



SPECIFICATIONS

FOR

ASSORTED TOOLS AND EQUIPMENT

APPROVAL RECORD

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FOREWORD

This standard has been approved as above and prepared by Customer Services Division of KPLC and lays down requirements for various tools and equipment.

This specification is intended for procurement of goods.

1. SCOPE

- 1.1 This specification indicates requirements for various hand held tools and equipment.
- 1.2 The tools and equipment are meant to improve on the quality of work for our field staff.

2. REFERENCES

Several international standards have been created to ensure the comparability of the operational safety, quality and features of various tools and equipment. Several industrial organisations are in charge of the standardisation. These include the International Electrotechnical Commission IEC and the European CENELEC, which creates the EN standards. In this case, IEC 61010, 61557, 61236 and 900 EN 60900 and 61326 standards have been used.

3. DEFINITIONS

Tool – A device or implement that facilitates work.

Equipment-A machine needed for a particular job.

4 Requirements

The Tenderer shall fill the attached spread sheet matrix to be used as a guideline in accessing the manufacturers' compliance to the requirements of this specification. The tenderers shall indicate the details of their offer where it is different from these requirements. Insertions such as "noted", "agreed" etc. shall be considered as non-responsive where a specific response is called for.

Copies of manuals, type approval, test compliance and calibration certificates shall confirm compliance with the standards used. The standards used-certified by the national standards institute of the country of manufacture-shall be provided (printed in English). If type approval certificates are from accredited laboratories (and not national or international bodies), they shall be accompanied with copies of certificates of accreditation from the national of the international certification body.

4.1 Clamp on Ammeter

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.1.1	The ammeter shall have capability to measure the true inrush current		
4.1.2	The ammeter shall measure currents of up to 1000A for both AC and DC		
4.1.3	The ammeter shall be able to measure power supply of a frequency range 50HZ-60HZ		
4.1.4	The unit shall have capability for frequency measurement		
4.1.5	The unit shall have capability to measure resistance up to 50kΩ		

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.1.6	The ammeter shall measure AC/DC voltage of at least 600V		
4.1.7	The unit shall have LCD display		
4.1.8	The unit shall be able to measure the total harmonic distortion		
4.1.9	The unit's jaw opening shall be at least 40mm		
4.1.10	The unit shall have a resolution of at least 1mA		
4.1.11	The unit shall have back light for the screen		
4.1.12	The unit shall have auto shut off capability		
4.1.13	The unit shall be able to measure the power factor		
4.1.14	The ammeter shall have an accuracy of $\pm 3\%$		
4.1.15	The unit shall have a recording and hold on function		
4.1.16	The unit shall have a degree of protection of at least IP54		
4.1.17	The unit shall have a continuity buzzer		
4.1.18	The unit shall meet the IEC 61010-1000V CAT IV safety rating		
4.1.19	Each unit shall have a blue tooth and USB communication capability		
4.1.20	Each unit shall have measuring probes		
4.1.21	Each unit shall have copies of calibration certificates		
4.1.22	Each unit shall have a carrying case		
4.1.23	The tenderer shall submit one sample on request.		
4.2.24	The units shall be manufactured in an ISO 9001:2008 certified facility		
4.1.25	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be		
4.1.25	The tenderer shall submit copies of user manual and brochures		

4.2 Digital Multimeter

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.2.1	The Multimeter shall have capability to measure DC voltage up to 1000V in four range of scales		
4.2.2	The Multimeter shall have capability to measure AC voltage up to 1000V in four range of scales		

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.2.3	The unit shall have capability to measure DC current in four range of scales up to 10A		
4.2.4	The unit shall have capability to measure AC current in four range of scales up to 10A		
4.2.5	The unit shall have overload protection feature		
4.2.6	The unit shall have capability to measure resistance in four range of scales up to 50Megaohms		
4.2.7	The unit shall have a continuity buzzer		
4.3.8	The unit shall have LCD display		
4.2.9	The unit shall have the capability of a diode test		
4.2.10	The unit shall have capability to measure capacitance		
4.2.11	The unit shall have capability for frequency measurement		
4.2.12	Each unit shall have a chargeable battery		
4.2.13	The unit shall have low battery charger indicator		
4.2.14	The unit shall have back light for the screen		
4.2.15	The unit shall have ingress protection of degree IP67		
4.2.16	The unit shall have a continuity buzzer		
4.2.17	The unit shall meet the IEC 61010-1000V CAT IV specifications		
4.2.18	Each unit shall have the following accessories: <ul style="list-style-type: none"> • Test leads • Instruction/user manual • brochures • RS-232C cable and software for communicating with a personal computer running on windows platform 		
4.2.19	The unit shall have auto power off capability		
4.2.20	Each unit shall have a carrying case		
4.2.21	The unit shall meet the electromagnetic compatibility EN 61326 standards		
4.2.22	Each unit shall have copies of calibration certificates		
4.2.23	The units shall be manufactured in an ISO 9001:2008 certified facility		
4.2.24	The tenderer shall submit one sample on request.		
4.2.25	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be		

4.3 Insulation Tester

CLAUSE	KPLC REQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.3.1	The insulation tester shall have a voltage measurement range of 0V-1000V AC/DC		
4.3.2	The unit shall be capable of measuring insulation resistance of up to 2TΩ		
4.3.3	The ammeter shall be able to measure power supply of a frequency range 40HZ-80HZ		
4.3.4	The unit shall have nominal test voltages of 250V,500V and 1000V		
4.3.5	Each unit shall have a rechargeable battery		
4.3.6	The unit shall be able to measure supplies with a frequency range of 40HZ to 80HZ		
4.3.7	The unit shall have back light for the screen		
4.3.8	The unit shall have auto power off capability		
4.3.9	The unit shall have combined analogue and dual digital display		
4.3.10	The ammeter shall have an accuracy of ±3%		
4.3.11	The unit shall be capable of live circuit detection and inhibit the test if the initial terminal voltage is more than 40V		
4.3.12	The unit shall have a degree of protection of IP67		
4.3.13	The unit shall have a continuity buzzer		
4.3.14	The unit shall meet the IEC 61010 600 V CAT IV standard		
4.3.15	Each unit shall meet the EN 61557 specifications		
4.3.16	The unit shall absorb any external physical shocks as per IEC 61010-1 standards		
4.3.17	Each unit shall have electromagnetic compatibility as per EN 61326-1 standards		
4.3.18	Each unit shall have the following accessories: <ul style="list-style-type: none"> ◦ Colour coded Test cables ◦ AC power cord ◦ Carrying case ◦ English user manual ◦ User manual ◦ brochures ◦ IP67 hard case 		
4.3.19	The unit shall have overload protection feature		
4.3.20	Each unit shall comply to IEC 61010-1,CAT IV safety standards		
4.3.21	The unit shall have capability to download data to a PC		

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.3.22	Each unit shall have copies of calibration certificates		
4.3.23	The units shall be manufactured in an ISO 9001:2008 certified facility		
4.3.24	The tenderer shall submit one sample on request.		
4.3.25	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be covered		
4.3.26	Each unit shall be supplied with a copy of software for data download		

4.4 Phase Sequence Device

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.4.1	Each device shall have live wire checking capability		
4.4.2	The unit shall be capable of voltage detection via electrostatic induction		
4.4.3	Each unit shall be capable of positive and negative phase sequence detection for three phase supplies		
4.4.4	The units shall be able to check supplies of a voltage range of 90V-600V		
4.4.5	The device should have the minimum current pick up of 1mA		
4.4.6	The device shall be able to check supplies of frequency range 50HZ-60HZ		
4.4.7	Each unit shall have battery low status display		
4.4.8	The unit shall have back light for the screen		
4.4.9	The unit shall have auto power off capability		
4.4.10	The unit shall meet the IEC 61010 CAT III 600V safety Specifications		
4.4.11	Each unit shall have colour coded test leads		
4.4.12	Each unit shall have a carrying case		

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.4.13	Each device should have at least IP40 protection		
4.4.15	The device must comply to European community directive 93/68/EEC on electromagnetic		
4.4.16	Each device shall have an overload protection feature		
4.4.17	Each device should weigh a maximum of 300g		
4.4.18	The devices shall be accompanied by user manuals and brochures done in English.		
4.4.19	The units shall be manufactured in an ISO 9001:2008 certified facility.		
4.4.20	The tenderer shall submit one sample on request.		
4.4.21	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be		

4.5 Pair of Long Nose Pliers

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.5.1	The pliers shall have a cutting edge hardness of HRC58-62	
4.5.2	The pliers shall be suitable for both hard and soft wire and superb ergonomic handling	
4.5.3	Each unit shall be made of drop forged chrome vanadium steel	
4.5.4	The unit shall have heavy duty insulation on handle grips	
4.5.5	Each unit shall have finger stops to prevent slipping	
4.5.6	Each pliers shall be tested to EN 60900 1000V standards to ensure safety of users	
4.5.7	The unit shall be manufactured to Euronorm IEC 900 standards	
4.5.8	Each unit shall be stamped with date-month and year- of manufacture	
4.5.9	Each unit shall have an overall length of 200mm and an head of 95mm	
4.3.10	The tenderer shall submit one sample on request.	

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.5.11	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	
4.5.12	The tenderer shall submit copies of user manual and brochures.	

4.6 Pair of Electrician Pliers

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.6.1	The pliers shall have a cutting edge hardness of HRC58-62	
4.6.2	The pliers shall be suitable for both hard and soft wire and superb ergonomic handling	
4.6.3	Each unit shall be made of forged and oil hardened vanadium electric steel	
4.6.4	The unit shall have heavy duty insulation on handle grips	
4.6.5	Each shall be capable of cutting, crimping, stripping and gripping	
4.6.6	Each unit shall have carefully controlled gap at the tip to ensure important cutting edge with terminal crimping slot	
4.6.7	Each pliers shall be tested to 1000V to ensure safety of users as per EN 60900 standards	
4.6.8	The unit shall be manufactured to Euronorm IEC 900 standards	
4.6.9	Each unit shall have finger stops to prevent slipping	
4.6.10	Each unit shall have an overall length of 200mm and an head of 70mm	
4.6.11	The tenderer shall submit one sample on request.	
4.6.12	Each unit shall be stamped with date-month and year- of manufacture	
4.6.13	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	
4.6.14	The tenderer shall submit copies of user manual and brochures.	

4.7 Side Cutting Pliers

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.7.1	The pliers shall have a guaranteed cutting edge hardness of HRC58-62	
4.7.2	The pliers shall be suitable for both hard and soft wire and superb ergonomic handling	

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.7.3	Each unit shall be made of drop forged high carbon steel	
4.7.4	The unit shall have heavy duty insulation on handle grips	
4.7.5	Each unit shall have carefully controlled gap at the tip to ensure important cutting edge with terminal crimping slot	
4.7.6	Each pliers shall be tested to 1000V to ensure safety of users as per EN 60900 standards	
4.7.7	The unit shall be manufactured to Euronorm IEC 900 standards	
4.7.8	Each unit shall have finger stops to prevent slipping	
4.7.9	Each shall have the crimping capability	
4.7.10	Each unit shall have an overall length of 215mm and an head of 75mm	
4.7.11	The tenderer shall submit one sample on request.	
4.7.12	Each unit shall be stamped with date-month and year- of manufacture	
4.7.13	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	
4.7.13	The tenderer shall submit copies of user manual and brochures.	

4.8 Professional Heavy duty 8 piece screw driver set

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.8.1	Each unit shall be made of forged chrome vanadium steel	
4.8.2	The unit shall have heavy duty stepped insulation to improve terminal access	
4.8.3	Each handle shall be marked for easy identification of screw driver size,type and length	
4.8.4	Each shall have precision machined tips for accurate fastening	
4.8.5	Each screw driver shall be tested to 1000V to ensure safety of users as per EN 60900 standards	
4.8.6	The unit shall be manufactured to Euronorm IEC 900 standards	
4.8.7	Each unit shall be suitable for live line work up to 1000V AC	
4.8.8	The tenderer shall submit one sample on request.	
4.8.9	The screw drivers shall have corrosion resistant tips	
4.8.10	Each shall have soft grip handles for maximum torque	
4.8.11	Each screw driver shall be designed for comfort with recessed finger stops to prevent slipping	

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.8.12	Set to comprise Five (5) flat and three (3) star screw drivers of the following sizes; 5 Flat <ul style="list-style-type: none"> ➤ Overall Blade Tip ➤ 255mm X 150 X 8 ➤ 230mm X 125 X 6 ➤ 220mm X 125 X 5 ➤ 185mm X 100 X 4 ➤ 140mm X 75 X 3 3 Star <ul style="list-style-type: none"> ➤ 200mm X 150 X No. 2 ➤ 175mm X 75 X No. 1 ➤ 140mm X 75 X No. 0 	
4.8.13	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	
4.8.14	The tenderer shall submit copies of user manual and brochures.	

4.9 Steel Trunking Hole cutter (Electricians hole saw kit)

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.9.1	<p>Piece Bi-Metal holesaw kit supplied in blow mould plastic carrying case. Kit includes:</p> <p>Hole saws</p> <ul style="list-style-type: none"> • 1 X 20 mm • 1 X 25 mm • 1 X 32 mm • 1 X 38 mm • 1 X 40 mm • 1 X 51 mm <p>They shall be of heavy duty Bi-metal construction for durability with alternate set variable pitch 4/6 teeth – producing tighter grip, less vibration, cleaner faster cut</p>	
4.9.2	The units shall be made of pressed gap to give full cutting depth	
4.9.3	Each shall have M3 steel cutting edge to keep its teeth sharper for longer period of time	
4.9.4	The body shall be made of shatterproof material for staying power	
4.9.5	Each unit shall be able to cut brass, copper, steel, aluminium, wood etc.	
4.9.6	The hole saws shall be able to be used in electric drills, pneumatic drills, vertical drilling machines and lathes	
4.9.7	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	
4.9.8	The tenderer shall submit copies of user manual and brochures.	
4.9.9	The tenderer shall submit one sample on request.	

4.10 Power Drilling Machines

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.10.1	The Machine shall be capable of both fastening/unfastening screws	
4.10.2	The machine shall be suitable for drilling of hard metals-carbon steel, alloy steel, cast steel, cast iron, bronze, copper and aluminium, wood and plastic.	
4.10.3	Each machine shall have adjustable speed option with electronic speed control	
4.10.4	Each Machine shall have Soft start trigger	
4.10.5	Each machine maximum rated input power shall be 800 watts	
4.10.6	Each shall have depth sensitive clutch capable of disengaging when set depth is reached	
4.10.7	The drilling machine shall have Variable and reversible features to make screw fastening and unfastening easy	
4.10.8	Each machine shall have durable gear housing	
4.10.9	Each machine shall come With standard accessories for holding/ driving screws into variety of materials	
4.10.10	The tenderer shall submit one sample on request.	
4.10.11	The tenderer shall submit copies of user manual and brochures.	
4.10.12	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	

4.11 Drill Bits – 10 Piece set sizes from 1mm – 10 mm (In 1mm increments)

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.11.1	They shall be made of high speed steel for drilling hard metals, wood and plastic.	
4.11.2	The Sizes shall range from 1 mm to 10 mm with a roll up storage porch	
4.11.3	The tenderer shall submit one sample on request.	
4.11.4	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	
4.11.5	The tenderer shall submit copies of user manual and brochures.	

4.12 Professional Hacksaw Frames

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.12.1	The frames Shall be made of heavy duty materials	
4.12.2	Each shall have Strong beam to keep blades rigid	
4.12.3	Each shall have hand grip design for comfort and protection	
4.12.4	Each shall have versatile key hole saw section	
4.12.5	They shall be supplied complete with high grade Bi-Metal blade	
4.12.6	Each shall have additional 45 degree blade position for use at awkward angles	
4.12.7	Each shall have easy to use tensioning device	
4.12.8	The maximum length shall be 400mm	
4.12.9	The tenderer shall submit one sample on request.	
4.12.10	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	
4.12.11	The tenderer shall submit copies of user manual and brochures.	

4.13 Replacement 400mm Blades

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.13.1	They shall be made of superb high-speed cutting performance with high grade bi-metal blades	
4.13.2	The tenderer shall submit one sample on request.	
4.13.3	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	
4.13.4	The tenderer shall submit copies of user manual and brochures.	

4.14 Set of Allen Keys (Metric Hex Key Sets)

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.14.1	They shall be 9 piece with 1.5;2;2.5;3;4;5;6;8 and 10mm	
4.14.2	They shall be made from chrome vanadium	
4.14.3	The ends shall be beveled for easy screw access	

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.14.4	They shall have easy to select protective dispenser	
4.14.5	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	
4.14.6	The tenderer shall submit copies of user manual and brochures.	
4.14.7	The tenderer shall submit one sample on request.	

4.15 Steel Trunking Hole Cutter (Sheet Metal Punch)

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS																		
4.15.1	The cutter shall be robust and engineered and heat treated for long keen cutting life																			
4.15.2	The cutter shall be able to cut mild steel up to 16swg(1.62mm),stainless steel up to 16swg(1.62mm),sheet copper,brass and aluminium up to 2.0mm																			
4.15.3	It shall have simple allen key operation which can be effected in less than one minute																			
4.15.4	It shall produce an accurate and burr free hole with no jagged edges																			
4.15.5	The cutter shall have black anti-corrosive surface finish to prevent rusting																			
4.15.6	The following allen keys should be provided: <table border="1" data-bbox="268 1368 746 1653"> <thead> <tr> <th>Hole Size</th> <th>Allen Key</th> <th>Pilot Hole</th> </tr> </thead> <tbody> <tr> <td>16mm</td> <td>6mm</td> <td>9mm</td> </tr> <tr> <td>20mm</td> <td>8mm</td> <td>11mm</td> </tr> <tr> <td>22.5mm</td> <td>8mm</td> <td>11mm</td> </tr> <tr> <td>25mm</td> <td>8mm</td> <td>11mm</td> </tr> <tr> <td>32.5mm</td> <td>10mm</td> <td>13mm</td> </tr> </tbody> </table>	Hole Size	Allen Key	Pilot Hole	16mm	6mm	9mm	20mm	8mm	11mm	22.5mm	8mm	11mm	25mm	8mm	11mm	32.5mm	10mm	13mm	
Hole Size	Allen Key	Pilot Hole																		
16mm	6mm	9mm																		
20mm	8mm	11mm																		
22.5mm	8mm	11mm																		
25mm	8mm	11mm																		
32.5mm	10mm	13mm																		
4.15.7	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.																			
4.15.8	The tenderer shall submit copies of user manual and brochures.																			
4.15.9	The tenderer shall submit one sample on request.																			

4.16 Retractable Knife (with 10 replacement knives)

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.16.1	It shall be made from tough die cast construction	
4.16.2	It shall have adjustable for depth of cut high-grade steel	
4.16.3	There shall be room for spare blade storage in handle	
4.16.4	There shall be a convenient loop hole for storage	
4.16.5	The knife must have at least ten stainless steel spare blades with angular and cylindrical shapes for trimming/stripping of electric cables	
4.16.6	The tenderer shall submit one sample on request.	
4.16.7	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	
4.16.8	The tenderer shall submit copies of user manual and brochures.	

4.17 Wire Stripping Pliers

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.17.1	It shall be suitable for both hard and soft wire and shall have superb ergonomic handle	
4.17.2	It shall be made of high grade carbon steel	
4.17.3	The pliers shall have finger stops to prevent slipping	
4.17.4	The pliers shall have adjustable screw for wires up to 20mm ² with dual compound handle and chrome plated	
4.17.5	The tenderer shall submit one sample on request.	
4.17.6	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	
4.17.7	The tenderer shall submit copies of user manual and brochures.	

4.18 Mains Neon Tester Screw Driver

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.18.1	It shall be made of high-grade steel	
4.18.2	It shall have a transparent handle with a high quality fully insulated blade and a distinct glow of neon lamp	

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.18.3	The minimum operating voltage shall be 220V and the maximum voltage shall be 250V	
4.18.4	The maximum length shall be 152mm	
4.18.5	The tenderer shall submit one sample on request.	
4.18.6	The unit shall have user manual and brochures	
4.18.7	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	

4.19 Non-contact AC voltage Detector/Finder

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS
4.19.1	It shall have a voltage detection range of 200V to 1000V AC/DC	
4.19.2	It shall emit audible and well as visual signal when AC voltage is detected	
4.19.3	The detector shall be powered using alkaline batteries	
4.19.4	The detector shall meet the IEC 61010-1 safety standards	
4.19.5	The unit shall meet the electromagnetic compatibility IEC 61326-1:2006 standards	
4.19.6	The unit shall operate within a bandwidth of 50HZ to 60HZ	
4.19.7	The unit shall have LCD display to show the detected voltage in volts	
4.19.8	The unit shall have auto power off to conserve energy	
4.19.9	The unit shall have user manuals and brochures	
4.19.10	The tenderer shall submit one sample on request.	
4.19.11	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.	

4.20 Cordless Drill/Driver Machine

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.20.1	The drill shall be capable of drilling and fastening/unfastening screws		
4.20.2	The unit shall have a rechargeable battery		

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.20.3	Each unit shall have an electronic speed control for speed adjustment		
4.20.4	The unit shall have a soft start trigger		
4.20.5	Each unit shall have depth sensitive clutch capable of disengaging when set depth is reached		
4.20.6	Each shall have durable gear housing		
4.20.7	Each unit shall have standard accessories for holding/driving screws into a variety of materials		
4.20.8	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.		
4.20.9	The tenderer shall submit copies of user manual and brochures.		
4.20.10	The tenderer shall submit one sample on request.		

4.21 Adjustable Spanner 8''

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.21.1	The spanner shall be made from bright polished nickel chrome		
4.21.2	The unit shall have slim line, tip and jaw for improved access		
4.21.3	The length and jaw size shall be clearly marked on the spanner		
4.21.4	The jaw opening shall be up to 30mm		
4.21.5	Each spanner shall have dimensions as: length of 200(8''), torque of 3100kg/cm and a weight of 260g		
4.21.6	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.		
4.21.7	The tenderer shall submit copies of user manual and brochures.		
4.21.8	The tenderer shall submit one sample on request.		

4.22 Earth Loop Impedance Tester

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.22.1	Each unit shall be capable of operating in temperatures of -10 degrees Celsius to 60 degrees Celsius and a maximum humidity of		
4.22.2	The tester shall be capable of two wire loop testing		
4.22.3	The unit shall be capable of measuring supplies of frequency range 30HZ to 90Hz		
4.22.4	Each unit shall be designed to meet IEC 61010-1 and IEC 61557 safety standards		
4.22.5	Each unit shall comply with IEC 61236 electromagnetic compatibility standards		
4.22.6	The units shall be able to measure supplies of a voltage range of 50V-440V		
4.22.7	The device shall have an LCD display for the measured values		
4.22.8	Each unit shall have colour coded test leads		
4.22.10	The unit shall have back light for the screen		
4.22.11	The unit shall have auto shut off capability		
4.22.12	Each unit shall have indicators to show correct wiring status		
4.22.13	The unit shall have automatic lock out in case the test resistor overheats		
4.22.14	The unit shall have capability to download test results to a personal computer		
4.22.15	Each unit shall have rechargeable battery capable of at least 1500 consecutive tests before recharge		
4.22.16	Each unit shall have a degree of accuracy of $\pm 2\%$		
4.22.17	Each unit shall have a carrying case		
4.22.18	Each unit shall have a degree of protection of IP54		
4.22.19	Each unit shall have its calibration certificates		
4.22.20	The tenderer shall submit one sample on request.		
4.22.21	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be		
4.22.22	The tenderer shall submit copies of user manual and brochures.		
4.22.23	Each unit shall be supplied with software to download results		

4.23 TRMS POWER METERS

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.23.1	The Meter shall have selectable single phase and three phase settings.		
4.23.2	The Meter shall have capability to measure AC voltage up to 1000V.		
4.23.3	The Meter shall have capability to measure AC current up to 600 Arms with an option of up to 10000A with clamp on current probe.		
4.23.4	The unit shall have capability to display multiple measurements for easy reading.		
4.23.5	The unit shall have overload protection feature		
4.23.6	The unit shall be able to measure Arms, Vrms, Power Factor, Kilowatt, Kilovolt, Amperes, reactive, and Frequency.		
4.23.7	T		
4.24.8	The unit shall have LDC display		
4.23.9	The unit shall have the capability to measure harmonic order percentage and Total Harmonic distortion.		
4.23.10			
4.23.11	The unit shall have capability for frequency measurement		
4.23.12	Each unit shall have a battery life of 50 hours continuous use		
4.23.13	The unit shall have low battery charger indicator		
4.23.14	The unit shall have back light for the screen		
4.23.15	The unit shall have ingress protection of degree IP67		
4.23.16	The unit shall have a continuity buzzer		
4.23.17	The unit shall meet the IEC 61010-1000V CAT IV safety rating		
4.23.18	Each unit shall have the following accessories: <ul style="list-style-type: none"> • Test leads • Instruction/user manual • brochures • RS-232C cable and software for communicating with a personal computer running on windows platform 		
4.23.19	The unit shall have auto shut off capability		
4.23.20	Each unit shall have a carrying case		
4.23.21	The unit shall meet the electromagnetic compatibility EN 61326 standards		

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.23.22	Each unit shall have copies of calibration certificates		
4.23.23	The units shall be manufactured in an ISO 9001:2008 certified facility		
4.23.24	The tenderer shall submit one sample on request.		
4.23.25	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.		

4.24 LIGHT METERS

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/ REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.24.1	The meter shall have User-selectable Lux or Fc units of measure		
4.24.2	The unit shall have a measurement range of measurement range of 0 to 400 kLux; 0 to 40 kFc		
4.24.3	The meter shall have User-selectable Lux or Fc units of measure		
4.24.4	The meter shall Max/Min and Hold functions		
4.24.5	Each unit shall Record up to 87,000 measurements		
4.24.6			
4.24.7	The unit shall have Data logging software with graphical display		
4.24.8	The unit shall have Download data via USB connectivity capability.		
4.24.9	The unit shall have Large LCD for display.		
4.24.10	The meter shall have an accuracy of $\pm 3\%$ rdg $\pm 0.5\%$ full-scale (<10,000 Lux), $\pm 4\%$ rdg ± 10 digits (>10,000 Lux)		
4.24.11	The unit shall have Low-battery indicator		
4.24.12	The unit shall have a degree of protection of IP67		
4.24.13	The unit shall have an Auto power-off non-use capability.		
	The unit shall have a resolution of 0.01Lux/Fc		
4.24.14	The unit shall have an Overload Display Indicator		

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.24.15	Each unit shall have the following accessories: <ul style="list-style-type: none"> • Carrying case • English user manual • User manual • brochures • IP67 hard case 		
4.24.16	The unit shall have capability to download data to a PC		
4.24.17	Each unit shall have copies of calibration certificates		
4.24.18	The units shall be manufactured in an ISO 9001:2008 certified facility		
4.24.19	The tenderer shall submit one sample on request.		
4.24.20	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be		

4.25 PORTABLE ULTRASONIC FLOW METERS

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.25.1	Each device shall have an accuracy of $\pm 0.5\%$		
4.25.2	The unit shall have Operating temperature range -40F to +212F (-40C to 100C)		
4.25.3	Each unit shall be capable of Range of pipe sizes 1.0"-200" (2.5m-5m)		
4.25.4	The units shall have 256MB Palm TX PDA interface with Bluetooth wireless		
4.25.5	The device should have numerical and graphical display interface		
4.25.6	The device shall have Battery power supply with battery recharge port (including spare battery)		
4.25.7	Each unit shall have Lightweight and easily transportable		
4.25.8	The unit shall have Low installation effort and costs		
4.25.9	The unit shall have Clamp-on sensors		

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.25.10	The unit shall Magnetic sensor clamping fixture with slip scale gage		
4.25.11	Each unit shall have Bi-directional Flow range of 0 to 40 fps (0-12 mps)		
4.25.12	Each unit shall have Daily, monthly, and yearly totalized flow		
4.25.13	Each device should have Internally configured batch controller		
4.25.15	The device must have the capability to measure flow independent of fluid conductivity		
4.25.16	The devices shall be accompanied by user manuals and brochures done in English.		
4.25.17	The units shall be manufactured in an ISO 9001:2008 certified facility		
4.25.18	The tenderer shall submit one sample on request.		
4.25.19	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be		

4.26 PRECISION AIMING INFRARED THERMOMETER

CLAUSE	KPLC EQUIREMENT		MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.26.1	Spectral Range	8 to 14 μm		
4.26.2	Temperature Range	Expanded		
		Max		
		F		
		C		
	Min			
4.26.3	Thermometer type	Meter		
4.26.4	Power	Battery		
4.26.5	Voltage Input	No		
4.26.6	Sighting type	3-dot Laser		
4.26.7	Icons	30 1 3 22		
4.26.8	Description	Basic Model		
4.26.9	Display	Multidata,backlit,readout		
4.26.10	Distance to Target size ratio	60:1		
4.26.11	RS-232 Output	No		
4.26.12	Emissivity	Adjustable		

CLAUSE	KPLC EQUIREMENT		MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED
4.26.13	Laser Class	II		
4.26.14	Low Battery indicator			
4.26.15	Ambient Conditions	32 to 120° F (0 to 50 ° C)		
4.26.16	Accuracy	Expanded	±1% of reading or ± 2 ° F, whichever is greater	
4.26.17		F	±1% of reading or ± 2 ° F, whichever is greater	
		C	±1% of reading or ± 1 ° C, whichever is greater	
		Min	0.75	
4.26.18	Repeatability	F	± 0.5 % of reading or ± 2 ° F	
		C	± 0.5 % of reading or ± 2 ° F	
4.26.19	Resolution	0.2		
4.26.20	Resolution	F	0.2 ° F to 999 ° F; 1 ° F above 999 ° F	
		C	0.1 ° C to 900 ° C	
4.26.21	Response time	250 millisecond		
4.26.22	Each unit shall be accompanied by copies of its calibration certificates			
4.26.23	The units shall be manufactured in ISO 9001:2008 certified facility			
4.26.24	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.			

4.27 Electronic Combustion Analyser

CLAUSE	KPLC REQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED DOCUMENTS
4.27.1	The analyser shall have capability to measure pre-programmed fuels Oil #2, Oil #4, Oil #6, Coal, wood, kerosene, bagasse, LPG		
4.27.2	The analyser shall have a combustion efficiency of 0.1 to 100%		
4.27.3	The analyser shall be able to measure Oxygen concentration levels to 21%		
4.27.4	The unit shall have capability to measure Carbon Dioxide measurements from 0% to fuel dependent maximum		
4.27.5	The unit shall have capability to measure Carbon Monoxide measurement of up to 4000 ppm		
4.27.6	The analyser shall be able to measure stack temperatures of up to 1200°C		
4.27.7	The unit shall have LCD display		
4.27.8	The unit shall have a warranty of at least 12 months. All defects due to faulty workmanship shall be replaced at supplier's cost.		
4.27.9	The analyser shall be able to measure excess air of up to or more than 250%		
4.27.10	The unit shall work at an ambient air temperature from -20°C to 100°C		
4.27.11	The unit shall have back light for the screen		
4.27.12	The unit shall have auto shut off capability		
4.27.13	The unit shall have measuring probes		
4.27.14	The unit shall have a recording and hold on function		
4.27.15	The unit shall have protection boots		
4.27.16	Each unit shall have copies of calibration certificates		
4.27.17	Each unit shall have a carrying case		
4.27.18	Each unit shall have a saving mode for the measurements and a printout shall be considered a special feature		
4.27.19	The tenderer shall submit one sample on request.		
4.27.20	The tenderer shall submit copies of user manual and brochures.		
4.27.21	The units shall be manufactured in an ISO 9001:2008 certified facility		

4.28 Ultrasonic Leak Detector

CLAUSE	KPLC REQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED DOCUMENTS
4.28.1	The ultrasonic leak detector shall have an operating temperature of -10°C to +50°C		
4.28.2	The leak detector shall have a measurement accuracy of +/-5% °C		
4.28.3	The leak detector shall have a frequency response of not less than 35kHz		
4.28.4	The unit shall have LCD display		
4.28.5	The unit shall have back light for the screen		
4.28.6	The unit shall have auto shut off capability		
4.28.7	Each unit shall have a chargeable battery		
4.28.8	The unit shall have low battery charger indicator		
4.28.9	Each unit shall have a carrying case		
4.28.10	Each unit shall have copies of calibration certificates		
4.28.11	The unit shall have a warranty of at least 12 months. All defects due to faulty workmanship shall be replaced at supplier's cost.		
4.28.12	The tenderer shall submit one sample on request.		
4.28.13	The tenderer shall submit copies of user manual and brochures		
4.28.14	The units shall be manufactured in an ISO 9001:2008 certified facility		

4.29 Air Flow Meters

CLAUSE	KPLC REQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED DOCUMENTS
4.29.1	Each unit shall have an air volume range in ft ³ /min of 0 to 999,000.		
4.29.2	The meter shall have an air volume resolution range of 0.001 to 100		
4.29.3	The unit shall have a range in m/s of 0.4 to 25.0		
4.29.4	Each unit shall have a resolution in m/s of 0.1 IEC		
4.29.5	Each unit shall have an accuracy in m/s of $\pm 2\%$ +0.2d		
4.29.6	The units shall have a range of 0.9 to 55.9 in mph.		
4.29.7	The device shall have a resolution of 0.1 in mph.		
4.29.8	Each unit shall have an accuracy of $\pm 2\%$ +0.2d		
4.29.10	The unit shall have a knots range of 0.8 to 48.27.		
4.29.11	The unit shall have a resolution of 0.1 in knots range.		
4.29.12	Each unit shall have an accuracy of $\pm 2\%$ +0.2d in the Knots range.		
4.29.13	The unit shall have a range of 1.4 to 90.0 in km/hr		
4.29.14	The unit shall have a resolution of 0.1 in km/hr range.		
4.29.15	Each unit shall have an accuracy of $\pm 2\%$ +0.2d in the km/hr range.		
4.29.16	Each unit shall have a Temperature range of 32 to 122°F (0 to 50°C)		
4.29.17	Each unit shall have a temperature resolution of 0.1°		
4.29.18	Power source of 9V battery.		
4.29.19	Each unit shall have its calibration certificates		
4.29.20	The tenderer shall submit one sample on request.		
4.29.21	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be		
4.29.22	The tenderer shall submit copies of user manual and brochures.		

4.30 OPTICAL TACHOMETER

CLAUSE	KPLC EQUIREMENT		MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED DOCUMENTS
4.30.1	SPEED RANGE (RPM)	5.0 RPM to 500,000 RPM Fixed Decimal or Auto-Ranging		
4.30.2	Range (RPM)	Accuracy (RPM) Resolution		
4.30.3	5.0000- 9.9999	± 0.0001	0.0001	
4.30.4	10.000-99.999	±0.001	0.001	
4.30.5	100.00-999.99	±0.01	0.01	
4.30.6	1000.0-9999.9	±0.1	0.1	
4.30.7	10,000-99,999	±1.0	1.0	
4.30.8	100,000-500,000	±0.001% of the reading		
4.30.9	FREQUENCY RANGE	0.08 Hz to 10,000 Hz		
4.30.10	DISPLAY	6 digit alphanumeric 0.44 inch high backlighted LCD		
4.30.11	INDICATORS	On Target, Low Battery, Mode, Max, Min, Instrument "Locked On" Scale and Error		
4.30.12	POWER	4AA-Alkaline batteries. Rechargeable NiCad batteries optional		
4.30.17	Each unit shall be accompanied by copies of its calibration certificates			
4.30.18	The units shall be manufactured in ISO 9001:2008 certified facility			
4.30.22	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.			

4.31 Digital Humidity Meter

CLAUSE	KPLC EQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED DOCUMENTS
4.31.1	The digital humidity meter shall have an operating of -10°C to +100°C		
4.31.2	The humidity meter shall have capability to measure relative humidity from 100%		
4.31.3	The unit shall have humidity accuracy of +/-2%		

CLAUSE	KPLC REQUIREMENT	MANUFACTURER'S COMPLIANCE/REMARKS	REFERENCE PAGE IN THE SUBMITTED DOCUMENTS
4.31.4	The unit shall have temperature accuracy of +/-1°C		
4.31.5	The unit shall have a resolution humidity of 0.1% relative humidity		
4.31.6	The unit shall have storage conditions of -10°C to 60°C		
4.31.7	The unit shall have back light for the screen		
4.28.8	The unit shall have LCD display		
4.31.9	Each unit shall have a chargeable battery		
4.31.10	The unit shall have low battery charger indicator		
4.31.11	The unit shall have auto shut off capability		
4.31.12	Each unit shall have a carrying case		
4.31.13	Each unit shall have copies of calibration certificates		
4.31.14	The tenderer shall submit one sample on request.		
4.31.15	The tenderer shall submit copies of user manual and brochures		
4.31.16	Each unit shall have 12 months warranty. All defects due to faulty workmanship shall be replaced at supplier's cost.		
4.31.17	The units shall be manufactured in an ISO 9001:2008 certified facility		

ADDITIONAL NOTES TO TENDERERS

1. The utility shall ask the tenderers to submit equipment/tool sample(s) on a case by case basis as need arises.
2. The tenderer shall provide the said sample within a maximum of five working days from the date of request, failure to adhere to this shall lead to automatic disqualification from further evaluation.
3. The submitted sample shall be evaluated against the information provided in the submitted tender document. This includes but not limited to the information in the user manuals, brochures and any other relevant information.
4. Samples will be returned to tenderers after the evaluation process.

#	Tool/ Equipment	Unit of Measure	Quantity
1	Single Phase Meter Test Bench	PC	2
2	Insulation Tester	PC	1
3	IP Protection Test Chamber	PC	1
4	Clamp on Ammeter	PC	360
5	Digital Multimeter	PC	260
6	Insulation Tester	PC	50
7	Phase Sequence Device	PC	80
8	Pair of Long Nose Pliers	PC	345
9	Pair of Electrician Pliers	PC	355
10	Side Cutting Pliers	PC	345
11	Professional Heavy duty 8 piece screw driver set	PC	350
12	Steel Trunking Hole cutter (Electricians hole saw kit)	PC	65
13	Power Drilling Machines	PC	75
14	Drill Bits – 10 Piece set sizes from 1mm – 10 mm (In 1mm increments)	PC	90
15	Professional Hacksaw Frames	PC	300
16	Replacement 400mm Blades	PC	200
17	Set of Allen Keys (Metric Hex Key Sets)	PC	150
18	Steel Trunking Hole Cutter (Sheet Metal Punch)	PC	60
19	Retractable Knife (with 10 replacement knives)	PC	355
20	Wire Stripping Pliers	PC	355
21	Mains Neon Tester Screw Driver	PC	355
22	Non-contact AC voltage Detector/ Finder	PC	355
23	Cordless Drill/Driver Machine	PC	80
24	Adjustable Spanner 8’’	PC	100
25	Earth Loop Impedance Tester	PC	250
26	TRMS power meters	PC	15
27	Light meters	PC	5
28	Portable ultrasonic flow meters	PC	9
29	Precision aiming infrared thermometer	PC	5
30	Electronic Combustion Analyzer	PC	1
31	Ultrasonic Leak Detector	PC	1
32	Air Flow Meters	PC	5
33	Optical Tachometer	PC	5
34	Digital Humidity Meter	PC	5

