THE KENYA POWER COMPANY

SPECIFICATIONS FOR THREE PHASE AC/DC CALIBRATION BENCH (WORKSTATION)

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REVISION RECORD

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Foreword

This standard specification has been prepared by the Meter Central Laboratory in consultation with the Research and Development Department, all of KP, and lays down requirement for AC/DC calibration bench

This specification is intended for procurement of materials and does not include provision of contract.

This specification is based on IEC TR 61010-3-032 standard on safety,

It is subject to revision as and when required.

This specification supersedes all specifications AC/DC calibration bench

issued before the revision date.

Introduction

This specification was prepared to establish and promote uniform requirements for AC/DC calibration bench. The specification lays down the minimum requirements for equipment acceptable for evaluation. It is the responsibility of the Supplier to obtain copies of the standards referred herein.

1 **Scope**

This is a three phase multifunctional calibration station. The calibration equipment shall be easy to use. Unless otherwise specified; AC/DC calibration bench shall comply with IEC TR 61010-3-032 standard on safety,

2 **References**

The following documents were referred to during the preparation of this specification; in case of conflict, the requirements of this specification take precedence,

- IEC TR 61010-3-032 : standard on safety requirement for electrical equipments for measurements and laboratory use
- IEC 60529: Degree of protection provided by enclosures

Definitions

The definitions given in the reference standard apply.

3. REQUIREMENTS

3.1 Operating Conditions

3.1.1 The three phase multifunctional calibration station. shall operate in tropical areas with the following atmospheric conditions:

3.1.1.1 Humidity: High at Coast, up to 95 % and operating

3.1.1.2 Altitudes ranging from sea level to 2000m above sea level

3.1.1.3 Temperature: Vary from 2 °C to 50 °C degrees.

4.2 Design and construction

4.2.1 Dimensions

4.2.1.1 The three phase AC/DC calibration bench shall have three consoles i.e. Primary, Secondary console and bench with back plate and drawer option.

4.2.1.2 The three phase AC/DC calibration bench shall have an inverted U shape profile.

4.2.1.3 The three phase AC/DC calibration bench shall have overall width of not more than 250_x height166_x depth 90cm,weight approximately $\leq$ 180kg

4.2.1.4 The three phase AC/DC calibration bench. Shall be mounted with a screen control that indicates the measured voltages, currents, resistance, frequency and much more.

4.2.1.5 The three phase AC/DC calibration bench shall have well-established Calibration software which integrates with the bench modules. The software should assist in documenting,planning,analyzing and optimizing calibration work and store calibration results in a traceable and auditable manner

4.2.1.6 The three phase AC/DC calibration bench shall **secondary** console: width not more than 210 cm,height, not more than 40cm,depth not more than 20cm,weight not more than 32 kg

4.2.1.7 The three phase AC/DC calibration bench shall have **worktop** width not more than 210cm,depth ,not more than 85cm*3.9,and not more than 90cm above the floor .shall have durable finish

4.2.1.8 The three phase AC/DC calibration bench shall have **primary** console:

Width not more than 210 cm, height not more than 30cm and depth not more than 48cm.weight not more than 100kgs .it will incorporate an industrial PC reloaded with programs and calibration software which shall provide a direct error readout for the instrument being tested.The software should be able to produce certificate and reports to ISO 17025,ISO 9001 and other International Quality Standards.

4.2.1.9 The three phase AC/DC calibration bench shall have multifunctional process calibration system for volts (AC/DC),Functional generators, current (AC/DC) resistance temperature T/C/RTD), frequency measurements up to 10MHz,Fully automated pressure calibration. 0 to 250bars,

4.2.1.10 Pressure measurement module shall incorporate advanced pressure measurement technology resulting in only afew modules being required to cover a wide pressure range with excellent uncertainity

4.2.1.11 The three phase AC/DC calibration bench shall have current coils for testing clamp on Equipments.

4.2.1.12 The three phase AC/DC calibration bench shall offer Electrical signals, Electrical tests, and Measurements. Maintenance and testing of single and three phases electrical devices.should have an oscilloscope and resistance decade range 0 to 10kohm with resistance resolution 0.01 ohm.accuracy ±0.1%

4.2.1.13 The three phase AC/DC calibration bench shall have soldering function facilities i.e two soldering irons,2 disoldering irons,stands and cleaning sponges for soldering tools.soldering bits shall be included of sizes,(2.4mm .2pc,disoldering nozzle 1.0/2.3mm)

4.2.1.14 The three phase AC/DC calibration bench shall print the stored results.

4.2.1.15 The three phase AC/DC calibration bench test Modules Certificates shall be provided.

4.2.1.16 The three phase AC/DC calibration bench shall have console lighting fitted with 2 power sockets

4.2.1.17 The three phase AC/DC calibration bench shall have a polyurethane chair (adjustable) not more than 500mm.

4.2.1.18 The three phase AC/DC calibration bench shall be castor mount.

4.2.1.19 The three phase AC/DC calibration bench shall be accompanied by a metric box-set of 53 tools.

4.3 RATINGS

4.3.1 The three phase AC/DC calibration bench shall have

- Regulated 3 phase power supply unit
- Frequency50Hz
- A current circuit breaker with over-current protection
- Lighting switch to provide work-top lighting
- Cooling fans fitted internally
- Earth leakage circuit breakers
- Emergency power off with reset.
- Adjustable AC Module 0---≥265V/10A at 240 volts input or 0--≥121volts/10A at 110 volts.
- Integral tester 6.5digit DMM touch screen PC
- Source AC/DC Voltage upto ≥1000V and Current upto ≥22A

4.3.2 The three phase AC/DC calibration bench shall perform the following functions:

- Mains voltage output ..... 0 to ≥250V
- Ac current..... ..... 0 to ≥10A
- Dc voltage output.....0 to ≥30V
- Dc Current.....0 to ≥30A
- Temperature measurements....T/C /RTD
- Frequency measurements.....0 to ≥10MHZ
- Resistance .....0 to ≥200Mega Ohm
- Multimeter Calibration.....
- Power measurement application package.
- Meter Circuit Breakers of all ratings .... Single, Double pole and three phase MCBs
- Multimeter ,Ohmeters,resisance boxes
- Oscilloscope testing.

4.3.3 A type tests calibration certificate from a national metrology institute shall be required with calibration bench to be provided.

Where test and / or calibration certificates/ reports are issued by a laboratory other than the International / National Test Certification Authority, **a copy of accreditation certificate from the International / National Testing Certification Authority shall be attached together with the tender documents.**

Requirements of clause 4.3 shall form part of the type test approval to be issued by an international or the national (of country of manufacture) the three phase multifunctional calibration station.

4.4 Marking, Labeling and Packaging

4.4.1 Markings

The markings shall identify:

a) The serial number of the equipment

b) The ratings;

4.4.1.1 Method of marking

4.4.1.2 The markings shall be marked clearly and indelible, either on their surface or in their immediate vicinity.

4.4.1.3 The marking shall consist of letters followed, or preceded where necessary, by numbers. The letters shall be in block capitals.

4.4.2 Rating plate markings

The three AC/DC calibration bench shall

at least carry the following markings:

a) the manufacturer's name or other mark by which he may be readily identified;

b) a serial number or a type designation,

c) "THE PROPERTY OF K.P. CO. LTD."

All information shall be marked in an indelible manner on the three phase AC/DC calibration bench in addition, other information shall be marked whenever space.

4.4.3 Packaging

The three phase AC/DC calibration bench. shall be packaged in such a manner as to minimize damage and entry of moisture during transportation and handling.. Where a tender

has been awarded, packaging shall be done only after inspection, testing of the three phase AC/DC calibration bench. has been finalized. In the absence of these consent to package and shipment shall be granted, in writing, by the Procurement manager, Kenya Power Company Ltd.

5.0 TEST METHODS

The tests specified in this standard are classified as operation tests, routine tests, and special tests

6.0 OTHER REQUIREMENTS

6.1 Guarantee

The three phase AC/DC calibration bench shall be guaranteed against any defects, which may develop due to faulty material calibration, transportation or workmanship for a twelve-month period from the date of delivery.

6.2. Product information

The following Drawings and Information shall be supplied with the tender.

(a) Drawing giving all relevant dimensions.

(b) Wiring diagram.

(c) Description leaflet of the three phase AC/DC calibration bench.

(d) Operation manual

6.3 The tenderer shall show proof, by means of appropriate current certificates, of compliance to ISO 9001:2008) and / or ISO 14001 series of Standards.

6.4 A statement of compliance or non-compliance with the above specifications shall be required. In case of non-compliance the affected requirements shall be indicated.

The manufacturer shall meet the full costs of two engineers, for the three phase AC/DC calibration bench, inspection and acceptance testing at the manufacturer's facility, excepting the cost of engineers' transportation from Kenya to the nearest major airport.

7.0 REFERENCES

The following documents were referred to during the preparation of this specification, and may be referred to. In case of conflict, the provision of this specification shall take precedence.

Unless otherwise specified, the latest revision, edition and amendments shall apply.

- IEC TR 61010-3-032 : standard on safety requirement for electrical equipments for measurements and laboratory use

KPLC: Code of Practice for Drafting and Presentation of Standards

APPENDIX A SUMMARY SCHEDULE OF TECHNICAL DATA

Clause Number	Bidder's offer	Manufacturer's catalogue, drawing, technical data or tests certificate Reference Page to support the offer.
3.1 Operating Conditions		
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4.3.3 **A type tests calibration certificate from a national metrology institute shall be required with calibration bench to be provided.** Where test and / or calibration certificates/ reports are issued by a laboratory other than the International / National Test Certification Authority, **a copy of accreditation certificate from the International / National Testing Certification Authority shall be attached together with the tender documents.** **Requirements of clause 4.3 shall form part of the type test approval to be issued by an international or the national (of country of manufacture) the three phase multifunctional calibration station.**		

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All information shall be marked in an indelible manner on the three phase multifunctional calibration station.	
In addition, other information shall be marked whenever there is space.	
4.4.3 Packaging Packaging shall be done to minimize damage and moisture entry. The three phase AC/DC calibration bench shall be packaged in such a manner as to minimize damage and entry of moisture during transportation and handling.. Where a tender has been awarded, packaging shall be done only after inspection, testing of the three phase AC/DC calibration bench. has been finalized. In the absence of these consent to package and shipment shall be granted, in writing, by the Procurement manager, Kenya Power Company Ltd.	
5 Test Methods	
5.1 The tests specified in this standard are classified as operation tests, routine tests, and special tests	
6.0 Other requirements	
6.1 Guarantee: The three phase AC/DC calibration bench shall be guaranteed against any defects, which may develop due to faulty material calibration, transportation or workmanship for a twelve-month period from the date of delivery.	
6.2 Product information: The following Drawings and Information shall be supplied with the tender. (a) Drawing giving all relevant dimensions. (b) Wiring diagram. (c) Description leaflet of the three phase AC/DC calibration bench. (d) Operation manual	

6.3 The renderer shall show proof, by means of appropriate current certificates, of compliance to ISO 9001:2008) and / or ISO 14001 series of Standards.	
6.4 A statement of compliance or non-compliance with the above specifications shall be required. In case of non-compliance the affected requirements shall be indicated. The manufacturer shall meet the full costs of two engineers, for the three phase AC/DC calibration bench. Inspection and acceptance testing at the manufacturer's facility, excepting the cost of engineers' transportation from Kenya to the nearest major airport.	
7.0 The following documents were referred to during the preparation of this specification, and may be referred to. In case of conflict, the provision of this specification shall take precedence. Unless otherwise specified, the latest revision, edition and amendments shall apply. • IEC TR 61010-3-032 : standard on safety requirement for electrical equipments for measurements and laboratory use • KPLC: Code of Practice for Drafting and Presentation of Standards	

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

Manufacturer's Declaration: I .....on behalf of.....

Declare that the above specifications matrix conforms to a typical tender item type..... as clearly marked in the attached technical brochures & drawings, and being offered for this tender.

Signature..... Date.....Stamp/Seal.....

Appendix B: SKETCH OF AC/DC CALIBRATION BENCH