



**SUPPLY, DELIVERY, TESTING AND COMMISSIONING  
OF 20 off MIG WELDING MACHINES FOR WAGONS  
AND PORTS EQUIPMENT BUSINESSES AT DURBAN  
MAIN CENTRE.**

**TRANSNET ENGINEERING (DURBAN MAIN CENTRE),  
311 SOLOMON MAHLANGU DRIVE, ROSSBURGH.**

**REFERENCE NO: OPS\_WAG\_DBN\_ESR\_SPEC\_056**

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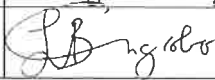
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# DOCUMENT AUTHORITIES

Department	PEMM
Department Affected	Wagons, Ports Equipment and Coaches.
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Signature & Date	 15/07/2022
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Signature & Date	 15/07/2022
Approved by	Lindo Ngcobo
Designation	Acting Plant Engineer
Signature & Date	 15/07/2022



## 1. INTRODUCTION

This specification is for the:

#	TASK	REQUIRED
1	Design of foundations	
2	Manufacture	
4	Foundations	
5	Supply	✓
6	Installation	✓
7	Documentation	✓
8	Testing	✓
9	Training	✓
10	Commissioning	✓

of the specified:

#	ITEM	REQUIRED
1	Supply, delivery, testing and commissioning of 20 off MIG welding machines.	✓

which must be commissioned in the TE Product Development Business.

## 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 Operational Parameters
- Refer to machine specifications.
- 5.2 Environment
- Indoors under dusty industrial conditions, and refer to section 11 for external conditions.
- 5.3 Specifications for the machines

ITEM	REQUIREMENTS	DETAILS OF OFFER Comply (Yes) / Do not comply (No)
	<b>This specification covers the minimum requirements for supply, delivery, testing and commissioning of 20 off Mig welding machines for Wagons Business.</b>	
5.3.1	<b>The welding machines to be complete, consisting of the following:</b> <ul style="list-style-type: none"> <li>• Power pack.</li> <li>• Wire feed.</li> <li>• Conduits.</li> <li>• Welding gun.Flow meter.</li> </ul>	



ITEM	REQUIRED	DETAILS OF OFFER Comply (Yes)/ Do not comply (No)
5.3.2	<b>Power Pack:</b> <ul style="list-style-type: none"> <li>Supply cable with minimum length of 5 meters, shall be fitted on power pack.</li> <li>On/Off switch.</li> <li>Digital display. (Welding voltage and current).</li> <li>Welding current to be adjustable. The bidder to indicate the minimum and maximum welding currents.</li> <li>To be able to operate on 400V 3 phase 50 Hz power supply.</li> <li>Fit 63Amp 400V 5 pin Marechal Male plug to supply cable of each welding machine.</li> <li>Earth cable to be 15m:</li> <li>Heavy duty earth clamp.</li> </ul>	
5.3.3	<b>Overheating protection</b> There shall be overheating protection. The shall be cooling mechanism. If the temperature crosses the threshold point, the cooling mechanism shall adequately operate If the internal temperature becomes too high, the welding shall be interrupted and disabled. There shall be indication of interruption e.g flashing LED, etc. The machine shall automatically reset if the temperature has dropped.	
5.3.4	@ 100 % duty cycle 280 A/28 V. @ 60 % duty cycle 365 A/32 V. @ 50 % duty cycle 400 A/34 V.	
5.3.5	Setting range (DC) 50A/16.5V-400A/34V. Open circuit voltage 17-45 V. Open circuit power 360 W.	
5.3.6	Efficiency at max current 71%. Power factor at max current 0.98. Control voltage 42 V, 50Hz.	
5.3.7	Dimensions - approximately (812mm long x 552mm wide x 925 mm high). Mass approximately (140 kg). Ingress protection IP 23.	
5.3.8	<b>Wire Feed:</b> <ul style="list-style-type: none"> <li>The welding machines shall come with suitable wire feeders.</li> <li>The wire feeders shall provide interference--free wire feed, suitable to even use with soft auxiliary material e.g aluminium and with thin wires.</li> <li>Compatible with 1.2mm wire.</li> <li>Wire feed speed Max 15 m/min (set on the welding gun)</li> </ul>	



ITEM	REQUIRED	DETAILS OF OFFER Comply (Yes) / Do not comply (No)
5.3.9	<b>Conduit:</b> <ul style="list-style-type: none"> <li>Power pack to wire feed 5 m.</li> <li>Wire feed to welding torch 10m.</li> </ul>	
5.3.10	<b>Safety standards:</b> The bidder to supply and indicate the design standards of the welding machines. The bidder to indicate all safety features build into the machine. The bidder shall include full description of the operation standards of the machine.	
5.3.11	Catalogues to be supplied at tender stage of the different models available.	
5.3.12	<ul style="list-style-type: none"> <li>The bidder must indicate the minimum power supply needed (in Amps) for this machine to operate fully.</li> <li>The bidder to indicate the minimum and maximum welding currents</li> </ul>	
5.3.13	<b>Documentation:</b> 3 sets off hard copies each with a disc containing documentation in PDF Format. <ul style="list-style-type: none"> <li>Operating Manual.</li> <li>Maintenance Manual.</li> <li>Electrical Schematics.</li> <li>Mechanical Drawings.</li> <li>Parts List.</li> <li>Calibration certificate traceable to SANAS.</li> </ul>	

#### 5.4 Services

- Transnet shall provide electrical power, water services for the entire work.
- Transnet shall provide three phase power supply points.

#### 5.5 Supply and delivery

- Durban main centre, 311 Solomon Mahlangu Drive, Rossburgh.

#### 5.6 Markings

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

#### 5.7 Safety Features

- The whole machine shall have a fail to safety protection system.

#### 5.8 Testing

- All prescribed tests shall be carried out on equipment as well as the testing or the installation 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.

#### 5.9 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.

#### 5.10 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.

#### 5.11 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.

#### 5.12 Warranty

- The contractor shall undertake to repair all faults due to bad workmanship and/or faulty materials during a period of twelve 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.**

#### 5.13 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.

#### **The following must be supplied on commissioning of the machinery:**

- Electrical certificate of compliance.
- Performance Test certificate.
- Certificate of calibration.
- Electrical schematic drawings for all components.





- Three (3) maintenance manuals and parts catalogues shall be supplied in hardcopy format with a CD of manuals in PDF format with each set.
- Three (3) operating and maintenance manuals and schedule for all components shall be supplied in hardcopy format with a CD of manuals in PDF format with each set.
- Operator and Maintenance staff training for less than three people.
- All required software (Soft copies).

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

## **6. CONSTRUCTION INDUSTRY DEVELOPMENT BOARD (CIDB) REGISTRATION**

No CIDB Required

## **7. OTHER INFORMATION RELATED TO THE SCOPE**

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.

- 7.1 Any matter relating to this work, which requires a decision from Transnet Engineering shall be presented to the Project Manager in charge.
- 7.2 All offers shall be completed in every respect with this specification. Only completed tenders shall be considered
- 7.4 The Technical Officer reserves the right to have the proposal checked independently by a third party.
- 7.5 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.

## **8. HEALTH AND SAFETY REQUIREMENTS**

- 8.1 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.
- 8.2 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.

## **8.3 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.

#### **8.4 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.

### **9. SPECIALIST SUB-CONTRACTORS**

- 9.1 Only specialist sub-contractors who have previously successfully completed Electrical and Mechanical 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.
- 9.2 The tender shall submit a complete list of proposed sub-contractors and suppliers of major components with his tender.
- 9.3 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.
- 9.4 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
- 9.5 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.

### **10. MATERIAL AND WORKMANSHIP**

- 10.1 Machinery shall be offered complete in all respects, including all standard Equipment normally offered by manufactures, all of which shall be specified in detail.
- 10.2 The equipment, 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 (mechanical, electrical etc.) proposed as well as the addresses of the local support companies.



- 10.3 All parts and components shall be adequately protected against damage and corrosion during shipping, transport and storage.  
Should any of the items called for be standard equipment, then the words "Standard Equipment" shall appear against the item.

## 11. 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

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

## 12. 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
BS	British Standard Specification
FEM	Federation of European Mechanical Handling Standard
ISO	International Organisation for Standardisation

## 13. GENERAL

- 13.1 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.
- 13.2 The tenderers shall guarantee that the rating and size etc. of the equipment offered, will be adequate to perform the duties required.

## 14. SITE ESTABLISHMENT

- 14.1 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.
- 14.2 The contractor shall be required to attend site meetings when convened by the Project Leader controlling the contract.
- 14.3 The contractor shall be responsible for any damages caused by his staff to the building and civil works on site.

## 15. PENALTY CLAUSES

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

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

Tenderer: \_\_\_\_\_ Date: \_\_\_\_\_

Witness 1: \_\_\_\_\_ Date: \_\_\_\_\_

Witness 2: \_\_\_\_\_ Date: \_\_\_\_\_

## 17. 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.

### Technical evaluation criteria

No.	Technical Evaluation Criteria	% Weightings	Scoring guideline								
17.1	<b>Delivery lead times from the date the PO is released. Detail project plan with milestone reflecting the entire lead-time of the project</b>	10%	<div>As the response from the supplier / service provider</div> <table><tr><td>Project plan &amp; Lead time equals or less than 20 working days.</td><td>10 points</td></tr><tr><td>Lead time more than 20 working days but less than 30 working days.</td><td>5 points</td></tr><tr><td>Lead time more than 30 working days.</td><td>2 Points</td></tr><tr><td>Above 6 months</td><td>0 points</td></tr></table>	Project plan & Lead time equals or less than 20 working days.	10 points	Lead time more than 20 working days but less than 30 working days.	5 points	Lead time more than 30 working days.	2 Points	Above 6 months	0 points
Project plan & Lead time equals or less than 20 working days.	10 points										
Lead time more than 20 working days but less than 30 working days.	5 points										
Lead time more than 30 working days.	2 Points										
Above 6 months	0 points										
17.2	<b>Compliance to scope of work</b> <ul style="list-style-type: none"><li>Adherence to TE specification (read, completed and signed off all the pages and return with tender document)</li></ul>	60%	<div>Completed and signed off the scope of work / specification</div> <table><tr><td>Specification returned (complete and signed off)</td><td>60 points</td></tr><tr><td>Specification returned but not fully completed, not signed off on all the pages</td><td>0 points</td></tr></table>	Specification returned (complete and signed off)	60 points	Specification returned but not fully completed, not signed off on all the pages	0 points				
Specification returned (complete and signed off)	60 points										
Specification returned but not fully completed, not signed off on all the pages	0 points										
17.3	<b>Experience</b> <b>Specific knowledge of supplying and delivery of welding machines:</b> <ul style="list-style-type: none"><li>Previous experience of supply and delivery of industrial welding machines in the past 3 years, with contactable references on a letter head of the company</li></ul>	30%	<div>Two (2) contactable references, in the format of letters on client's letterhead submitted = 30</div> <div>One (1) contactable references, in the format of letters on client's letterhead submitted = 15</div> <div>Zero (0) /no reference letters submitted = 0</div>								

Total Weighting:

100%

Minimum qualifying score required:

70%



## 18. VERIFICATION OF COMPLIANCE TO THE SPECIFICATION

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

No.	Heading/Subsection	Comply		Comment
		Yes	No	
1	Scope of work			
2	Site inspection			
4	Technical requirements			
5	Loads and duty cycle			
5.3	Machine Specification			
5.5	Supply and delivery			
5.6	Markings			
5.8	Testing			
5.9	Commission			
5.10	Maintenance			
5.11	Spares			
5.12	Warranty			
5.13	After sales service			
6	Penalty clauses			

**TENDERERS: PLEASE NOTE THAT YOUR TENDER WILL BE REJECTED IF ANY OF THE ABOVE ITEMS ARE OMITTED OR NOT FILLED.**