



The Kenya Power & Lighting  
Co. Ltd

TITLE:  
**SPECIFICATION FOR 11kV  
EXPULSION FUSE LINKS**

Doc. No.	KPLC1/3CB/TSP11/020
Issue No.	1
Revision No.	1
Date of Issue	2009-07-15
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Authorized by: Head of Department , R & D

Signed:

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Date:

2009-07-20

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### 0.1 Circulation List

COPY NO.	COPY HOLDER
1	Research & Development Manager
2	Procurement Manager
3	Stores & Transport Manager
4	Design & Construction Manager
5	Operations and Maintenance Manager
6	Deputy Manager, Technical Audit

### 0.2 Amendment Record

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)
1	2009-07-15	Additional sizes	S. Kimiti <i>S. Kimiti</i> 2009-07-20	G. Owuor <i>G. Owuor</i> 2009-07-20

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Signed:

*S. Kimiti*

Signed:

*G. Owuor*

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### FOREWORD

This specification has been prepared by the Research and Development Department in collaboration with Operations & Maintenance Department both of the Kenya Power & Lighting Company Ltd (KPLC) and it lays down requirements for 11kV Expulsion Fuse Links. The specification is intended for use by KPLC in purchasing the fuse links.

The manufacturer shall submit information which confirms satisfactory service experience with products which fall within the scope of this specification.

### 1. SCOPE

This specification is for expulsion fuse links to be used outdoors on 11kV, 50Hz ac system for protection and isolation of substation apparatus and sectionalizing purposes.

The specification also covers inspection and test of the fuse links 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 fuse links acceptable for use in the company (KPLC) and it shall be the responsibility of the Manufacturer to ensure adequacy of the design, good workmanship and good engineering practice in the manufacture of the fuse links for KPLC.

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

### 2. REFERENCES

The following standard contains provisions which, through reference in this text constitute provisions of this specification. Unless otherwise stated, the latest editions (including amendments) apply.

IEC 60282-2: High Voltage Fuses: Part 2 – Expulsion Fuses.

### 3. TERMS AND DEFINITIONS

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

### 4. REQUIREMENTS

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#### 4.1 SERVICE AND SYSTEM CONDITIONS

4.1.1 The fuse link 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.

4.1.2 The fuse links shall be suitable for a.c. system with system highest voltage of 12kV and frequency of 50Hz.

#### 4.2. DESIGN AND CONSTRUCTION

4.2.1. The fuse link shall be button head single tail type designed and constructed as per the requirement of IEC 60282-2 and this specification.

4.2.2. The fuse link shall be suitable for use in distribution fuse cut out, drop out type.

4.2.3. It shall be high-speed designated type K in accordance with IEC 60282-2.

4.2.4. The overall length of the expulsion fuse link shall be 510mm to suit wide range of fuse holders (fuse carriers) used on 11kV system.

#### 4.3. RATING

The fuse links shall be of the following ratings:

Rated Voltage	12kV
Rated Current	5A, 10A, 15A, 25A, 40A, 65A, 80A, 100A, 125A, 150A, 175A, 200A, 225A, 250A.
Rated Breaking Capacity	40kA
Rate Frequency	50Hz

#### 5. TESTS AND INSPECTION

5.1 The fuse links shall be tested and inspected in accordance with IEC 60282-2 and the requirements of this specification. It shall be the responsibility of the manufacturer to perform or have performed all relevant tests.

5.2 Certified true copies of previous test reports by the relevant National Testing/Standards Authority of the country of manufacture (or ISO/IEC 17025 accredited laboratory) shall be submitted with the offer for evaluation (all in English Language).

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Test reports to be submitted shall include dielectric tests, temperature rise, breaking capacity, time/current characteristics, radio-interference and mechanical tests as per IEC 60282-2.

- 5.3 The fuse links shall be subject to acceptance tests at the manufacture's works before dispatch. Acceptance tests shall be witnessed by two Engineers appointed by The Kenya Power and Lighting Company Limited (KPLC). Acceptance tests shall include temperature rise, time/current characteristics, mechanical tests, verification of dimensions, measurement of resistance and marking.

Routine and sample test reports for the fuse links to be supplied shall be submitted to KPLC for approval before shipment/delivery of the goods.

- 5.4 On receipt of the fuse links KPLC will inspect them and may perform or have performed any of the relevant tests in order to verify compliance with the specification. The manufacturer shall replace without charge to KPLC, fuse links which upon examination, test or use fail to meet any or all of the requirements in the specification.

**6. MARKING, LABELLING AND PACKING**

- 6.1 The fuse links shall be supplied in protective packaging for the fuses to be stored in until required for use.

- 6.2 The following information shall be marked indelibly and legibly on each fuse link:

- Manufacturer's name or trademark;
- Manufacturer's type designation;
- The year of manufacture;
- Rated current and speed designation;
- Rated voltage.

The marking shall be on the button head as well as on the tube surrounding the fuse element.

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**ANNEX A: Guaranteed Technical Particulars and Statement of Compliance** (to be filled and signed by the Manufacturer and submitted together with copies of Manufacturer's catalogues, brochures, drawings, technical data, sales records and certified true copies of type test certificates and type test reports for tender evaluation)

	Description	Bidders Offer
1	Name of the manufacturer and country of origin Type Reference No or Model No.	
2	Applicable Standards	
3	Service conditions	
4	Type of fuse link	
5	Application	
6	Speed Designation (as per IEC 60282-2)	
7	Overall Length	
8	Rated Voltage	
9	Rated Current	
10	Rated Breaking Capacity	
11	Manufacturer's Guarantee and Warranty	
12	List catalogues, brochures, technical data and drawings submitted to support the offer.	
13	List customer sales records submitted to support the offer.	
14	List Type Test Certificates and Type Test Reports submitted with tender (indicate test report numbers, date, voltage & current rating, Testing Institution and contact addresses)	
15	List Acceptance Tests to be witnessed by KPLC Engineers at the factory	
16	List test reports to be submitted to KPLC for approval before shipment	
17	Copy of ISO 9001:2000 Certificate submitted (indicate validity)	
18	Statement of compliance to specification	

**NB:** - This schedule does not in any way substitute for detailed information required elsewhere in the specification.

.....  
**Manufacturer's Name, Signature, Stamp and Date**

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