



**DESIGN, SUPPLY, DELIVERY,  
INSTALLATION, TESTING,  
CALIBRATION, COMMISSIONING OF 10  
OFF PLC CONTROLLED PANELS FOR  
OVENS, AS PART OF FLOODS  
RECOVERY.**

**ROTATING MACHINES, 150 EEL ROAD,  
UMBILO INDUSTRIAL, UMBILO.**


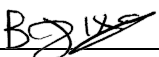

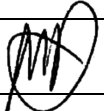
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## 1. INTRODUCTION

This specification is for the:

#	TASK	
1	Design	✓
2	Manufacture	✓
3	Supply	✓
4	Preparing	
5	Installation	✓
6	Documentation	✓
7	Calibration	✓
8	Testing, commissioning	✓
9	COC	✓

of the specified:

#	ITEM	REQUIRED
➤	<b>Design, supply, delivery, installation, testing, calibration, commissioning of 10 off PLC controlled panels for ovens.</b>	✓

which must be commissioned at Rotating Machines Depot.

## 2. SITE INSPECTION

- 2.1 All prospective contractors shall be required to undertake a compulsory site inspection to fully acquaint themselves with all aspects involved.
- 2.2 Arrangements to visit the site and confirmation of the date and time of the site inspection shall be made with Transnet Engineering Contract Manager.
- 2.3 The site inspection certificate shall be completed and countersigned by the Contract Manager on the day of the visit and must be submitted with the tender documents.

## 3. INFORMATION REQUIRED

- 3.1 Offers will not be considered unless full particulars and sufficient literature are provided at the tendering stage to enable Transnet Engineering Technical Officers the opportunity to assess each technical offer properly.
- 3.2 Prospective Contractors will complete the relevant questionnaire in full and must indicate whether their offer complies with each item of the specification
- 3.3 Should there be insufficient space for furnishing full details; contractors shall provide the additional details in their covering letter. The additional details shall be numbered in accordance with the applicable clause specified in the specification.

- 3.4 As prospective contractors are considered to be experts in their field, they are obliged to identify any shortcomings, such as omissions or sub-standard requirements, to the completeness of this specification. These must be brought to the attention of Transnet Engineering at tender stage with alternatives to address these shortcomings. However, each offer shall be quoted for separately.

#### 4. TECHNICAL REQUIREMENTS

The following regulation and codes must be complied with:-

- The Occupational Health and Safety Act – Act 85 of 1993.
- 4.1 Except where otherwise provided for in the specification, all equipment offered will comply with the requirements of the relevant standard specifications of the SABS, if published, otherwise with the relevant standard of the British Standards Institution in force at the time of tendering.
- 4.2 Where equipment offered complies with the recognized standards of the country of manufacture and not specifically with the standards required by this specification, such equipment will be considered at the discretion of Management. In this case, tenders shall state fully all respects in which the equipment departs from the standard laid down in this specification.
- 4.3 The successful tender will at the conclusion of the installation provide a document along the lines “that the installation complies with national/international requirements and that all selected /designed items are compliant with Act 85 of 1995 and SABS practices applicable to the installation. The equipment has been commissioned/ calibrated and employees as specified have been trained and found competent to operate the plant.”

#### 5. SPECIFIC REQUIREMENTS

**Any person with the intention of tendering shall ensure that the information below is complied with. The specification requirements below are binding and must be complied with.**

##### 5.1 Scope of work

Item no.	<p style="text-align: center;"><b>REQUIREMENTS</b></p> <p style="text-align: center;"><b>This scope of work covers the minimum requirements.</b></p>
5.1.1	The scope of work includes design, supply, delivery, installation. Supply new PLC Controlled panels with the following:
5.1.1.1	PLC, including license(s).
5.1.1.2	HMI with recipe for different times and temperatures as per existing.
5.1.1.3	Contactor based temperature control of the oven.
5.1.1.4	Automation for moving trolley in and out of oven.
5.1.1.5	Necessary safety protection.
5.1.2	Schematics to be supplied.
5.1.3	All wires to be numbered.
5.1.4	Part list to be supplied.
5.1.5	The scope of work includes design.
5.1.6	Testing, calibration and commissioning.
5.1.7	Issuing of calibration certificates, Issuing of electrical certificates of compliance (in accordance with SANS 10142-1 Code of Practice for the Wiring of Premises, Part 1: Low Voltage Installations), submission of standard operating procedure, list of installed components and measuring instruments, wiring diagrams, single line diagrams, components/part numbers, maintenance and repair manuals.

## 5.2 Standard Operating Procedure (SOP).

After the hand over of this project, the electrical panels and ovens shall be 100% functional. It shall be possible to use the following Standard Operating Procedure (SOP).



Fig. 1



Fig. 2



Fig. 3

### ANNEXURE 1

<b>BAKING OVEN PARAMETERS</b>		
	Oven setting °C	Duration
Steam Clean Curing (All components)	150	10 Hrs
Armature Banding after	150	10 Hrs
MA Armatures for stripping	150	10 Hrs
PTFE sleeve only cure	150	4 Hrs
Pulldown (Depending on size arm)	150	4-6 Hrs
<b>COILS TEMPERATURE PARAMETERS</b>		
Coils For Stripping Insulation and remove pole shoes	120	10 Hrs
Consolidation of coils after rewind/repaper	160	10 Hrs
Curing of bands on IP Coils	150	4 Hrs
<b>OTHER</b>		
Armature Banding pre heating	150	10 Hrs
Prepare for Base Insulation Armature	150	4 Hrs
Light Repair to LT Head MA Armatures	165	4 Hrs

5.3 Transnet Engineering will use the crane to load the workpiece (as shown on fig. 2) into the bake oven.

5.4 The contractor shall test all the panels to ensure full functionality, the contractor to ensure that the panels control the bake ovens to satisfy the parameters, as illustrated on the attached annexure 1.

## 5.5 Markings

- All labels and markings shall be indelible and only removable by deliberate intent.

## 5.6 Safety Features

- The systems shall have a fail to safety protection system.

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## 5.7 Testing

- All statutory tests shall be carried out on equipment before commissioning.
- Transnet also reserves the right to carry out any check tests on the equipment and installation.
- Notwithstanding the successful completion of tests, the contractor will still be responsible for the efficient operation of the equipment and the installation.

## 5.8 Commissioning

- **A testing period of 1 month (744 hours for 24/7 shifts and 248 hours for 8 hour shifts).**
- **No equipment will be accepted by Transnet without the satisfaction of the conditions above.**
- The contractor shall be fully responsible for any damage caused to all supplied equipment 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 required equipment.

## 6. OTHER INFORMATION RELATED TO THE SCOPE

- 6.1 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 at tender stage and optional prices for addressing such omissions must be provided.
- 6.2 Any matter relating to this work, which requires a decision from Transnet Engineering shall be presented to the Project Manager in charge.
- 6.3 All offers shall be completed in every respect with this specification. Only completed tenders shall be considered
- 6.4 The Technical Officer reserves the right to have the proposal checked independently by a third party.
- 6.5 Tenders must allow for monthly progress and clarification meetings on site initially and after commissioning for defect meetings when required. A meeting will be held after issuing of the tender to establish the exact scope and magnitude of the contract. No tender will be considered unless it has this certificate signed by the Engineer or his representative.

## 7. HEALTH AND SAFETY REQUIREMENTS

- 7.1 All repair work whether detailed in this scope of work or not shall comply with the requirements of the Occupational Health and Safety Act 85 of 1993 as amended and all other applicable legislation including specific set of regulations and local authority bylaws where applicable.
- 7.2 All the necessary safety equipment such as guards over rotating equipment shall be supplied and the equipment shall comply fully with all the requirements of the South African Occupational Health and Safety Act, Act 85 of 1993 and all other applicable legislation including specific set of regulations and local authority bylaws where applicable.

### 7.3 SHE SPECIFICATION

Prior to commencement of contract, the contractor shall be issued with a SHE specification in order to compile a SHE file in line with TE requirements.

Prior to establishing on site, it is an explicit requirement of this contract that all of the Contractor's personnel directly involved with this contract, including those of sub-contractors, attend a **Safety induction course**. Transnet will provide the course free of charge and attendance is compulsory for all personnel under the control of the Contractor who, during the duration of the contract, will be present on site whether on a full time or adhoc basis.



The contractor must allow for all additional charges because of these requirements as no claims for extras will be accepted in connection with the foregoing.

#### 7.4 **As part of the legislative and TE SHE requirements.**

The successful contractor is required to conduct a Risk assessment to ascertain all potential risks associated with this project. The completed risk assessment is to be formally submitted to the Risk department via the project manager at least two weeks prior to the commencement of the actual project. A safety file and associated documents will be required from a successful tenderer, and such will be communicated by the Risk department.

### 8. **SPECIALIST SUB-CONTRACTORS**

- 8.1 Only specialist sub-contractors who have previously successfully completed work of the type and extent specified in this document should be engaged.

The tenderer shall provide the technical officer with sufficient proof of having suitable experience regarding the design and manufacturing of similar equipment. To this end, complete and detailed reference list shall be submitted with the tender. Reference list shall include addresses as well as contact person who may be visited for inspection of the equipment during the adjudication period.

- 8.2 The tender shall submit a complete list of proposed sub-contractors and suppliers of major components with his tender.
- 8.3 The tenderer shall be prepared to commit themselves in writing to the technical officer with an adequate, experienced and stable project team for the duration of the contract.
- 8.4 Transnet Engineering will not consider any Tenderer's offer that, in the sole opinion of Transnet Engineering, does not have adequate experience in the design and manufacture of such equipment.
- 8.5 Contractors shall do the installation simultaneously with other contractors on-site busy with other work and shall plan work that it integrates with other work performed.

### 9. **GENERAL REQUIREMENTS**

- 9.1 Tenderers shall indicate clause-by-clause either that they comply in every respect with the specific requirements, or if not, exactly how it differs.

### 10. **DEFINITIONS AND ABBREVIATIONS**

CLIENT	Transnet Engineering Durban
TECHNICAL OFFICER	Project Manager, Transnet Engineering Durban
CONTRACTOR	Contractor appointed under this specification document
SABS	South African Bureau of Standards
SANS	South African National Standards

### 11. **GENERAL**

- 11.1 The successful tenderer will be subjected to a workshop inspection by Transnet Engineering, to ensure that the facilities are to the satisfaction of the Transnet Engineering in terms of the quality control and equipment capabilities for manufacturing such type of equipment.
- 11.2 The tenderers shall guarantee that the rating and size etc. of the equipment offered, will be adequate to perform the duties required.



## **12. SITE ESTABLISHMENT**

- 12.1 The contractor shall be solely responsible for safety of his staff and for providing security to safeguard his works and material on site, until such a time.
- 12.2 The contractor shall be required to attend site meetings when convened by the Project Leader controlling the contract.
- 12.3 The contractor will be responsible for any damages caused by his staff to the building and civil works on site.

## **13. PENALTY CLAUSES**

- 13.1 Due to the criticality of this project, penalties will be levied for late delivery.