



A Division of Transnet SOC Limited

RAIL NETWORK

ELECTRICAL DEPARTMENT

SPECIFICATION

30KV PORTABLE AC PRESSURE TEST SET

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Three handwritten signatures in black ink, each on a horizontal dotted line. The first signature is at the top, the second in the middle, and the third at the bottom.

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Transnet Freight Rail - Infrastructure

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1. GENERAL REQUIREMENTS

- 1.1. This specification outlines Transnet Freight Rail's requirements for the supply and delivery of a 30kV Portable Pressure AC High Test Set (3010PT or similar).
- 1.2. The 30kV AC Portable Pressure Test Set shall be ergonomically designed for maximum operator productivity and safety.

2. OPERATING CONDITIONS

- 2.1. The 30kV AC Portable Pressure Test Set will be operated in all weather conditions as well as salt laden and industrial atmosphere.

Altitudes: From sea level to 2000m above sea level.

Relative humidity: 10% to 95%

Atmospheric conditions: May vary from heavily saline to dry and dusty conditions.

Ambient air temperatures: -10° C to 50° C. (daily average +30° C)

3. QUALIFICATIONS

- 3.1. The design of the 30kV AC Portable Pressure Test Set is to be that of the manufacturer but must be of robust construction in order to meet sustained heavy duty demands, yet it must be light and easy handled by one operator.
- 3.2. The 30kV AC Portable Pressure Test Set will be acceptable in standard factory production finish and colour. Details to be furnished.

4. PERFORMANCE

- 4.1. The actual design and service life of the 30kV AC Portable Pressure Test Set is to be stated.
- 4.2. The 30kV AC Portable Pressure Test Set are to be easily and economically maintained with standard workshop/calibration tools and equipment.

5. TECHNICAL REQUIREMENTS

5.1. General Description

- 5.1.1. A heavy duty, portable and digital display 30kV AC Portable Pressure Test Set capable of testing substation switchgear.
- 5.1.2. The equipment must come in a lockable case capable of storing all accessories furnished with the device.

5.2. Operational requirements

- 5.2.1. The equipment shall be capable of providing a smooth variation of output voltage from zero to 30kV.
- 5.2.2. Provision shall be made for discharging of the AC HV supply on de-energizing the set.
- 5.2.3. All terminals must be clearly marked to avoid confusion.
- 5.2.4. An interlocking switch shall be provided so that the power cannot be switched on unless the control device is in the zero-voltage position.
- 5.2.5. The test set shall in addition be provided with:
- 5.2.6. A red indicating light to indicate whenever the equipment is energized.
- 5.2.7. An amber indicating light to show that the incoming supply is available at the control.
- 5.2.8. device
- 5.2.9. Audible warning device which can be sounded by the operator when required.
- 5.2.10. A voltmeter scaled in kilovolts shall be provided to indicate the high voltage.
- 5.2.11. All auxiliary and accessories which are required for the operation of the equipment in accordance with the requirements of this specification shall be accounted for in the tendered price.

5.3. Power supply requirements

- 5.3.1. Voltage: 230V AC
- 5.3.2. Voltage variation: $\pm 10\%$
- 5.3.3. Frequency: 50Hz
- 5.3.4. Frequency variation: $\pm 3\%$

5.4. Measuring Capability

- 5.4.1. Output: Voltage range: 0 – 30kV (with 30kV at 50mA)

5.5. Preferred mass and housing

- 5.5.1. The mass of the unit shall not exceed 30kg.
- 5.5.2. The housing for the units making up this device shall be of robust construction to sustain heavy duty demands under the service conditions as stated in clause 2 of this specification.

5.6. Additional requirements

- 5.6.1. An operator's handbook and calibration results must be supplied with each device in order to ensure that the device is operated in accordance with the manufacturer's instructions.
- 5.6.2. Sufficient training must be given to all operators of these machines.
- 5.6.3. All devices and equipment must be supplied complete with essential tools and consumable items as necessary. Details to be furnished for any tools require.

5.7. High-Voltage Leads and Connectors

- 5.7.1. The high-voltage lead must be rated for not less than 35 kV AC.
- 5.7.2. The leads must be insulated and shielded to ensure safety and accuracy.
- 5.7.3. The connectors must be of high-quality, corrosion-resistant, and compatible with industry standards.

6. DATA PLATE

- 6.1. The 30kV AC Portable Pressure Test Set must come with a data plate.
- 6.2. The brand and model number of the insulation tester must clearly be shown.
- 6.3. The actual weight in kilograms (kg) of the insulation tester must be shown on the machine.
- 6.4. The actual dimensions of the insulation tester must be indicated in millimetres (mm).

7. COMPLIANCE AND CERTIFICATION

- 7.1. The instrument must comply with relevant international standards.
- 7.2. It must be supplied with calibration certificates traceable to national standards.
- 7.3. It must come with a minimum of 1 year warranty where the supplier shall take full responsibility in repairing or replacing the faulty unit and component unless it has been proven to be negligence on the side of the end user.

8. LEGAL AND OPERATIONAL

- 8.1. The information as requested by the various clauses in this specification is to be supplied in form of technical data, pamphlets and/or drawings. If this is not complied to, offers may be overlooked.
- 8.2. 30kV AC Portable Pressure Test Set not already in service with Transnet Freight Rail must be made available for testing/evaluation during the adjudication of the tender. Technical improvements on existing testers/equipment are to be substantiated by physical examples.
- 8.3. All 30kV AC Portable Pressure Test Set are to be guaranteed for a minimum period of 12 months against faulty material and workmanship - fair wear and tear excluded. Full details of guarantee are to be submitted.

9. TECHNICAL EVALUATION

- 9.1. All bidders shall submit data sheets with clear pictures of the instrument and its accessories.

9.2. Data sheets shall detail relevant technical, operational, functional, and other relevant requirements as indicated in the specification. Failure to provide detailed datasheets shall result in the disqualification of the bidder.