



TITLE:
**SPECIFICATION FOR
INSULATED HACKSAW
FRAMES**

Doc. No.	KP1/3CB/TSP/09/89
Issue No.	1
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0.1 Circulation List

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0.2 Amendment Record

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FOREWORD

This specification has been prepared by the Standards Department in collaboration with Transmission Department, both of The Kenya Power and Lighting Company Limited (KPLC) and it lays down requirements for insulated hacksaw frames for use on power lines. It is intended for use by KPLC in purchasing the tools.

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

1. SCOPE

- 1.1. This specification is for insulated hacksaw frames for use on power lines.
- 1.2. It is the responsibility of the supplier/bidder to ensure that the offered tool are of the highest quality and guarantees excellent service to KPLC.
- 1.3. It shall be the responsibility of the manufacturer to ensure adequacy of the design and good engineering practice in the manufacture of the tools and equipment for KPLC. The supplier shall also submit information which confirms satisfactory service experience of the manufacturer with products which fall within the scope of this specification.

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 editions (including amendments) apply:

- IEC 60900: Live working – Hand tools for use up to 1 000 V a.c. and 1 500 V d.c.
- ISO 1456: Metallic coatings - Electroplated coatings of nickel plus chromium and of copper plus nickel chromium
- ISO 3755: Cast carbon steels for general engineering purposes
- PD 970: Wrought steels for mechanical and allied engineering purposes. Requirements for carbon, carbon manganese and alloy hot worked or cold finished steels

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KS 06 -1346: Kenya standard specification for hacksaw frames.

3. TERMS AND DEFINITIONS

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

4. REQUIREMENTS

4.1. SERVICE CONDITIONS

The insulated frames shall be tropicalized, designed and constructed for continuous outdoor operation in tropical areas and harsh climatic conditions including areas exposed to:

4.2. DESIGN AND CONSTRUCTION

4.2.1. The design, manufacture and test of insulated hacksaw frames shall be in accordance with KS 06 -1346.

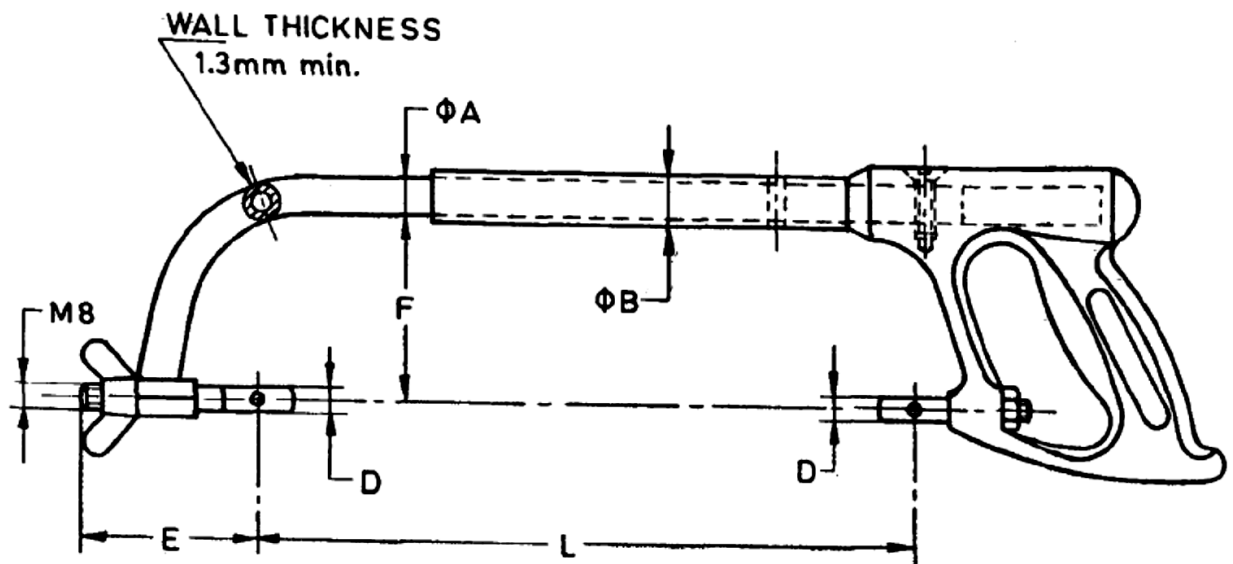


Fig. 1: Closed grip adjustable tubular hacksaw frame

4.2.2. The insulated hacksaw frames shall consist of the following parts and shall be as per Fig. 1 with the dimensions as per Tables 1:

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- a) Frame
- b) Sheath and guides
- c) Adjustable and fixed blade holders
- d) Retaining pin

Table 1: Dimensions for closed grip adjustable tubular hacksaw frame

All dimensions in millimetres

Normal Size (L)	A Min	B Min	D	E	F Min
300	15	20	8	65	70

4.3. MATERIALS

4.3.1. The materials of various parts of the hacksaw shall be as per Table 2;

Table 2: Material of body parts of the hacksaw frame

Parts	Materials
Frame	Any grade of steel conforming to reference symbol P of PD 970:2005
Sheath and guides	Grade 20-40 (AA1) of ISO 3755:1991
Adjustable and fixed blade holders	Any grade of steel conforming to reference symbol P of PD 970:2005
Retaining pins	AISI Grade 304 Stainless Steel

4.3.2. Frame body

The frame of the hacksaw shall be insulated using vulcanized rubber capable of withstanding dielectric test to 20 kV in one (1) minute and their use shall be limited to 1 kV in accordance with IEC 60900: 2012. The fact that the handle is covered with the insulating material does not guarantee the user safe working against electric shock.

4.4. WORKMANSHIP AND FINISH

4.4.1. All frames shall be provided with hand adjustment for regulating and producing correct blade tension and shall maintain the initial tension adjustment.

4.4.2. Blade holders shall hold the blade rigidly and in true alignment with centre line of the frame, blade bearing surfaces shall be smoothly finished to provide a flat bearing surface for the blade.

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- 4.4.3. The frames when manufactured from sheet steel shall have a continuous weld over the entire length of seams and edges of the handle-grip section. The welding shall be finished smooth. The handle-grip section of the handles shall be knurled or pressed to provide a secure gripping surface.
- 4.4.4. The component parts of the hacksaw frames shall be finished smooth and further suitable anticorrosive coating. The type of anticorrosive coating shall be nickel-chromium plating - S Ni 10b Cr r as per ISO 1456:1988.

4.5. Performance requirements

- 4.5.1. **Impact test** - The frames shall be held with its handle downward and dropped on a concrete floor or slab from a height of 3 meters. After impact, there shall be no flaking off or breakage of the handle.
- 4.5.2. **Heat-distortion test**- The handle of the frame shall be completely immersed in water heated to approximately 70°C, for a period of 30 minutes. At the end of this period, the sample shall be removed from the water and it shall show no significant signs of distortion or blistering.
- 4.5.3. **Tension load test**:- With a compression load of 110kgF is subjected on both sides of the frame , there shall be a contraction of not more than 6mm. When the load is removed, there shall be no permanent set.

4.6. QUALITY MANAGEMENT SYSTEM

- 4.6.1. The supplier shall submit a quality assurance plan (QAP) that will be used to ensure that the design, material, workmanship, tests, service capability, maintenance and documentation of the insulated hacksaw frames 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.
- 4.6.2. 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.

5.0. TESTS AND INSPECTION

- 5.1. The insulated hacksaw frames shall be inspected and tested in accordance with the requirements of the standards and all the provisions of this specification. It shall be the

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responsibility of the supplier to perform or to have performed the tests specified and whatever other tests he normally performs at works.

5.2. Copies of previous Type Tests 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 document (all in English Language).

The type tests shall include:

- a) Tension load test
- b) Impact test
- c) Heat distortion test

5.3. The insulated hacksaw frames shall be subject to acceptance tests at the manufacturer's works before dispatch. Acceptance tests shall be witnessed by two Engineers appointed by The Kenya Power and Lighting Company Limited (KPLC). Routine and Sample Test Reports for the insulated hacksaw frames to be supplied shall be submitted to KPLC for approval before delivery of the goods. The tests to be witnessed shall include;

- a) Tension load test
- b) Impact test
- c) Heat distortion test

5.4. On receipt of the product, KPLC will perform any of the tests specified in order to verify compliance with this specification. The supplier shall replace without charge to KPLC the insulated hacksaw frames which upon examination, test or use; fail to meet any of the requirements in the specification.

6.0. MARKING AND PACKING

6.1. MARKINGS

6.1.1. The following information shall be printed on a suitable label firmly attached to each packaging:

- a) Purchase order number/tender
- b) Manufacturer's name
- c) Year of manufacture
- d) Insulated hacksaw frames catalog number
- e) The words, "**PROPERTY OF KPLC**"

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6.2. PACKAGING

6.2.1. The tools shall be packed in a manner so as to protect it from damage during transportation and storage. Instructions for storage and handling shall be included in each package, all in English Language.

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 signed by the manufacturer;
- 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 reports by a third party testing laboratory accredited to ISO/IEC 17025;
- f) Copy of accreditation certificate to ISO/IEC 17025 for the third party testing laboratory;
- g) Manufacturers letter of authorization, ISO 9001:2008 certificate and other technical documents required in the tender.

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 signed by the manufacturer;
- b) Design Drawings with details of insulated hacksaw frames 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 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
- d) Detailed test program to be used during factory testing;
- e) Marking details and method to be used in marking the insulated hand operated socket drive wrenches and screwdrivers;
- 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 insulated hacksaw frames for The Kenya Power & Lighting Company;
- g) Packaging details (including packaging materials).

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7.3 The supplier shall submit recommendations for use, care, storage and routine inspection/testing procedures, all in the English Language, during delivery of the insulated hacksaw frames to KPLC stores.

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ANNEX A: Guaranteed Technical Particulars (to be filled and signed by the Supplier and submitted together with copies of manufacturer's catalogues, brochures, drawings, technical data, sales records, customer reference letters and copies of certificates/test reports for tender evaluation)

Tender No.

Clause	Description	Guaranteed Technical Particulars offered
	Name of Manufacturer & Country of manufacture of the assembly tools being offered	specify
	Type/Model Reference Number	specify
1	Scope: Supplier to ensure adequacy of the design, good workmanship, good engineering practice and adherence to standards, specifications and applicable regulations in the manufacture of the insulators for KPLC	specify
2	Design standards complied with	specify
3	Terms and Definitions	specify
4	Requirements	
4.1	Service condition	specify
4.2	Design and construction	
	Design, manufacture and test	in accordance with KS 06 -1346. Specify
	Shape and dimensions	As per fig. 1 and table 1 Attach drawing
4.3	Materials	
	Frame	As per table 2 Prove compliance – Attach test report
	Sheath and guides	
	Adjustable and fixed blade holders	
	Retaining pins	
	Insulating sleeve	in accordance with IEC 60900: 2012
4.4	Workmanship and finish	
	Adjustable frame	To provide correct blade tension and shall maintain the initial tension adjustment Specify
	Blade holders finish	Shall hold the blade rigidly and in true alignment with centre line of the frame and provide a flat bearing surface for the blade Specify
	Welding	Continuous smooth weld over the entire length of seams and edges Specify

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		of the handle-grip section	
	Anticorrosive coating	nickel-chromium plating - S Ni 10b Cr r as per ISO 1456:1988	Prove compliance – Attach test report
4.5	Performance requirements		
	Impact test		Prove compliance – Attach test report
	Heat distortion test		Prove compliance – Attach test report
	Tension load test		Prove compliance – Attach test report
4.6	Quality Management System		
	Quality Assurance Plan		provide
	Copy of ISO 9001:2008 Certificate		provide
	Manufacturer's experience		provide
	Manufacturing Capacity (units per month)		provide
	List of previous customers		provide
	Customer reference letters		provide
5.1	Test standards and responsibility of carrying out tests		provide
5.2	Copies of Type Test Reports submitted with tender		provide
5.3	Test reports to be submitted by supplier to KPLC for approval		provide
5.4	Replacement of rejected assembly tools.		specify
6.1	Marking		specify
6.2	Packing		specify
7.1	Documents submitted with tender		provide
7.2	Documents to be submitted by supplier to KPLC for approval before manufacture		provide
8.0	Manufacturer's Guarantee and Warranty		provide
9.0	List catalogues, brochures, technical data and drawings submitted to support the offer		provide
10.0	List customer sales records and reference letters submitted to support the offer.		provide
11.0	List Test Certificates submitted with tender		provide
12.0	List test reports of the wrenches to be submitted to KPLC for approval before shipment		provide
13.0	Statement of compliance to specification (indicate deviations if any & supporting documents)		provide

.....
Supplier's Name, Signature, Stamp and Date

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