OVERHAUL, TESTING, CALIBRATION AND COMMISSIONING OF THE EXISTING VACUUM PRESSURE IMPREGNATION SYSTEM FOR ROTATING MACHINE BUSINESS.

ROTATING MACHINE DEPOT, 150 EEL ROAD, UMBILO.

REFERENCE No: RM_DBN_ESR_SOW_138

DATE OF RELEASE: JUNE 2023

Table of Contents

Signature of Bidder/s: _____ Date: _____

DOCUMENT AUTHORITIES

Department	Facilities and Infrastructure, Projects Management
Department Affected	Rotating Machines Business
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Signature of Bidder/s: _____ Date: _____

1. INTRODUCTION / SCOPE of Work

This specification is for the:

#	TASK	REQUIRED
1	Design	
2	Manufacture	
4	Supply	✓
5	Installation	✓
6	Repair	✓
7	Replacement	✓
8	Calibration	✓
9	Testing	✓
10	Training	✓
11	Commissioning	✓

of the specified:

#	ITEM	REQUIRED
1	Overhaul, testing, calibration and commissioning of the existing vacuum pressure impregnation system for Rotating Machine Business.	✓
2	Training for 5 Transnet Engineering staff members on how to operate, maintain and service the vacuum pressure impregnation system.	✓
3	Submission of project completion documents.	✓

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 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.

Signature of Bidder/s: _____ Date: _____

4. TECHNICAL REQUIREMENTS

The following legislation and code (including all relevant legislations and codes) all relevant codes must be complied with:-

- The Occupational Health and Safety Act – Act 85 of 1993.
- SANS 10142 **:**The wiring of premises Part 1: Low-voltage installations.

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 for this job shall ensure that the information below is complied with.

5.1 Scope of work

ITEM	**This scope of work document covers the minimum requirements Overhaul, testing, calibration and commissioning of the existing vacuum pressure impregnation system (1 off) for Rotating Machine Business.**	**DETAILS OF OFFER Comply (Yes) / Do not comply (No)**
5.1.1	This scope of work shall be read with Annexure 1 (Transnet Engineering Safety, Health and Environmental Management specification) and contractor management SOP 014. • Bidders shall include costs of Health, Safety and Environmental Management compliance.	
5.1.2	• Test, supply the required components. • If the existing components are obsolete the supplier shall replace the existing components with the alternative equivalent or better components to make the vacuum pressure impregnation system work. • After completion of this project, the entire VPI system shall fully work the same or better than it was.	
5.1.3	The schedule of activities and components to be replaced are on page 10 to page 12.	
5.1.4	The contractor shall develop and make new engineering drawings, showing mechanical and electrical components, numbering. Also, the contractor shall compile and submit the Standard Operating Procedure (SOP) to the Project Manager.	
5.1.5	The electrical installation shall be done and fully completed by an electrical contractor. On completion a certificate of compliance shall be issued in accordance with SANS 10142**.**	

Signature of Bidder/s: _____ Date: _____

ITEM	**This scope of work document covers the minimum requirements Overhaul, testing, calibration and commissioning of the existing vacuum pressure impregnation system for Rotating Machine Business.**	**Compliance** Write "**YES**" or **tick** "✓" (if complying) or Write "**NO**" (if not Complying).
5.1.6	Replace all measuring instruments, test and calibrate. Submit the calibration certificate. **CALIBRATION CERTIFICATES** The equipment shall come with a valid calibration certificate. The calibration and issuing of certificates shall be in accordance with SANS 17025. The calibration certificate shall not be older than 1 month during the time of handover.	
5.1.7	**Documentation:** 1 set of PDF Files in a disk and 3 sets of hard copies. • Operating Manual • Maintenance Manual. • Electrical Schematics. • Mechanical Drawings. • Blown out diagrams for mechanical and electrical components/parts • Parts list and part numbers.	
5.1.8	Pressure test and issue certificate of continuance as per SANS 347.	
5.1.9	Transnet reserves the right to invite the bidders to give presentations on their products, services and/or pricing.	

5.2 Site
- The work shall be done at Rotating Machines Depot, 150 Eel Road, Umbilo.

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

5.4 Safety Features
- The equipment shall have a fail to safety protection system.

5.5 Testing
- All prescribed tests shall be carried out on equipment
- 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.
- Test certificates shall be submitted to Transnet Engineering.

5.6 Maintenance
- The maintenance plan shall be for 2 years. The tenderers shall include the maintenance plan. The quote for maintenance plan shall be added on the Schedule of prices.

Signature of Bidder/s: _____ Date: _____

5.7 Spares

- The successful tenderer shall supply Transnet Engineering with three sets of blown out diagrams and schematics of the complete machine as well as a detailed copies of the list of critical spares for all equipment including OEM numbers.
- The tenderers shall indicate the availability and required lead times for the spares considered to be critical for the successful operation of the equipment.

5.8 Warranty

- The contractor shall undertake to repair all faults due to bad workmanship and/or faulty materials during a period of 24 calendar months, calculated from the date that the completed plant installation is accepted by Transnet Engineering.
- Any latent defects that become apparent during the guarantee period shall be rectified to the satisfaction of Transnet Engineering at the cost of the supplier.
- The contractor shall undertake work on the rectification of any defects that may arise during the guarantee period within 7 days of being notified of such defects.
- **The warranty shall be 2 years.**
- **A maintenance contract for the warranty period shall be included in the quoted price and shall involve Transnet employees to learn.**

5.9 After-Sales Service

- The successful tenderer shall provide Transnet Engineering with acceptable proof that spares can be easily and speedily procured for the equipment within 7 working days through agents locally.

5.10 Commissioning

- **A testing period of 1 month (744 hours for 24/7 shifts and 248 hours for 8 hour shifts) this shall depend on what shift the business requiring the specified items.**
- **No equipment will be accepted by Transnet without the satisfaction of the conditions above.**

Note: All work to be completed in each respect by suitably qualified person.

6. CONSTRUCTION INDUSTRY DEVELOPMENT BOARD (CIDB) REGISTRATION

The Tenderer to be appointed under this Project must be registered with the **CIDB Grading of 2ME** or above. To this end, Transnet Engineering Durban does not award Projects to any company without proof of this registration.

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. At all times during the manufacture, assembly and testing of the equipment the contractor will be responsible for the safety of all persons on site and the equipment.

Signature of Bidder/s: _____ Date: _____

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. MATERIAL AND WORKMANSHIP

9.1 The materials shall be offered complete in all respects.

9.2 The materials, as made and supplied, shall be complete in every respect, of modern design, using the most advanced proven technology extensively supported by reputable local companies, and be built to good engineering practices. Tenderers shall supply a list of all the main components proposed as well as the addresses of the local support companies.

Signature of Bidder/s: _____ Date: _____

9.3 All materials shall be adequately protected against damage and corrosion during shipping, transport and storage.

10. GENERAL REQUIREMENTS

Operation will be in the following conditions:

Altitude	Sea level
Ambient temperature	0˚C to 45˚C
Relative humidity	50% to 100%
Atmosphere	Heavy saline

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

11. DEFINITIONS AND ABBERVIATIONS

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

12. GENERAL

12.1 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.

12.2 The tenderers shall guarantee that the rating and size etc. of the equipment offered, will be adequate to perform the duties required.

13. SITE ESTABLISHMENT

13.1 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.

13.2 The contractor shall be required to attend site meetings when convened by the Project Leader controlling the contract.

13.3 The contractor will be responsible for any damages caused by his staff to the building and civil works on site.

14. PENALTY CLAUSES

14.1 Due to the criticality of this project, penalties will be levied for late deliveries.

Signature of Bidder/s: _____ Date: _____

TRANSNET LIMITED

15.SCHEDULE OF PRICES:

All prices **exclude Vat** and additional items listed (with prices) shall be clearly labelled as optional or essential.

	Item	Price per item	Qty	Price
	Test, supply the required components.			
1.	**Completely overhaul and test of the VPI Vacuum pumps and related items**			
1.1	High Vacuum Oil		25 litres	
1.2	Pressure Gauge Neg 100KPA - 0 - Plus 150KPA		1 (ea)	
1.3	Vacuum Pumps, Type:400-212, Vacuum:0.5mBar, Make: Busch		1 (ea)	
1.4	Vacuum Pumps 500, 11KW, Reitschle Thomas		1 (ea)	
2.	**Completely overhaul and test all electric motors and the electric system**			
2.1	Siemens Simatic S5-100U		1 (ea)	
2.2	Finder Relays 14 pin, 24VDC, 7A, 553480240040		20 (ea)	
2.3	Finder Relays 14 pin base 9414SMA		50 (ea)	
2.4	Contactor 230V coil, 32A		7 (ea)	
2.5	Overloads range 2,5A - 4A		2 (ea)	
2.6	Overloads range 3,5A - 5A		2 (ea)	
2.7	Overloads range 5A - 8A		2 (ea)	
2.8	Overloads range 17A - 23A		2 (ea)	
2.9	Overloads range 24A - 32A		2 (ea)	
2.10	Contactor 230V Coil, 100A		1 (ea)	
2.11	Contactor 400V Coil, 100A		1 (ea)	
2.12	Finder Relays 14 pin, 230VAC, 7A, 553482400040		30 (ea)	
2.13	Finder Relays 8 pin, 230VAC, 10A, 601292200040		10 (ea)	
2.14	Finder Relays 8 pin base 9020SMA		10 (ea)	
2.15	3 Pole MCB, %KA , 20A		6 (ea)	
2.16	Transformer MT115, 0-230V, 230-380V , 0-12V, 0-110V		1 (ea)	
2.17	Phase Protection Relays + relay base		2 (ea)	
2.18	Omron Timers 240V coils, 5A		4 (ea)	
2.19	Main Isolator base mount complete 160A, 4 Pole.		1 (ea)	
2.20	Selector switches 1 position , 6 contact rotary cam switch		6 (ea)	
2.21	Metallic panel LED pilot lights 10mm, 24VDC, red, GQ10T-JN/02/R		20 (ea)	
2.22	Metallic panel LED pilot lights 16mm, 24VDC, red, GQ16T-LN/02/R		10 ea	
2.23	HRC Fuses 100A, off set bolted tag 25mm dia 110mm long		10 (ea)	
2.24	HRC Fuses 20A, off set bolted tag 14mm dia 52mm long		10 (ea)	
2.25	HRC Fuses 6A, off set bolted tag 14mm dia 52mm long		10 (ea)	

Signature of Bidder/s: _____ Date: _____

	Item	Price per item	Qty	Price
2.26	Toggle switches , panel mount on/off SPST solder terminals, 7347154		10 (ea)	
2.27	Temperature controller RKC CB500, 230Vac		2 (ea)	
2.28	Temperature Probes J-Type		4 (ea)	
2.29	Temperature/pressure controller RKC AE500, 230Vac		1 (ea)	
2.30	Edwards Controller 1101 Vacuum Gauge (equivalent replacement)		1 (ea)	
2.31	Delta DVP/PS02, Power supply module 85-264V-24V		2 (ea)	
2.32	Trolex Analogue Monitors		1 (ea)	
2.33	4Ft flameproof Fluorescent LED fittings with tubes		5 (ea)	
2.34	Push to make switches 14mm , 230Vac		4 (ea)	
3.	**Clean and test all Pressure vessels.**			
3.1	Process Tank to be inspected by AIA/36 month certificate issued		1 (ea)	
3.2	Repairs to Hydraulic arm mounting, welding by Coded welder oversee by AIA		1 (ea)	
4.	**Overhaul hydraulic system.**			
4.1	Hydraulic Hose c/w NPF Fittings on both Ends HPT070		2 (ea)	
4.2	Hydraulic Hose c/w NPF Fittings on both Ends HPT013		2 (ea)	
4.3	Hydraulic Hose c/w NPF Fittings on both Ends HPT025		2 (ea)	
4.4	Lubrication Filter S63200		2 (ea)	
4.5	Hydraulic Filter B10-938		2 (ea)	
4.6	Oil Separator Filter PGL68131		8 (ea)	
4.7	Hydraulic system motor		1 (ea)	
5.	**Overhaul Pneumatic system.**			
5.1	Ductile Lever Valve BX5752-80/200		2 (ea)	
5.2	Ductile Actuator Valve BFX1585-80/200		2 (ea)	
5.3	Ductile Actuator Valve BFX1595-100/200		2 (ea)	
5.4	Ductile Actuator Ball Valve BBX4255-40/200		2 (ea)	
5.5	Solenoid Valve		10 (ea)	
5.6	Solenoid Valve Manifold		2 (ea)	
5.7	Breather/Exhaust 1"		2 (ea)	
5.8	Vulcathene Vacuum Seal M10 Epoxy Resistant		roll	
5.9	Vulcathene Vacuum Seal M12 Epoxy Resistant		roll	
5.10	Acrylic Teflon Joint Seal M10 High Density		roll	
5.11	Pressure Gauge 1000KPA, 100mm		1 (ea)	
5.12	Pressure Gauge 2500KPA, 50mm		1 (ea)	
6.	**Supply and install and commission a new Chiller unit.**			
6.1	1 and 1/2 Hp chiller Unit complete with compressor, condenser, tank & pipes		1 set	
6.2	Anti-Freeze		25 Liters	

Signature of Bidder/s: _____ Date: _____

	Item	Price per item	Qty	Price
7.	**Supply and install new electrical panel with new control system.** **The entire VPI system shall work within its minimum requirements, read the attached Standard operating procedure (PD_COMP_NAT_SPEC_583).**		1 set	
7.1	Full electrical installation, certificate of compliance issued in accordance with SANS 10142**.**		1(ea)	
8	Replace all measuring instruments, test and calibrate. Submit the calibration certificate. **CALIBRATION CERTIFICATES** The equipment shall come with a valid calibration certificate. The calibration and issuing of certificates shall be in accordance with SANS 17025. The calibration certificate shall not be older than 1 month during the time of handover of tarpaulin testing equipment.			
9	**Documentation:** 1 set of PDF Files in a disk and 3 sets of hard copies. • Operating Manual • Maintenance Manual. • Electrical Schematics. • Mechanical Drawings. Parts List.		4 sets	
10	Pressure test and issue certificate of continuance as per SANS 347.		1(ea)	
11.	Testing and commissioning		1(ea)	
	Total (Excl. VAT) to tender form			**R**

Tenderer: _____ Date: _____

Witness 1: _____ Date: _____

Witness 2: _____ Date: _____

Signature of Bidder/s: _____ Date: _____

16.TENDER EVALUATION CRITERIA

The following criteria will be used to award the tender. Should there be a criteria over and above the listed below, that will be used, such criteria will be specifically stated.

No.	**Pre-Qualification Criteria** **TECHNICAL DESCRIPTION (The technical evaluation will be used as a threshold. All bidders who do not meet the minimum threshold of 80 points will not proceed to the final stage of evaluation.)**	**Weightings**
16.1	Lead time , project plan and methodology. The methodology, standards and working procedures that will be used in the execution of this contract (detailed written Process and Project Plan to be supplied by bidder): • The methodology that will be used in the execution of this contract. • A Process/ Project Plan for the execution of this contract. 1.1 Project Plan final Lead time equals/less than 35 working days – 30 points 1.2 Project Plan final Lead time between 36 -46 working days – 20 points 1.3 Project Plan final Lead time greater than 46 working days – 10 points (Note: Project Plan must be submitted in either excel or MS project format) .	30 points
16.2	Adherence to TE specification. 1.1 Comply to scope of work – **45 points** Compliance to scope of work on page 5, page 6 and page 14 by writing "**YES**" or **ticking** "✓" (to indicate compliance). 1.2 Non-compliance to scope of work (including not completed) – **0** Non-compliance to scope of work by writing "**No**" or not fully completing the compliance tables (including not fully completing the bid document) .	45 points
16.3	Specific knowledge relating to projects of this nature: • Previous experience of supplying, delivering and testing and commissioning of **vacuum pressure impregnation systems** (only completed projects) in the past 6 years, with contactable references. 1.1 3 or more submitted – 25 points 1.2 2 submitted – 20 points 1.3 1 submitted – 10 points 1.4 0 submitted – 0 points Each reference letter shall have 2 dates (date of project completion and date showing as to when the letter was signed), otherwise it will not be acceptable and zero (0) score will be allocated for such rejected letter. Each reference letter shall have contactable contact person(s) and working contact numbers, otherwise it will not be acceptable and zero (0) score will be allocated for such rejected letter.	25 points
	Total Weighting:	**100 points**
	Minimum qualifying score required:	**80 points**

Signature of Bidder/s: _____ Date: _____

17. VERIFICATION OF COMPLIANCE

ITS IS MANDATORY FOR ALL THE SUPPLIERS/BIDDERS TO COMPLETE THIS FORM. AN INCOMPLETE FORM WILL RESULT IN DISQUALIFICATION.

No.	Heading/Subsection	Compliance Write "**YES**" or **tick** "✓" (if complying) or Write "**NO**" (if not Complying).		Comment
		Yes	**No**	
1	Scope of work			
4	Technical requirements			
5	Specific requirements			
5.1	Scope of work			
5.3	Markings			
5.4	Safety features			
5.5	Testing			
5.6	Maintenance			
5.7	Spares			
5.8	Warranty			
5.9	After sales service			
5.10	Commissioning			
6	CIDB			
8	Health and safety requirements			
10	Material and workmanship			
15	Penalty clauses			

Signature of Bidder/s: _____ Date: _____