DOCUMENT NO.: KP1/13D/4/1/TSP/09/082

Kenya Power

GENERATOR COMPLETE WITH WELDING SET — SPECIFICATION

A Document of the Kenya Power & Lighting Company Plc.

March 2021

TABLE OF CONTENTS

TABLE OF CONTENTS 2
01. Circulation List 3
0.2 Amendment Record 4
FOREWORD 5
1. SCOPE 6
2. NORMATIVE REFERENCES 6
3. DEFINITIONS AND ABBREVIATIONS 6
4. REQUIREMENTS 6
4.1. Service Conditions 6
4.2. General Requirements 6
5. TESTS AND INSPECTION 8
6. MARKING AND PACKING 8
6.1. MARKING 8
6.2. PACKING 9
APPENDICES 10
APPENDIX A: TESTS AND INSPECTION (NORMATIVE) 10
APPENDIX B: QUALITY MANAGEMENT SYSTEM (NORMATIVE) 10
APPENDIX C: TECHNICAL DOCUMENTATION (NORMATIVE) 10
APPENDIX D: GUARANTEED TECHNICAL PARTICULARS (GTPS) — NORMATIVE 11

01. Circulation List

COPY NO.	COPY HOLDER
1	Manager, Standards
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.

© Kenya Power & Lighting Company Plc.

Users are reminded that by virtue of section 25 of the Copyright Act, 2001 (Revised 2009) Cap 130 of the Laws of Kenya copyright subsists in all KPLC standards and except as provided under section 26 of this act, no KPLC standard produced by KPLC may be reproduced, stored in retrieval system by any means without prior permission from the Managing Director & CEO, KPLC.

Issued by: Head of Section, Standards Development	Authorized by: Head of Department, Standards
Signed:	Signed:
Date: 2021-03-19	Date: 2021-03-19

0.2 Amendment Record

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)
Issue1 Rev 0	2015-02-05	New Issue	Simon Kimitei	Dr. Eng. Peter Kimemia
Issue2 Rev 0	2021-03-19	Replaces Issue 1 Rev 0	Rotich Benard	Dr. Eng. Peter Kimemia

FOREWORD

This specification has been prepared by the Standards Department and Transmission Network Department, both of the Kenya Power & Lighting Company Plc. (KPLC) and it lays down requirements for Generator Complete with Welding Set herein also called 'equipment'. It is intended for use by KPLC in purchasing the items.

The Generator Complete with Welding Set for Transmission shall be used for repair of towers and equipment supports. This will ensure quick restoration of power especially after a breakdown

This specification stipulates the minimum requirements for equipment acceptable for use in the company and it shall be the responsibility of the suppliers and manufacturers to ensure that the offered design is of the highest quality and guarantees excellent service to KPLC, good workmanship and good engineering practice in the manufacture of the equipment for KPLC.

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

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

No	Name	Department
1.	Julius Mwaniki	Transmission Network
2.	Rotich Benard	Standards
3.	Eng. Paul Mutinda	Transmission Network

1. SCOPE

This specification is for Generator with Welding Set for use by the company's Network Maintenance Teams.

2. NORMATIVE REFERENCES

Applicable ISO, IEC Standards and Kenya Standards.

3. DEFINITIONS AND ABBREVIATIONS

For the purpose of this specification, the definitions and abbreviations given in the applicable reference standards and specifications apply.

4. REQUIREMENTS

4.1. Service Conditions

The Generator with Welding Set shall be suitable for use outdoors in tropical areas and harsh climatic conditions including:

a) Altitudes of up to 2200m above sea level
b) Humidity of up to 95%,
c) Average ambient temperature of +30°C with a minimum of -1°C and a maximum of +40°C, in direct sunlight,
d) Heavy saline conditions along the coast and
e) *Isokeraunic* levels of up to 180 thunderstorm days per year.

4.2. General Requirements

4.2.1. The Generator with Welding Set shall be manufactured to applicable ISO Standards, Kenya Standards and the requirements of this specification.

4.2.2. All materials used shall have adequate protection against corrosion.

4.2.3. The Generator with Welding Set shall be designed for heavy duty applications and of rugged construction, portable and suitable for use in off grid field sites for powering electric devices.

4.2.4. The welder shall have two copper electrode leads of the following properties;

a) cross sectional area not less than 70 mm^2
b) not less than 15m long

c) made of flexible/fine copper strands wrapped inside a non-conductive insulation jacket

4.2.5. The Generator with Welding Set shall be of the following minimum features as shown in Table 1:

Table 1: Equipment Minimum specification

Item	Parameters	Units	Value
A.	**Generator**		
1)	Power output	kW	5 - 9
2)	Output voltage & Frequency	V, Hz	: 230 ±10% V AC, 50 Hz
3)	Output Outlets		have at least two power outlets of 10A and 15A
4)	Engine Size	HP	13 -20
5)	Engine cooling		Air cooled
6)	Starting		Electric start or/and Manual hand cranking
7)	Fuel type		Petrol
8)	Fuel tank volume	Liters	10 - 20
9)	Battery charging		12 Volt dynamo
B.	**Welding Set**		
10)	Normal Welding Rate	A	Must include 0-200 range, 250 & 400
11)	Welding voltage	V	22-28
12)	Spare parts		Locally and readily available

4.2.6. The generator shall be complete with accessories and features as per the general arrangement shown in Figure 1:

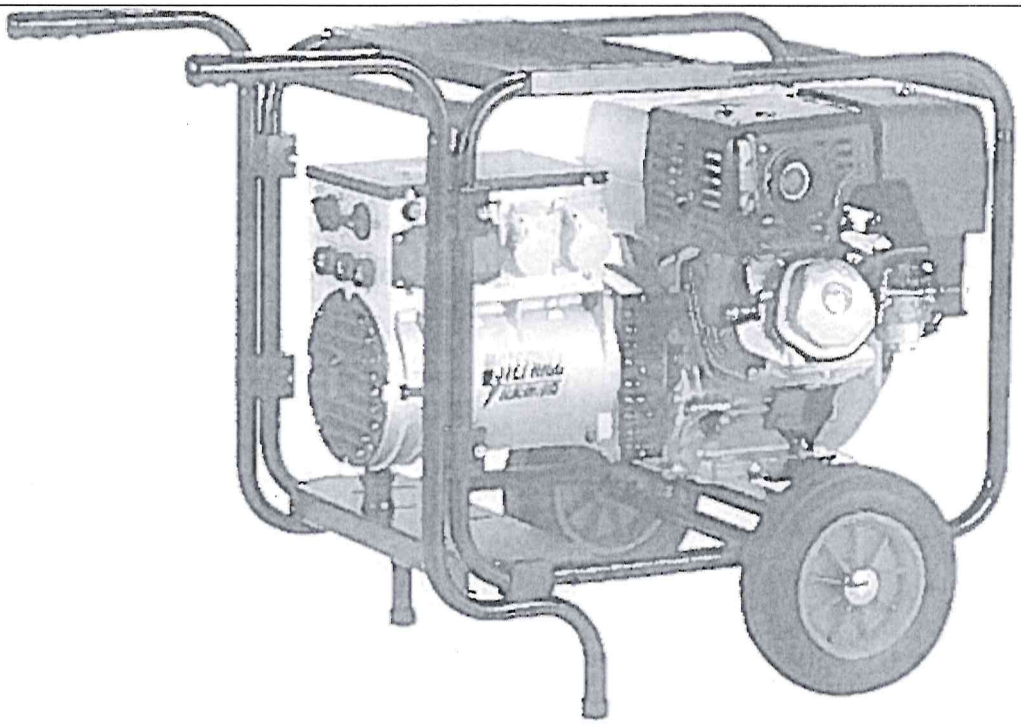

Figure 1: General Arrangement of Generator

5. TESTS AND INSPECTION

5.1. The Generator with Welding Set shall be inspected and tested in accordance with the requirements of this specification

5.2. It shall be the responsibility of the manufacturer to perform or to have performed all the tests specified.

6. MARKING AND PACKING

6.1. MARKING

The following information shall be marked on a name plate by engraving/etching and legibly, indelibly and in a permanent manner on each equipment:

a) Name or trade mark of the manufacturer,
b) Model number of the equipment,
c) Year of Manufacture,
d) The letters '**Property of KPLC**'.

6.2. PACKING

6.2.1. The equipment shall be packed in such a manner so as to avoid damage and moisture ingress during transportation and storage.

6.2.2. Instructions for operation, maintenance and storage, and details on applicable tools shall be included in each package, all in English Language.

..... SPACE LEFT BLANK .....

APPENDICES

APPENDIX A: TESTS AND INSPECTION (NORMATIVE)

A.1. Copies of type test reports to be submitted with the tender (by bidder) for evaluation.

A.2. Routine test reports for the equipment to be supplied shall be submitted to KPLC for approval before shipment/delivery of the goods. KPLC may witness acceptance tests at the factory. Supplier shall invite KPLC in adequate time to facilitate good preparation for the exercise.

A.3. On receipt of the equipment, KPLC shall inspect and may perform tests in order to verify compliance with this specification. The supplier shall replace without charge to KPLC, any equipment which upon examination, test or use fail to meet any of the requirements in this specification

APPENDIX B: QUALITY MANAGEMENT SYSTEM (NORMATIVE)

B.1. The supplier shall submit a quality assurance plan (QAP) that will be used to ensure that the equipment 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

B.2. The Manufacturer's Declaration of Conformity to reference 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.

APPENDIX 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) for tender evaluation shall include the following:

a) Fully-filled clause by clause Guaranteed Technical Particulars (GTPs) - Appendix D - stamped and signed by the manufacturer.

b) Copies of the Manufacturer's catalogues, brochures, drawings and technical data;

C.2. The supplier shall submit recommendations for use, care, storage and routine inspection/testing procedures, all in the English Language, during delivery to KPLC stores

APPENDIX D: GUARANTEED TECHNICAL PARTICULARS (GTPS) — NORMATIVE

(to be filled and signed by the Supplier 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	**Description**	**KPLC REQUIREMENTS**	**Bidder's offer** (indicate full details of the values offered)
	Bidder's Name and address		State
	Name of Manufacturer		State
	Country of manufacture		State
1	Scope		Specify
2	Manufacturing standards applicable		State
3	Terms and definitions		State
4	**Requirements**		
4.1	Service conditions - compliance		State
4.2	**General requirements**		
4.2.1	Applicable manufacturing standards		State
4.2.2	Protection of parts against corrosion		Specify
4.2.3	Generator with Welding Set's design, ruggedness and portability		Specify
4.2.4	Welder's two copper electrode leads' properties	Cross-sectional area of the leads	State
		Length of the leads	State
		Strand material and no. of strands	State
4.2.5, Table 1	Equipment specification	**Parameters**	**Units**
		A. **Generator**	
		1. Power output	kW
		2. Output voltage & Frequency	V, Hz
		3. Output Outlets	
		4. Engine Size	HP
		5. Engine cooling	kW
		6. Starting	
		7. Fuel type	
		8. Fuel tank volume	Liters
		9. Battery charging	

		B. **Welding Set**		
		10. Normal Welding Rate	A	Specify
		11. Welding voltage	V	Specify
		12. Spare parts		Specify
4.2.6	Generator arrangement			Provide catalog and datasheet
5	**TESTS AND INSPECTION**			
5.1	Test standards and responsibility of carrying out tests			Provide
5.2	Responsibility of carrying out tests			Specify
6	**MARKING AND PACKING**			
6.1	Marking			State
6.2	**Packing**			
6.2.1	Mode of packing			State
6.2.2	Instruction manual			Provide
A	**TESTS AND INSPECTION**			
A1	Copies of test certificates and certificates be submitted			List the Report Nos
A2	Lists of tests in the submitted test reports			List
A3	Supplier shall replace without charge to KPLC items that don't meet specification			State
B	**QUALITY MANAGEMENT SYSTEM**			
B1	QAP			State
B2	Submit ISO 9001:2015			State
C	**TECHNICAL DOCUMENTATION**			
C1	Technical documents to be submitted with tender documents			
	a. Fully-filled clause by clause Guaranteed Technical Particulars (GTPs) - Appendix D - stamped and signed by the manufacturer.			Specify
	b. Manufacturer's catalogues, brochures, drawings and technical data			state
C2	Recommendations for use, care, storage and routine inspection/testing procedures, all in the English Language, during delivery of the lugs to KPLC stores shall be submitted			Specify

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

.....

Manufacturer's Name, Signature, Stamp and Date