEC 60815	Selection and dimensioning of high-voltage insulators intended for use in polluted conditions
IEC 61477	Live working – Minimum requirements for the utilization of tools, devices and equipment
IEEE 978	Guide for in-service maintenance and electrical testing of live-line tools
ISO 1141	Fibre ropes – Polyester – 3-, 4-, 8- and 12-strand ropes
ISO 1346	Fibre ropes – Polypropylene split film, monofilament and multifilament and polypropylene high-tenacity multifilament, 3-, 4-, 8- and 12-strand ropes
ISO 1968	Fibre ropes and cordage – Vocabulary
ISO 2307	Fibre ropes – Determination of certain physical and mechanical properties
ISO 4892-2	Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps
ISO 9001	Quality Management Systems – Requirements
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories

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ISO 1346	Fibre ropes – Polypropylene split film, monofilament and multifilament and polypropylene high-tenacity multifilament, 3-, 4-, 8- and 12-strand ropes
ISO 1968	Fibre ropes and cordage – Vocabulary
ISO 2307	Fibre ropes – Determination of certain physical and mechanical properties
ISO 4892-2	Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps
ISO 9001	Quality Management Systems – Requirements
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories

Composite braided rope: a round, 12-strand braided rope in which each strand has polyester fibres plied over polyolefin fibres.

Handline, bull line and stringing line: a handline is a light rope for hoisting tools and for hand pulling; a bull line and a stringing line are heavier ropes used to pull or string conductors and pulling lines.

Tensile strength: the force at which a new, dry, unspliced rope breaks when tested in accordance with ISO 2307.

Working load limit (WLL): the maximum load that the rope may carry in service, as given in Table 1, and in any case not more than one-fifth of the minimum tensile strength for composite braided rope.

Effective insulating length: the length of dry, clean rope between the conductive part to which it is attached and the nearest conductive part, person or earthed object, that provides the required dielectric isolation.

Minimum approach distance (MAD): the minimum air gap or summation of air gaps measured between any part of the operator and the energised electrical apparatus.

4. REQUIREMENTS

4.1 Service Conditions

4.1.1 The live-line rope shall be suitable for outdoor use in tropical areas and in harsh climatic conditions including areas exposed to:

a) Altitudes of up to 2200 m above sea level;
b) Humidity of up to 90%;
c) Average ambient temperature of +30 °C with a minimum of -1 °C and a maximum of +40 °C;
d) Isokeraunic levels of up to 180 thunderstorm days per year;
e) Pollution (IEC 60815) Very Heavy: Class IV;
f) Heavy saline conditions along the coast.

4.1.2 The ropes shall be suitable for use on 66 kV, 132 kV and 220 kV overhead lines at 50 Hz. The network voltage on which the rope will be used shall be specified for each tender.

4.2 Design and Construction

4.2.1 The ropes shall be designed, manufactured and tested in accordance with ISO 1141 (polyester), ISO 1346 (polypropylene) as applicable, ISO 2307, CI 1201, IEC 61477, IEEE 978 and this specification. Ropes of equivalent construction from other manufacturers may be offered, provided that they meet or exceed every value in this specification and in Table 1.

4.2.2 The ropes shall be of the following types:

a) Type 1, poly-dacron (PD): three-strand laid rope of flexible synthetic polyester fibres, with high resistance to mildew, rot and chemical damage (Table 1, items 1 and 2);
b) Type 2, polypropylene (PP): three-strand laid rope of polypropylene, light and moisture resistant (Table 1, items 3 and 4);

Standard	Title
OSHA 29 CFR 1910.269	Electric power generation, transmission and distribution (minimum approach distances)

3. DEFINITIONS AND ABBREVIATIONS

For the purpose of this specification, the definitions and abbreviations given in the reference standards (including ISO 1968) shall apply together with the following.

3.1 Abbreviations

Abbreviation	Meaning
ASTM	American Society for Testing and Materials
CI	Cordage Institute
ft	Foot
GTP	Guaranteed Technical Particulars
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
ISO	International Organization for Standardization
Kg	Kilogram
kN	Kilonewton
KPLC	Kenya Power and Lighting Company Plc
kV	Kilovolt
lb	Pound (force)
MAD	Minimum Approach Distance
OSHA	Occupational Safety and Health Administration
PD	Poly-dacron (polyester)
PP	Polypropylene
QAP	Quality Assurance Plan
SAIDI	System Average Interruption Duration Index
UV	Ultraviolet
WLL	Working Load Limit (maximum load)

3.2 Definitions

Poly-dacron (PD) rope: a three-strand, laid rope made of a flexible combination of synthetic (polyester) fibres.

Polypropylene (PP) rope: a three-strand, laid rope made of polypropylene fibre.

c) Type 3, composite braided: round, firm, 12-strand braided rope with strands of polyester fibres plied over polyolefin fibres (Table 1, items 5 and 6).

4.2.3 The tender shall state the types, sizes and item numbers offered. The 3/4 in (19 mm) Type 3 rope (Table 1, item 6) is the principal item.

4.2.4 The ropes shall be torque-free in use, uniform in diameter, flexible, and free from kinks, loose strands, cuts, knots and splices.

4.2.5 No metallic, carbon or other conductive material shall be used in the core, the cover, the yarn or any tracer or marker thread in the rope. A non-conductive tracer yarn may be used for identification.

4.2.6 The rope shall be given a water-repellent (hydrophobic), UV-stabilised finish by the manufacturer. The finish shall not reduce the dielectric performance of the rope and shall not rub off during normal handling.

4.2.7 The rope shall be supplied in one continuous length, without joins, splices or knots, on each reel. The ends shall be heat-sealed and whipped so that they do not fray.

4.2.8 The rope shall be of a light colour (white, or white with a coloured tracer) so that dirt, contamination and damage can be seen easily. The tenderer shall state the colour offered.

4.2.9 Use of the ropes on capstans and in hitches: PD rope may be used on capstans with one or two more wraps than manila rope, and works well in sliding hitches. PP rope shall not be used on capstans, in running hitches or in any application where friction heating can occur. Type 3 rope shall give good gripping power on capstans. The tenderer shall state these limitations in the user instructions.

4.3 Mechanical Properties

4.3.1 The diameter, tensile strength, working load limit and mass of each rope shall be as shown in Table 1. The tolerance on diameter shall be ±[5]%.

Table 1: Sizes and ratings of live-line ropes

Item No.	Description	Size	Minimum tensile strength	Maximum load (WLL)	Approx. weight per 100 ft	Standard coil on wooden reel
Type 1: Poly-dacron, three-strand						
1	Handline	1/2 in (12.7 mm)	4,500 lb (20.0 kN)	500 lb (2.22 kN)	8 lb (3.6 kg)	600 ft (183 m)
2	Bull line	5/8 in (15.9 mm)	6,400 lb (28.5 kN)	800 lb (3.56 kN)	10.5 lb (4.8 kg)	600 ft (183 m)
Type 2: Polypropylene, three-strand						
3	Stringing line	5/8 in (15.9 mm)	5,600 lb (24.9 kN)	700 lb (3.11 kN)	8 lb (3.6 kg)	600 ft (183 m)
4	Stringing line	3/4 in (19 mm)	7,650 lb (34.0 kN)	1,090 lb (4.85 kN)	10-3/4 lb (4.9 kg)	600 ft (183 m)

Item No.	Description	Size	Minimum tensile strength	Maximum load (WLL)	Approx. weight per 100 ft	Standard coil on wooden reel
Type 3: Composite braided, 12-strand						
5	Composite braided	5/8 in (15.9 mm)	11,600 lb (51.6 kN)	2,320 lb (10.3 kN)	11 lb (5.0 kg)	600 ft (183 m)
6 (principal item)	Composite braided	3/4 in (19 mm)	14,500 lb (64.5 kN)	2,900 lb (12.9 kN)	14 lb (6.4 kg)	600 ft (183 m)

4.3.2 The minimum tensile strength of a new, dry, unspliced rope shall not be less than the value in Table 1, measured in accordance with ISO 2307. Each individual test result shall meet this value.

4.3.3 The maximum load (WLL) in Table 1 shall not be exceeded in service. For Type 3 rope the WLL shall not be more than one-fifth (5:1 design factor) of the minimum tensile strength, for example 2,900 lb (12.9 kN) for the 14,500 lb rope. The tenderer shall state the design factor of every rope offered.

4.3.4 The elongation of the rope at 50% of the minimum tensile strength shall not be more than 15% for Types 1 and 2 and not more than 8% for Type 3. The tenderer shall state the elongation at break.

4.3.5 The mass per 100 ft of rope shall be as shown in Table 1, with a tolerance of ±10%.

4.3.6 After [500] hours of xenon-arc exposure in accordance with ISO 4892-2, the rope shall retain not less than [80]% of its original tensile strength (70% for Type 2).

4.3.7 The melting point of the polyester fibre shall be not less than [250] °C. The melting point of polypropylene or polyolefin fibre shall be stated and shall not be less than [160] °C. The rope shall remain flexible and shall not become brittle at -5 °C.

4.4 Dielectric Properties

4.4.1 Dry dielectric test: each type of rope shall withstand 100 kV (rms, 50 Hz) per 300 mm of rope length, measured between metal electrodes 300 mm apart, for 1 minute, in accordance with IEC 60060-1 (and ASTM F1701 for polypropylene rope), without flashover, puncture or perceptible heating.

4.4.2 Wet dielectric test: after conditioning in accordance with the test standard (immersion or spray, as stated by the tenderer), the rope shall withstand not less than 75 kV (rms, 50 Hz) per 300 mm for 1 minute without flashover, puncture or perceptible heating. The leakage current measured shall be stated by the tenderer.

4.4.3 Independent dielectric test reports shall be submitted for every type offered. This applies in particular to the composite braided rope (Type 3), for which published manufacturer data may not state a dielectric rating. A rope with no dielectric test report shall not be accepted as an insulating rope.

4.4.4 The moisture absorption of the rope shall not be more than 1% by mass after 24 hours of immersion in water.

4.4.5 Water held between the strands reduces the dielectric strength of any rope, and for polypropylene it is a definite hazard. The rope construction and finish shall limit water retention between strands. The user instructions shall state how wet rope is dried (for example by shaking and wiping with an absorbent cloth, then drying in storage), and wet rope shall not be used as an insulating line until it is dry.

4.4.6 When used as an insulating line, the effective insulating length of the clean, dry rope shall be not less than the phase to earth MAD in Table 2 for the voltage class, and shall not be less than the MAD in the KPLC Safety Rules where this is greater.

Table 2: Live working recommended minimum approach distances (MAD)

Nominal voltage AC (kV)	MAD phase to earth (mm)	MAD phase to phase (mm)
66	600	800
132	900	1300
220	1300	2000

4.5 Coil and Reel

4.5.1 Each rope shall be supplied in a coil on a wooden reel. The standard coil length for every item in Table 1 is 600 ft (183 m), in a single continuous piece. Where KPLC requires a longer continuous length for an item, this shall be stated in the tender, and the tenderer shall state the coil length offered and confirm that the required length can be supplied in a single piece.

4.5.2 The rope shall be wound evenly on a strong wooden reel that is seasoned, free from projecting nails and splinters, with a centre bore for a spindle. The tenderer shall state the flange diameter, barrel diameter, width, bore and gross mass of the loaded reel. The wood and any treatment used shall not contaminate or damage the rope.

4.5.3 The loaded reel shall be wrapped in moisture-proof (polyethylene) sheeting. The start end of the rope shall be secured and accessible so that samples can be taken for testing.

4.6 Accessories

4.6.1 The following shall be supplied with each reel:

a) One (1) lot test certificate stating the tensile strength and dielectric test results;

b) One (1) laminated identification tag;

c) One (1) waterproof cover or bag for storing the reel after opening;

d) One (1) set of operating, care and inspection instructions in English, including the criteria for retiring the rope from service and the limitations in clause 4.2.9.

4.7 Technical Particulars

4.7.1 The live-line ropes shall have the technical particulars shown in Table 3 below, in addition to Tables 1 and 2.

Table 3: Technical particulars of live-line ropes

Parameter	Description
Rope types	Type 1 poly-dacron (three-strand); Type 2 polypropylene (three-strand); Type 3 composite braided (12-strand, polyester over polyolefin)
Sizes, strengths and weights	As shown in Table 1
Principal item	Type 3, 3/4 in (19 mm), 14,500 lb (64.5 kN) tensile strength, 2,900 lb (12.9 kN) maximum load (Table 1, item 6)
Length per reel	600 ft (183 m), single continuous length (clause 4.5.1)
Reel	Wooden reel
Colour	Light colour (white, or white with a coloured tracer)
Elongation at 50% of tensile strength	Not more than 15% (Types 1 and 2); not more than 8% (Type 3)
Dry dielectric withstand	100 kV (rms, 50 Hz) per 300 mm, 1 minute
Wet dielectric withstand	Not less than 75 kV (rms, 50 Hz) per 300 mm, 1 minute
Moisture absorption (24 h immersion)	Not more than 1%
Strength retained after UV exposure	Not less than [80]% after [500] hours (ISO 4892-2); 70% for Type 2
Melting point of fibre	Polyester not less than [250] °C; polypropylene/polyolefin not less than [160] °C
Voltage classes of application	66 kV, 132 kV and 220 kV
Service conditions	As per clause 4.1.1
Type test	According to ISO 2307, IEC 60060-1, ISO 4892-2 and IEEE 978

5. TEST REQUIREMENTS

5.1 The ropes shall be inspected and tested in accordance with ISO 2307, ISO 4892-2, IEC 60060-1, IEEE 978 and this specification. It shall be the responsibility of the manufacturer to perform or to have performed all the tests specified. Tenderers shall confirm the manufacturer's capabilities in this regard when submitting tenders. Any limitations shall be clearly specified.

5.2 Copies of previous test reports issued by a third-party testing laboratory that is accredited to ISO/IEC 17025, confirming the strength and dielectric performance and compliance of each rope offered, shall be submitted with the offer for evaluation (all in English language).

5.3 Copies of test reports for the ropes offered shall be submitted, covering the following tests:

a) Routine tests (on every lot / reel)

i. Visual and dimensional inspection (construction, diameter, colour and length on the reel)
ii. Mass per 100 ft
iii. Tensile strength test on samples taken from each production lot
iv. Dry dielectric withstand test on sample lengths taken from each reel
v. Inspection of the reel, wrapping, marking and tag

b) Type tests

i. Tensile strength and elongation (ISO 2307)
ii. Dry and wet dielectric withstand tests, with leakage current measurement (IEC 60060-1)
iii. Moisture absorption test and water retention between strands
iv. UV (xenon-arc) exposure and retained tensile strength (ISO 4892-2)
v. Abrasion resistance test
vi. Melting point and thermal shrinkage test
vii. Low-temperature flexibility test at -5 °C
viii. Knot and bend efficiency test

c) Functional tests on the rope that shall include:

i. Flexibility and handling, with no kinking or unravelling
ii. Running over sheave blocks without snagging or damage
iii. Gripping on a capstan (Types 1 and 3) without slipping or damage
iv. Dielectric re-test after wetting and drying
v. Smooth unwinding from the reel without tangling

6. MARKING AND PACKING

6.1 Marking

The following information shall be marked legibly and permanently on a label on each reel and on a tag attached to the rope:

i. The manufacturer's name or trade mark;
ii. Rope type, item number, nominal diameter and length;
iii. Minimum tensile strength and maximum load (WLL);
iv. Lot number and month/year of manufacture;
v. The words "Insulating rope – for live-line use";
vi. Letters "Property of Kenya Power & Lighting Plc".

6.2 Packing

6.2.1 Each reel shall be wrapped in moisture-proof sheeting and packed so as to protect it from damage and entry of moisture during transportation, handling and storage.

6.2.2 The reels shall be strapped on pallets or packed in strong cartons or crates that can withstand stacking and handling. The reel flanges shall not be damaged by transport.

6.2.3 Instructions for opening, use and storage of the reel shall be attached to the outside of each package. The ropes shall be stored in a dry place.

7. WARRANTY

7.1 The live-line rope shall be backed by a minimum of 12-months warranty period from the date of delivery to KPLC stores.

7.2 The manufacturer shall guarantee a shelf life of not less than [5] years for the rope in unopened storage under the manufacturer's recommended conditions. Technical support shall be provided free of charge to KPLC for a period of not less than 36 months.

7.3 The Bidder shall submit a clause-by-clause statement of compliance with the specification (GTP) together with copies of the manufacturer's catalogues, brochures, technical data and proven test reports, all in English, for evaluation, according to Appendix C1 of this Specification. The manufacturer's type reference/designation of the item offered shall be indicated.

7.4 In the case of tender award, technical details for the live-line rope shall be submitted to Kenya Power for approval before manufacture commences, according to Appendix C2 of this Specification.

8. TRAINING

8.1 Training at the manufacturer's premises

8.1.1 The successful bidder/manufacturer shall arrange to conduct a Factory Acceptance Test for the manufactured ropes. The Factory Acceptance Test shall include training on the rope for [two (2)] KPLC engineers/technicians. At least one (1) of the engineers/technicians shall be a live-line user.

8.1.2 The training shall include theory followed by practical demonstrations on the use, inspection, cleaning, drying, storage and in-service dielectric testing of the ropes.

8.1.3 The manufacturer shall plan adequate time for the training, which shall be conducted by the manufacturer's expert.

8.1.4 The training shall be deemed successful once the engineers/technicians are able to inspect, test and use the rope safely.

8.1.5 The manufacturer shall meet all the costs of the factory training.

8.2 Local Training

8.2.1 Following delivery of the ropes, the manufacturer shall conduct training in Nairobi, Kenya. The training shall be conducted in one session of [20] KPLC engineers/technicians and shall last at least [one (1) day].

8.2.2 The training shall include theory on features and how the equipment works, safe live-line working practice, inspection and retirement criteria for rope, cleaning and drying, use on capstans and in hitches, storage and in-service dielectric testing, followed by practical demonstrations. All steps shall be exhaustively explained and demonstrated.

8.2.3 The training shall be considered to have been successful once the engineers/technicians are able to completely inspect, test and use the rope.

8.2.4 The supplier shall meet all the costs for conducting the local training, including local accommodation and transport for their training staff. The supplier shall provide all the training materials including notes.

APPENDICES

A: TESTS AND INSPECTION (Normative)

A.1 It shall be the responsibility of the manufacturer, supplier or dealer to test or to have all the relevant tests performed on the live-line rope.

A.2 Copies of previous 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 for the testing laboratory shall also be submitted with the tender (all in English language). Any translations of certificates and test reports into English language shall be signed and stamped by the Testing Authority.

A.3 Test certificates and calibration certificates shall be submitted by the supplier to KPLC for approval before supply/delivery.

A.4 On receipt of the ropes, Kenya Power will inspect the items and may perform relevant tests (including tensile strength and dielectric tests on samples cut from the reels) in order to verify compliance with the specification. The supplier shall replace without charge to Kenya Power any unit that upon test or use fails to meet any or all of the requirements in the specification.

B: QUALITY MANAGEMENT SYSTEM (Normative)

B.1 The supplier shall submit a Quality Assurance Plan (QAP) that will be used to ensure that the physical properties, tests and documentation of the rope 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 (latest edition).

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

B.3 The bidder shall indicate the delivery time of the equipment, and the manufacturer's monthly and annual production capacity. A detailed list and contact addresses (including e-mail) of the manufacturer's previous customers for similar live-line equipment sold shall be submitted with the tender for evaluation.

C: TECHNICAL DOCUMENTATION (Normative)

C.1 The bidder shall submit its tender complete with technical documents for tender evaluation. The technical documents to be submitted (all in English language) shall include:

a) Fully filled clause-by-clause Guaranteed Technical Particulars (GTP) signed by the manufacturer, as indicated in Appendix D of this Specification;

b) Copies of the manufacturer's catalogues, brochures, drawings giving all relevant dimensions (including reel dimensions) and technical data;

c) Records for previous projects, local or foreign, for the items, including sales records for the last five years and at least four customer reference letters;

d) Details of manufacturing capacity and the manufacturer's experience;

e) Copies of required test reports of a testing laboratory accredited to ISO/IEC 17025;

f) Copy of accreditation certificate to ISO/IEC 17025 for the testing laboratory;

g) Manufacturer's letter of authorisation, ISO 9001 certificate, and other technical documents required in the tender;

h) Manufacturer's warranty and guarantee, subject to 12 months from date of delivery of items to KPLC stores;

i) Operational and service manual for the items.

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

a) Fully filled clause-by-clause GTP stamped and signed by the manufacturer, as indicated in Appendix D;

b) Drawings of the reel to be manufactured for KPLC;

c) Product operation manuals and brochures;

d) Quality assurance plan (QAP) 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;

e) Marking details and method to be used in marking the reels and tags;

f) All documentation necessary for safety of the equipment;

g) Packaging details (including packaging materials).

C.3 The supplier shall submit recommendations for use, care, storage, and routine inspection and in-service dielectric testing procedures, all in the English language, during delivery of the ropes to KPLC stores.

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 supplier's 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	Requirement	KPLC Requirement	Bidder's offer
	Manufacturer's name and address	State	
	Country of manufacture	State	
	Name and model number	State	
1.0	Scope	State	
2.0	Normative references	State	
3.0	Definitions and abbreviations	State	
4.0	**Requirements**		
4.1	Service conditions	State	
4.2	**Design and construction**		
4.2.1	Standards of design and manufacture	State	
4.2.2	Rope types, constructions and fibres offered	State	
4.2.3	Item numbers and sizes offered (Table 1)	State	
4.2.4	Torque-free, uniform and free from defects	State	
4.2.5	Absence of conductive materials in rope and tracer	State	
4.2.6	Hydrophobic and UV-stabilised finish	State	
4.2.7	Continuous length without joins or splices; end sealing	State	
4.2.8	Colour of rope	State	
4.2.9	Limitations on use on capstans and in hitches	State	
4.3	**Mechanical properties**		
4.3.1	Nominal diameter and tolerance	State	
4.3.2	Minimum tensile strength of each rope (Table 1; item 6: not less than 14,500 lb / 64.5 kN)	State	

Clause number	Requirement	KPLC Requirement	Bidder's offer
4.3.3	Maximum load (WLL) and design factor of each rope	State	
4.3.4	Elongation at 50% of tensile strength and at break	State	
4.3.5	Mass per 100 ft	State	
4.3.6	Strength retained after UV exposure	State	
4.3.7	Melting point of each fibre and low-temperature flexibility	State	
4.4	**Dielectric properties**		
4.4.1	Dry dielectric withstand (100 kV per 300 mm, 1 min)	State	
4.4.2	Wet dielectric withstand and leakage current	State	
4.4.3	Independent dielectric test report for each type (including Type 3)	Attach	
4.4.4	Moisture absorption (24 h immersion)	State	
4.4.5	Water retention between strands and drying procedure	State	
4.4.6	Effective insulating length per voltage class (Table 2)	State	
4.5	**Coil and reel**		
4.5.1	Length of rope per reel (600 ft / 183 m, single piece)	State	
4.5.2	Wooden reel: dimensions and gross mass	State	
4.5.3	Wrapping and rope end arrangement	State	
4.6	Accessories supplied with each reel	State	
4.7	Technical particulars (Table 3)	State	
5.0	**Test requirements**		
5.1	Manufacturer's capabilities of inspection and testing	State	
5.2	Copies of previous test reports; accreditation certificate and scope	Attach	
5.3	Copies of routine, type and functional test reports	Attach	
6.0	**Marking and packing**		
6.1	Marking	Specify	
6.2	Packing	Specify	
7.0	**Warranty: state duration**		

Head of Section: Sub-Transmission, Central office	Head of Department: Transmission, Central office
Signed:	Signed:
Date: 2026-10-19	Date: 2026/10/19

Clause number	Requirement	KPLC Requirement	Bidder's offer
7.1	Minimum 12-months factory warranty	State	
7.2	Shelf life (not less than [5] years) and technical support (36 months)	State	
7.3	Clause-by-clause statement of compliance with supporting documents	State	
7.4	Technical details for KPLC approval before manufacture	State	
8.0	**Training**		
8.1	Training at manufacturer's premises ([2] engineers/technicians)	State compliance	
8.2	Local training ([20] engineers/technicians, at least [1] day)	State compliance	
A	**Test and inspection**		
A.1	Responsibility of carrying out tests	State	
A.2	Copies of type test reports submitted with tender	Provide	
A.3	Test and calibration certificates for approval before delivery	Provide	
A.4	Inspection at the stores and replacement of rejected items	State	
B	**Quality management system**		
B.1	Quality Assurance Plan	Provide	
B.2	Copy of ISO 9001 certificate	Provide	
B.3	Delivery time, production capacity, and list of previous customers	Provide	
C	**Technical documentation**		
C.1	Documents submitted with tender	Provide	
C.2	Documents to be submitted for approval before manufacture	Provide	
C.3	Documents to be submitted during delivery at the store	Provide	
	Statement of deviations, if any, and supporting documents	State deviations	

Head of Section: Sub-Transmission, Central office	Head of Department: Transmission, Central office
Signed:	Signed:
Date: 2026-10-19	Date: 2026/10/19

NOTE:

1) Bidders shall give full details of the items on offer as per the specification and applicable standards. The details provided shall conform to the test reports and their certificates, as well as labelled 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', etc. shall not be accepted and shall be considered non-responsive.

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Manufacturer's Name, Signature, Stamp and Date