www.prasa.com

Be moved

prasa
PASSENGER RAIL AGENCY OF SOUTH AFRICA

BILL OF QUANTITY AND PROJECT SPECIFICATION

OHTE TOOLS FOR WC, KZN, AND GP DEPOTS

Godfrey Maluleke
Manager Electrical (OHTE)

27/02/2026

1. INTRODUCTION

The purpose of this project is to provide a service of supply and deliver of OHTE tools.

2. DESCRIPTION OF WORKS/SCOPE OF WORKS

Supply and delivery of tools to the PRASA Western Cape, KwaZulu-Natal, and Gauteng region Electrical Depots.

2.1. Gauteng

2.1.1. 100 x Electric shock hazard WW23 warning sign (Chromadek)

2.1.2. 100 x Electric shock hazard WW7 warning sign (Chromadek)

2.1.3. 100 x Electric shock hazard WW7 warning sign (Sticker)

2.1.4. 100 x Substation 4 in 1 warning notice (Chromadek)

2.1.5. 10 x 1.5-ton chain hoist

2.1.6. 6 x Inverter welding machine

2.1.7. 50 x Helmets

2.1.8. 2 x Handheld GPS coordinates receiver

2.1.9. 20 x Heavy-duty high-voltage insulation gloves

2.1.10. 4 x Dynamometer tension device

Godfrey Malaulek
Manager Electrical (OHTE)

27/02/2026

2.2. Western Cape:

2.2.1. 5 x Measuring wheel

2.2.2. 2 x Dynamometer tension device

2.2.3. 50 x Helmets

2.2.4. 2 x Trestle trolley

2.2.5. 20 x Heavy-duty high-voltage insulation gloves

2.2.6. 2 x Stagger and height gauge (Manual operated)

2.2.7. 1 x Handheld GPS coordinates receiver

2.3. KZN

2.3.1. 2 x Dynamometer tension device

2.3.2. 100 x Electric shock hazard WW23 warning sign (Chromadek)

2.3.3. 100 x Electric shock hazard WW7 warning sign (Chromadek)

2.3.4. 5 x Measuring wheel

2.3.5. 2 x Hydraulic crimping tools (Manual operated)

2.3.6. 100 x Electric shock hazard WW7 warning sign (Sticker)

2.3.7. 2 x Trestle trolley

2.3.8. 20 x Heavy-duty high-voltage insulation gloves

2.3.9. 2 x Stagger and Height gauge

2.3.10. 1 x Handheld GPS coordinates receiver

2.3.11. 100 x Substation 4 in 1 warning notice (Chromadek)

3. DURATION

The project contract will be for 1 Month from the date of award. i.e., Tenderer having acknowledged the receipt of the award letter.

4. GUARANTEE

4.1. Prasa shall be formally invited to conduct tests and visually inspect the equipment before delivery.

4.2. The material/equipment shall be subjected to a guarantee period of 24 months. The guarantee period shall commence the day it is formally handed over to and accepted by PRASA.

4.3. Any defects that may become apparent during the guarantee period shall be rectified to the satisfaction of PRASA at no cost to PRASA.

4.4. Should the contractor fail to comply with the above, Prasa is entitled to take effective replacement of the defective material. The contractor must reimburse Prasa the total cost for the replacement of materials.

5. TENDERING PROCEDURE (EVALUATION)

5.1. For all quoted items, bidders must submit descriptive literature consisting of a detailed technical description of the product offered, general constructional details, and principal dimensions, together with clear illustrations of each equipment offered. Tenderers shall provide the following additional information at the tendering stage:

- The battery requirements of the tool and the expected service life of the batteries at 20 operations per day.
- Spare components recommended and availability for local repair.
- The mass of the tool.
- Experience in the durability of the tool during normal daily use, including weather ability and sustained insulation values.

5.2. The Bidders must submit a letter from the OEM - Original Equipment Manufacturer /OEM agent authorising the bidder to supply the equipment to PRASA.

5.3. All equipment offered must come with a guarantee of 24 months, and the guarantee policy shall be submitted at the closing of the RFQ.

5.4. Bidders must provide evidence of completed Supply and delivery contract of Electrical tools/materials in the past 3 years. The submission must include a brief description of the electrical tools, client name, client contact details, delivery timelines, and Purchase Order or Contract.

6. ***PENALTY***

Should the Contractor fail to complete delivery on/before the stipulated completion dates, a penalty fee of R5000 per week will be charged.

7. Technical requirements

7.1. Dynamometer tension device

7.1.1. The device must support a minimum tension capacity of 80 kN to cover the mechanical tension range required in OHTE systems.

7.1.2. Tension-meter selection must be based on force capacity and range, with accuracy typically ±1%, and up to ±2% for very high tensions.

7.1.3. The device must meet overhead-use safety expectations, including:

- Rugged construction suitable for field conditions.
- A minimum 5:1 safety factor, similar to overhead weighing and load-monitoring systems used in industrial applications..

7.1.4. The device must be calibrated for the specific diameter and material of OHTE conductors to ensure accurate field readings.

- Calibration must align with the wire size and type for reliable measurement in line-tension applications.

7.2. High voltage insulation gloves

7.2.1. Gloves shall be made from high-dielectric natural rubber with no latex defects, air bubbles, cracking, or stickiness.

7.2.2. The material must be seamless and free from weak points.

7.2.3. Gloves must be flexible enough to maintain grip and dexterity in cold or warm environments.

7.2.4. The internal and external surfaces must be smooth to allow easy donning and doffing

7.2.5. The gloves must meet the insulation class 0 and class 1 with rated insulation voltage of 1000V and 7500V respectively.

7.2.6. Dimensions

- Length: Minimum 360 mm for Class 0–1
- Thickness: As required by IEC 60903 per class rating.
- Sizes: Multiple sizes (e.g., 8–12) to ensure proper fit.

7.2.7. Cuff design: Rolled cuff or straight cuff depending on workplace preference.

7.2.8. Gloves must not degrade under exposure to sunlight, humidity, ozone, oils, petroleum products, or low temperature.

7.3. Stagger and Height Measuring Gauge

7.3.1. The stagger and height gauge shall be designed to measure and verify contact wire height and stagger relative to the track centreline in accordance with OHTE design and maintenance requirements. The gauge shall be suitable for use during installation, routine inspection, and fault-finding activities within rail corridors.

7.3.2. The gauge shall be of robust and lightweight construction, suitable for frequent field use in rail environments. It shall be manufactured from durable, corrosion-resistant materials and be capable of withstanding typical site handling and environmental conditions. Graduations and measurement markings shall be clear, accurate, and permanently marked for ease of reading.

7.3.3. The gauge must be able to measure the height of the contact wire when placed on top of the rail, and the height must be adjustable up to 7m.

7.3.4. The gauge must be able to measure a stagger of at least -500mm to +500mm.

7.3.5. The gauge shall be electrically non-conductive and suitable for use in live electrical environments associated with OHTE.

7.4. Trestle trolley

7.4.1. The trestle trolleys shall be of robust construction, capable of safely supporting personnel, tools, and materials used in OHTE works. The trestle trolley must be supplied with fibreglass extension step ladder.

7.4.2. The ladder shall be electrically non-conductive and suitable for use in live electrical environments associated with OHTE.

7.4.3. The trestle trolley shall be push able on the railway track and must have handle to pull to stop and hold the trolley in one position.

7.4.4. All equipment shall comply with OHTE safety rules, Occupational Health and Safety requirements, and applicable standards.

7.5. Inverter welding machine

7.5.1. The inverter welding machine shall be designed to operate reliably on a stable electrical supply, which may be either a single-phase 220–240 V AC input, with the system capable of tolerating voltage fluctuations of up to ±15% while still maintaining consistent welding performance. The equipment must support an input frequency of 50Hz and be engineered with a minimum efficiency level of 85% to ensure economical energy usage, while also incorporating power-factor correction measures that allow the unit to achieve a power factor of at least 0.7, with a strong preference for 0.9 or higher to minimize electrical losses and improve overall system stability.

7.5.2. he welding machine shall provide a smooth and continuously adjustable output current, typically ranging from 20 A up to the rated maximum value of 200A or more), and it must maintain stable arc characteristics throughout the entire current range.

7.5.3. The inverter should feature an open-circuit voltage (OCV) typically between 60 and 80 V to ensure reliable arc ignition, while also offering the option of a Voltage Reduction Device (VRD) where additional safety controls are required for operating environments such as mines, construction sites, and confined industrial locations.

7.5.4. The welding inverter must be compatible with a wide range of consumables, including MMA electrodes from 1.6 mm to 5.0 mm in diameter, TIG tungsten electrodes between 1.6 mm and 3.2 mm, and MIG welding wire of diameters generally between 0.8 mm and 1.2 mm depending on the material type. Furthermore, it must incorporate comprehensive electrical protection systems that respond rapidly to over-voltage, under-voltage, over-current, and short-circuit conditions, thereby safeguarding both the equipment and the operator from electrical hazards.

7.6. Hand-held GPS coordinates receiver

7.6.1. The handheld GPS receiver shall support multi-constellation GNSS, including GPS, GLONASS, Galileo, and BeiDou.

7.6.2. The handheld GPS receiver shall provide USB connectivity (USB-C or Micro-USB) for data transfer and charging

7.6.3. The handheld GPS receiver shall use either replaceable AA batteries or a rechargeable Li-ion battery

7.6.4. The handheld GPS receiver shall support data export in GPX, CSV, and KML formats

7.6.5. The handheld GPS receiver shall provide USB connectivity (USB-C or Micro-USB) for data transfer and charging

7.6.6. The handheld GPS receiver shall support SBAS (e.g., WAAS, EGNOS, or equivalent).

7.6.7. The handheld GPS receiver shall support a minimum GNSS update rate of 1 Hz or higher.

7.6.8. The handheld GPS receiver shall maintain satellite lock and positional stability in outdoor field environments, including near electrical infrastructure.

7.7.Measuring wheel

7.7.1. A measuring wheel for railway use must be specifically designed to run directly along the rail, using guide discs or similar stabilizing elements to maintain correct alignment and ensure accurate linear measurement over long distances

7.7.2. Rail environments require wheels capable of operating on rough, uneven, or contaminated rail surfaces.

7.7.3. Heavy-duty measuring wheels designed for outdoor/rough terrain use feature large metal wheels and durable construction to handle gravel, ballast, steel rail, dirt, and weather exposure

7.7.4. The measuring wheel must use a long-life battery capable of sustaining extended field operations without frequent replacement.

7.7.5. The measuring wheel must work in all weather conditions.

7.8.Chain Hoist

7.8.1. The chain hoist must have a minimum rating of 1.5 ton and must comply with international lifting and hoist standards.

7.8.2. Chain hooks must not show spread/cracks and must meet throat-opening requirements of ≥ 4× chain diameter.

7.8.3. 1.5-ton chain hoist must include: Overload protection, typically set at ~150% of rated load to prevent over-lifting and structural failure.

7.8.4. A 1.5-ton chain hoist must be built with:

- All-steel construction, powder-coated for corrosion resistance.
- Sealed bearings and fully enclosed gearing to protect against dirt and contaminants.
- Double-reduction gearing or equivalent mechanism for reduced pulling effort.
- Ergonomic handle pull force ≤ 250 N at full load (for lever hoists)

7.9.Warnings signs

7.9.1. The warning signs shall be as follows:

a) Substation 4 in 1 Notice

- Size: 1000mm x 1000mm
- Material: Chromadek

b) Specification of the Electrical shock hazard WW23 warning sign

- Diameter Size: 190mm x 190mm
- Material: Chromadek

c) Specification of the Electrical shock hazard WW7 warning sign

- Size: 190mm x 190mm
- Material: Vinyl Sticker

d) Specification of the Electrical shock hazard WW7 warning sign

- Size: 190mm x 190mm
- Material: Chromadek

8. MECHANICAL REQUIREMENTS

8.1. The tools must be vibration resistant in accordance to SANS 61243-2 clause 4.4.4.

8.2. The tools should be drop and shock resistant.

9. OPERATING INSTRUCTIONS AND MANUALS

9.1. Each item must be accompanied by the manufacturer's operating instructions and manual.

10. MARKINGS

10.1. The equipment shall be clearly marked in accordance to SANS 61243-2.

10.2. Additional markings:

- System operating voltage: - e.g. 3 kV DC only
- Manufacturer's name, symbol and serial number.
- Date of manufacture
- The functions of all switches shall be clearly and permanently marked in English.

11. DELIVERY

The Electrical tools shall be delivered as follows:

- Germiston PRASA Electrical Depot
- Salt river depot
- Durban depot

12. BILL OF QUANTITIES

Tools			
Item	**Qty**	**Rate**	**Total**
Chain Hoist	10		
Measuring wheel	15		
High voltage insulation gloves	60		
Dynamometer tension device	8		
Handheld GPS coordinate receiver	4		
Stagger and height gauge	4		
Trestle trolley	4		
Inverter welding machine 220V	6		
Helmet	100		
Warning signs WW23	200		
Warning signs WW7	200		
Warning sign WW7 (sticker)	200		
Substation Notice (4 in 1)	200		
Guarantee for 24 months	All tools		
		Total (Exc.)	
		VAT (15%)	
		Total	

End