



## TE-IMS-PEMM P&amp;E KDS-SPEC-382

**Description:** Specification for the appointment of a service provider who will rent out Mini bulk gas (Oxygen and Nitrogen) storage tanks and vaporizers to Transnet Engineering Germiston and Koedoespoort for a period of 5 years.

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Location:	Germiston and Koedoespoort			



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## **1. Scope of Work**

This specification requirement covers all the requirements that will be needed to inform the supplier/vendor/manufacture to carry out what is expected from him/her:

This specification states the minimum requirements relating to the work and in no way absolves the contractor from responsibility for sound engineering practice. Any omissions or sub-standard requirements of this specification must be brought to the attention of Transnet Engineering GERMISTON and KOEDOEESPOORT at tender stage and optional prices for addressing such omissions must be provided.

The contractor shall supply all the labour, tools, material, equipment, consumables, facilities, testing, and supervision required for the supply of the specified equipment at site during erection, pre-commissioning and commissioning activities.

## **2. Site Inspection**

Tenderers must visit the site to familiarize themselves with all the aspects involved relating to the project that must be done. This must be arranged via the Contract Manager. The site inspection certificate will be counter-signed by the Contract Manager on day of the site visit. The tender documents must only be submitted if the site inspection certificate has been signed.

## **3. Information Required**

Tenders shall not be considered if full particulars of all relevant equipment and works requested are not submitted at the tender stage, to ensure an objective assessment of the offer can be made. Tenderers shall confirm that the items that they are offering comply at a standard not less than the minimum required requirement asked for in the specifications. Tenderers must comply with these specifications, but alternative offers may, in addition, also be submitted. Such alternative offers must be fully motivated and substantiated.

## **4. Specific Requirements:**

- Comply with the Occupational Health and Safety Act (Act85 of 1993), as amended.



- Adhere to the Construction Regulations of the Occupational Health and Safety Act (Act 85 of 1993), as amended.
- Comply with any Environmental Legislative requirements relating to the scope of work, namely National Environmental Management Act (NEMA), Act 107 of 1998.
- Adhere to Pressurised Equipment Regulations (PER) of OHS Act 85 of 1993, as amended.
- The contractor to have SHE INDUCTION and have valid permits when entering Transnet Engineering.
- The contractor to have a SHE FILE, SITE INSTRUCTION BOOK on site at all times.
- All measurements and amounts must be stipulated in quote.
- Contractor's name board will always be visible.
- A supervisor will always be on site.
- Rubble will be removed from site daily.
- The correct PPE for all hazards that the contractor's employers may be exposed to, must always be worn.
- During and on completion of the project, there will be evaluation of the implementation of risk assessment control conducted on site that the supplier/vendor is working on, which will be reported to the project manager.
- Failure to comply will result in a SHE Stop Certificate being issued, and the supplier will be required to leave the site until the situation is rectified.
- All scaffolding used to be SANS approved. (SANS 10085-1:2004)
- All employees who will be working at height to have medical fitness certificate to declare employee fit to work on heights, and proof of working at heights competency training thereof.
- Valid letter of good standing with Workman's Compensation.
- Comply with Transnet SHE Specification for contract work Version 02.



## **5. Technical Requirements:**

All equipment and installation whether detailed in this specification or not shall comply with the requirements of the Occupational Health and Safety Act 85 of 1993 as amended. Sudden power losses will not have an adverse effect on equipment and shall not unduly delay return to operation after power is restored.

## **6. Codes of Practice, Regulations & Standards:**

The tenderer shall specify which statutory, or industry rules will be applied for the equipment to be working successfully and safely and shall indicate the designed life span.

## **7. Dimensional Parameters:**

The tenderer shall describe the major physical dimensions that are required for ease of operation and installation.

## **8. Operational Parameters:**

### **8.1 Environment:**

The equipment will be required to operate in the climatic conditions of Bloemfontein, Durban, Germiston, Koedoespoort and Uitenhage:

### **8.2 Safety Features:**

The tenderer shall indicate all the safety features installed on the equipment and describe fully its operational standard/s.

### **8.3 Controls:**

The tenderer shall indicate the type of controls and layout to operate the equipment. This must also include backup and emergency systems.

## **9. Power Supply & Services:**

The tenderer shall indicate the electrical power supply and air (if applicable) required operating the equipment.



## 10. Testing:

The tenderer shall indicate the performance/s standard which the equipment will be subjected to.

## 11. Specific Requirements:

	<b>REQUIRED</b>	<b>DETAILS OF OFFER</b> Comply (Yes) / Do not comply (No)
	<b>Specification for the appointment of a service provider who will rent out Mini bulk gas (Oxygen and Nitrogen) storage tanks and vaporizers to Transnet Engineering Germiston and Koedoespoort for a period of 5 years.</b>	
1.	<b>Scope of work:</b>	
1.1	Supply and installation/placing of Bulk Mini gas storage tanks with all gauges, safety valves, and shut off valves for the different gas types used at the different locations.	
1.2	Supply and installation of vaporizers as required.	
1.3	Supply and installation of manifolds & regulators for the different gas types used at the different locations.	
1.4	Supply and install Telemetry Units on all Mini gas storage tanks.	
1.5	Connect the new Mini gas storage tanks to the existing gas pipelines at all sites.	
1.6	Installation or repair of perimeter fence around Bulk Mini gas storage tanks.	
1.7	Supply and install all safety signage as required.	
1.8	Supply and install electrical connection as required.	
1.9	Inspection, Testing, Certification and Commissioning of the above-mentioned installations.	
1.10	After installation maintenance and repairs.	
2.	<b>Installation of Bulk Mini storage tanks:</b>	
2.1	Different types of bulk mini storage tanks are required to house the following gases: Liquid Petroleum Gas, Nitrogen and Oxygen. Refer to Annexure A for the details on type of gas to be stored and the capacity required.	



	<b>REQUIRED</b>	<b>DETAILS OF OFFER</b> Comply (Yes) / Do not comply (No)
2.2	Risk assessment and method statement on how the tanks will be installed shall be shared with the FIM Executive Manager before any installation work can commence.	
2.3	Where an Environmental Authorisation is required the service provider must make sure that the required environment assessment processes are followed. (Basic Assessment or Full Environmental Impact Assessment).	
2.4	It shall be required that suppliers shall be responsible for any lifting machinery and lifting tackle for the installation of the bulk Mini gas storage tanks. All riggers used for the installation shall be accredited.	
2.5	The Bulk Mini gas storage tanks should be installed/placed above ground. Transnet could provide the dimensions, concrete thickness, and concrete strength on some of the existing concrete plinths where the storage tanks will have to be mounted. Bidders to do own assessment on plinths. Any plinth that does not meet the minimum requirements need to be repaired or replaced by service provider and all engineering drawings shall be made available to Transnet FIM Executive Manager regarding the repaired or replaced concrete plinths. (Bidders to ensure that the existing concrete plinths could accommodate the new Mini storage gas tanks). Mini storage gas tanks to be secured/placed to the plinths and should be strong enough to withstand intense winds.	
2.6	All Bulk Mini storage tanks shall be fitted with a GPRS enabled telecommunication level monitoring system. (To notify the gas supplier and user via SMS for refill when the tanks reach 30% of its contents).	
2.7	Complete Control manifold shall be installed for each Bulk Mini gas storage tank.	
2.8	Complete detailed drawing regarding all equipment that needs to be installed for each Bulk Mini gas storage tank shall be handed over to the FIM Executive Manager to sign off before any omission of any installation. This shall in no way absolve the contractor from professional responsibility.	



	<b>REQUIRED</b>	<b>DETAILS OF OFFER</b> Comply (Yes) / Do not comply (No)
2.10	The Bulk Mini gas storage tanks, piping, vaporiser, and manifolds shall only be installed by registered and accredited personal. The installer should be registered as an industrial installer, maintenance, and repairs with SAQCC within applicable gas category (Nitrogen and Oxygen).	
3.	<b>Bulk Mini storage Tanks:</b>	
3.1	Bulk Mini Storage tanks that will be installed should be designed and constructed in accordance with PD 5500 or ASME VIII. Any deviation from this design code must be presented and approved by the Regional Plant Engineer.	
3.2	<p>The Bulk Mini gas storage tanks should also comply to the following act, regulations &amp; standard: -</p> <ul style="list-style-type: none"> <li>• The Occupational Health and Safety Act – Act 85 of 1993 (As Amended)</li> <li>• SANS 347 - Standard Specification for categorization and conformity assessment criteria for all pressure equipment.</li> <li>• Pressure Equipment Regulations GNR.734 of 15 July 2009.</li> <li>• Where an Environmental Authorisation is required, the supplier must make sure that the required environment assessment processes are followed (Basic Assessment or Full Environmental Impact Assessment)</li> </ul>	
4.	<b>Certificates:</b>	
4.1	Certificate of manufacture countersigned by an approved inspection authority.	
4.2	Test Certificates from an Approved Inspection Authority.	
4.3	Material certificate.	
4.4	Non-Destructive Testing (NDT) certificates for all welds in tension.	
4.5	Pressure test report for vessel. (Also, after transportation and installation of bulk storage gas tanks).	
4.6	Level gauge calibration certificate.	



	<b>REQUIRED</b>	<b>DETAILS OF OFFER</b> Comply (Yes) / Do not comply (No)
4.7	Calibration certificate of pressure gauges.	
4.8	Calibration certificates for pressure relieve valves.	
4.9	Any pressure regulation certification not mentioned above.	
4.10	COC. Certificate of Compliance for installation.	
4.11	Storage and Operation Certificate from the Chief Fire Officer (Municipality) to also be submitted to TE.	
4.12	<b>Note:</b> All calibration certificates shall be issued by an approved SANAS accredited Laboratory.	
5.	<b>Vaporizers:</b>	
5.1	Vaporizers shall be designed and manufactured in accordance with ASME B31.3. Any deviation from this design code shall be presented and approved to the Regional Plant Engineer.	
5.2	Vaporizers shall be selected for the desired pressure and flow rate.	
5.3	All atmospheric conditions shall be taken in consideration for the design and selection of any vaporizer.	
5.4	Vaporizers shall be properly secured and installed.	
6.	<b>Bulk storage enclosed area:</b>	
6.1	Bidders to ensure that the areas where any bulk mini gas storage tanks are installed is properly enclosed. This shall meet the minimum requirements as per legislation. The existing fences must be repaired if damaged.	
6.2	Enclosure shall be equipped with lockable entrance gates to the facility for refilling and maintenance and inspection on the installed equipment.	
6.3	Spare set of gate keys for each bulk gas storage site shall be handed over to the FIM Executive Manager. Keys shall be clearly marked to ensure no confusion arise of which key are for which site.	



	<b>REQUIRED</b>	<b>DETAILS OF OFFER</b> Comply (Yes) / Do not comply (No)
7.	<b>Signage:</b>	
7.1	All Bulk Mini gas storage tank areas shall be equipped with the necessary safety signage as required by legislation.	
7.2	Signage shall be mechanically secured that they do not fall off within the contract period. Signage indelible and only removable by deliberate intent.	
7.3	Signage shall be luminous UV. Resistant and shall not fade for a minimum period of five years.	
8.	<b>Electrical Connections and Earthing:</b>	
8.1	Transnet Engineering shall supply a supply point for any electrical equipment that needs to be connected to the Mini gas storage tanks for safe operation or monitoring.	
8.2	Suppliers shall be responsible for all electrical cables, distribution boards, circuit breakers, overload protecting and earthing for the safe operation of the Mini gas storage tanks.	
8.3	The electrical installation from the point of supply to the point of control and consumption shall be done by the supplier.	
8.4	All earthing and bonding shall be done by contractor.	
8.5	An electrical Certificate of Compliance shall be issued to Transnet for each Electrical installation done.	
8.6	Electrical installation shall be done and certified by a Master Installation Electrician. Proof of Registration and certification shall be provided.	
8.7	Earth testing reports shall be handed over to Transnet Engineering to ensure sound mechanical earthing has been achieved.	
9.	<b>Connecting of Bulk Mini gas storage tanks to gas lines:</b>	
9.1	It is required that all new Bulk Mini gas storage tanks are connected to the existing gas lines at all Transnet Premises.	



	<b>REQUIRED</b>	<b>DETAILS OF OFFER</b> Comply (Yes) / Do not comply (No)
10.	<b>Maintenance:</b>	
10.1	Maintenance of the Bulk Mini gas storage tank facility will be responsibility of the contractor.	
10.2	In case of breakdowns, contractor must avail himself within an hour after a call has been logged.	
10.3	Contractor must have employees working standby for afterhours break downs. Standby personnel must be at Transnet facility within an hour after a called was logged.	
10.4	A maintenance schedule must be shared with Transnet Maintenance Planners.	
11.	<b>Inspection &amp; Testing:</b>	
11.1	Annual Inspection and testing will be carried out by the contractor and the reports to be submitted to the TE FIM Executive Manager.	
11.2	An inspection & testing schedule must be shared with Transnet Maintenance Planners.	
12.	<b>Calibration:</b>	
12.1	Calibration of all equipment that needs calibration should be carried out by the contractor.	
13.	<b>General:</b>	
13.1	Supplier will be responsible for the removal of the assets being rented to Transnet when contracts ends.	

## **12. Installation and Commissioning:**

A detailed program (project-plan/gantt-chart) shall be submitted with the tender, indicating the main activities and periods necessary up to handover. The bidder shall submit with their tender a detail erection and installation procedure.



Considering that the tanks are not owned by Transnet, a Major Hazard Installation Risk Assessment by an AIA needs to be conducted and submitted to TE for enforcement.

The contractor shall be fully responsible for any damage caused by them or their subcontractor or any of their employees to all supplied equipment and to Transnet Engineering's assets during the installation, testing and commissioning. The supplier shall conduct a risk assessment as to identify anything that might hinder the installation of the equipment.

### **13. ANNEXURE A: TANKS SIZES REQUIRED**

Plant	Area	Gas	Capacity
1708	Koedoespoort RSE	Oxygen	4000kg
1708	Koedoespoort RSE	Nitrogen	4000kg
3908	Koedoespoort Foundry	Oxygen	4000kg
1407	Germiston Wagons Manufacturing	Oxygen	3300KG (EA)
1407	Germiston Wagons Manufacturing	Nitrogen	2665KG