TABLE OF CONTENTS

0.1 Circulation List

0.2 Amendment Record

FOREWORD

1. **SCOPE**
2. **REFERENCES**
3. **TERMS AND DEFINITIONS**
4. **REQUIREMENTS**
5. **TESTS AND INSPECTION**
6. **INSTRUCTIONS, MARKING AND PACKING**
7. **DOCUMENTATION**

ANNEX A: **Guaranteed Technical Particulars** *(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 manufacturing capacity, the manufacturer's experience and copies of complete type test certificates and type test reports for tender evaluation, all in English Language)*

0.1 Circulation List

COPY NO.	COPY HOLDER
1	Research & Development Manager
2	Procurement Manager
Electronic copy (pdf) on Kenya Power Server (currently :Network-\\stima-fprnt-001\techstd&specs	

0.2 Amendment Record

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)
Issue 3 Rev 0	2013-05-07	Cancels and replaces 2nd Issue Rev 1 dated 2003-05-29	S. Kimitei	G. Owuor

FOREWORD

This specification has been prepared by the Research and Development Department of The Kenya Power and Lighting Company Limited (Kenya Power) and it lays down requirements for 11KV Isolator, Solid Link (also referred to as 11kV Isolating Solid Link or 11kV Solid Link Isolator). The specification is intended for use by Kenya Power in purchasing the equipment.

1. SCOPE

This specification is for 11 kV Isolator, Solid Link for use on line disconnection, isolation of electrical equipment and sectionalizing purposes.

The specification also covers inspection and test of the solid link isolator as well as schedule of Guaranteed Technical Particulars to be filled, signed by the manufacturer and submitted for tender evaluation.

The specification stipulates the minimum requirements for 11 kV Isolator, Solid Link acceptable for use in the company and it shall be the responsibility of the supplier to ensure adequacy of the design, good engineering practice, adherence to the specification, applicable standards and applicable regulations as well as ensuring good workmanship in the manufacture of the 11 kV Isolator, Solid Link for The Kenya Power & Lighting Company.

The specification does not purport to include all the necessary provisions of a contract.

2. REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this specification. Unless otherwise stated, the latest edition of the referenced documents (including any amendments) applies.

IEC 62271-102: High-voltage switchgear and controlgear - Part 102: Alternating current disconnectors and earthing switches

ISO 1461: Hot dip galvanized coating on fabricated iron and steel articles- Specifications and test method

3. TERMS AND DEFINITIONS

For the purpose of this specification, the definitions given in the reference standards apply together with the following.

Isolator (Disconnector): a mechanical switching device which provides, in the open position, an isolating distance in accordance with Electrical Safety requirements.

4. REQUIREMENTS

4.1. SERVICE CONDITIONS

The isolator shall be suitable for continuous operation outdoors in tropical areas at altitudes of up to 2200m above sea level, humidity of up to 90%, average ambient temperature of +30°C with a minimum of -1°C and a maximum of +40°C and heavy saline conditions along the coast.

4.2. DESIGN AND CONSTRUCTION

4.2.1 The Isolator, Solid Link shall be designed and manufactured in accordance with IEC 62271-102 and the requirements of this specification.

4.2.2 The isolating link shall be of the vertical opening, designed for single phase manual operation. It shall be easily removed and replaced by using a portable operating rod.

4.2.3 The isolating link shall incorporate double porcelain insulators to suit voltage requirements and mounted on hot dipped galvanized steel under base suitable for vertical mounting.

4.2.4 The isolating link shall be arranged so that each unit is mounted independently on an angle bracket. It shall be supplied complete with angle bracket and accessories suitable for mounting on 'U' type steel channel. The drawings to be submitted shall indicate all the applicable mounting positions.

4.2.5 The isolator shall be designed such that in fully open position, it shall provide adequate electrical isolation between the contacts on each phase. It shall conform to the requirement as single point isolation for safety.

4.2.6 All steel parts shall be hot dip galvanized to ISO 1461. The minimum coating of galvanizing required is 85 microns.

4.2.7 The solid link shall be removable from the mounting by use of operating rod.

4.2.8 All current carrying parts of the isolator shall be made of high conductivity electro-tinned copper with contacts silver plated.

4.2.9 The isolator shall be complete with clamp connectors for Aluminium (ACSR) conductor of up to 18.2mm diameter.

4.3. RATING

The rating of the complete isolator shall be as follows: -

Rated voltage	12 kV
Rated frequency	50 Hz
Rated lightning impulse withstand voltage	95 kVp
Rated power frequency withstand voltage, dry	38 kV
Rated normal current	400 Amps
Rated short time withstand current for 3 sec, min.	25 kA
Minimum creepage distance of insulators	300 mm

4.4 QUALITY MANAGEMENT SYSTEM

4.4.1 The supplier shall submit a quality assurance plan (QAP) that will be used to ensure that the isolator 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 9001:2008.

4.4.2 The Manufacturer's Declaration of Conformity to applicable standards and copies of quality management certifications including copy of valid and relevant ISO 9001: 2008 certificate shall be submitted with the tender for evaluation.

4.4.3 The bidder shall indicate the delivery time of the isolators, manufacturer's monthly & annual production capacity and experience in the production of the type and size of items being offered. A detailed list & contact addresses (including e-mail) of the manufacturer's previous customers for similar type of isolators 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.

5. TESTS AND INSPECTION

5.1 The isolator shall be inspected and tested in accordance with the requirement of IEC 62271-102 and this specification. It shall be the responsibility of the supplier to perform or to have performed all 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 to ISO/IEC 17025 for the same third party testing laboratory used shall also be submitted with the tender (all in English Language).

Copies of the type test certificates and type test reports for the isolator offered to be submitted for tender evaluation shall include:

(i) Dielectric tests(Lightning Impulse and Power Frequency Withstand Tests),

(ii) Short time withstand and peak withstand current tests,

(iii) Temperature rise test,

(iv) Measurement of the resistance of circuits,

(v) Tightness tests,

(vi) Operation and Mechanical endurance tests.

5.3 The isolating link shall be subject to acceptance test at the manufacturer's works before dispatch. Acceptance tests will be witnessed by Kenya Power Engineers and shall include :

(i) Dielectric test on main circuit.

(ii) Measurement of resistance of main circuit.

(iii) Design and visual checks.

(iv) Mechanical and operating tests.

5.4 Test reports for each isolator shall be submitted to Kenya Power for approval before shipment.

5.5 The isolator shall be inspected/tested by Kenya Power before acceptance at stores. The supplier shall replace/rectify without charge to Kenya Power equipment which upon inspection, test or use fail to meet any or all the requirements in the specification.

6.0 INSTRUCTIONS, MARKING AND PACKING

6.1 Instructions, in English language, for the assembly and installation of the complete device shall accompany the equipment during delivery.

6.2 The isolator shall be marked (permanently by engraving or embossing) with all parameters required by IEC 62271-102. All markings shall be in the English language and figures representing ratings shall be followed by the symbol of the unit in which they are expressed.

6.3 The isolator shall be delivered packed in wooden crates firmly bound and closely together to avoid damage to the porcelain insulators during transportation and storage.

7. DOCUMENTATION

7.1 The bidder shall submit its tender complete with technical documents required by Annex A (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) 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 type test certificates & type test reports by a third party testing laboratory accredited to ISO/IEC 17025; the Type Test Certificates & Type Test Reports shall not be more than five years old.
f) Copy of accreditation certificate to ISO/IEC 17025 for the testing laboratory.

7.2 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 isolators 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 9001:2008
d) Detailed test program to be used during factory testing,
e) Marking details and method to be used in marking the isolators,
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 isolators for The Kenya Power & Lighting Company
g) Packaging details (including packaging materials and their dimensions).

ANNEX A: Guaranteed Technical Particulars *(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 manufacturing capacity, the manufacturer's experience and copies of complete type test certificates and type test reports for tender evaluation, all in English Language)*

Tender No. .....

Clause number	**Bidder's offer** (indicate full details of the offered equipment for each requirement of the specification)
1. Scope	
2. References	
3. Terms and Definitions	
4. Requirements	
4.1 Service Conditions	
4.2 Design & Construction	
4.2.1	
4.2.2	
4.2.3	
4.2.4	
4.2.5	
4.2.6	
4.2.7	
4.2.8	
4.2.9	
4.3.Ratings	
4.4.1 – 4.4.3	
Test & Inspection	
5.1	
5.2 (i) – (vi)	
5.3 (i) – (iv)	
5.4	
5.5	
6.1	
6.2	
6.3	
7.1 – 7.2	

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Manufacturer's Name, Signature, Stamp and Date