



## **Elmec Compressor Service and Testing**

**NOTE: Conduct compressor tests for compliance as per attached minimum requirements and provide all certifications. The minimum requirements are on the pages below.**

### **1. The Scope of Work**

Elmec is the pneumatic systematically ship loader using the:  
**15KW**, 3 phase Screw Air compressor, **Model:** SCR20D-8/SIS/380/5/AW ‘  
**Rated:** 0.8 MPA and **Volume flow:** 2.2 M3/min.

This work will be an once off service and testing

- 1.1. The contractor must Service and repair 15kw screw air compressor.
- 1.2. The Service and repair must be conducted as follows:
- 1.3. Replacement of oil filters
- 1.4. Replacement of air filters
- 1.5. Check and service separator element,
- 1.6. Coolant system and coolant analysis
- 1.7. SPM readings
- 1.8. Replace the control voltage transformer.
- 1.9. Replace relays and contactors, phase rotation, Display.
- 1.10. Check air leaks and seal Hoses.
- 1.11. Check safety valves.
- 1.12. Check all pressure guide’s if are giving correct readings.
- 1.13. Check and test the safety shut off valve signals.
- 1.14. Replace compressed air dryers x3.
- 1.15. Commission the Compressor with Transnet supervisor.
- 1.16. Issue the Service certificate stipulated the Next Service due date.
- 1.17. All material used must be SABS approved.
- 1.18. 3 months warranty must be provided for the service.
- 1.19. Remove two redundant compressors inside blower house and repair the system for continual operation.

**All works shall be as per existing and all dimensions shall be confirmed onsite**

### **2. General Service**

- 2.1. All Structural components must be full painted according to Transnet specification.
- 2.2. All fasteners on the repaired portion must be HT and hot dip galvanised.

**NB.** Any deviation from this scope should be authorised by TPT management before work can be carried out.

### **3. Specifications**

Quality Management Specification for supplier	EEAM-Q-009 (Rev. 0)
Corrosion Protection	EEAM-Q-008 (HE9-2-8 Ver. 17)



**The minimum requirements:**

**Scope of Work for Approved Inspection Authority (AIA)  
Statutory (36 months) Inspections of Pressure Vessels – Oil Separators in Compressors**

To carry out statutory periodic external inspection, wall thickness tests, 9 years dispensation with the internal inspection and hydraulic pressure test as per Pressure Equipment Regulation of Act 85, sub regulation 11 - Inspection and Test, Clause (1) (a) & (d), by an Approved Inspection Authority - Manufacturing (hereafter referred to as AIA).

Extension for another 9 years dispensation - A full internal and external inspection must be carry out and if no degradation found.

If there is no certificate of manufacture, certificate of conformity and data name plate does not comply to the PER of Act 85/Health and Safety Standard in SANS 347, Re-certification/Re-instatement inspection of pressure vessel (oil separator) must be carried out.

**A) Issuing of documentation, certification and inspection prior to the pressure test:**

- AIA accreditation certificate from SANAS
- AIA approval certificate from Dept of Labour
- AIA Schedule of accreditation from SANAS
- SAQCC PV/IPE Certificate of the authorised inspector carrying out the inspection.  
Inspector's name must be stated on schedule or proof of application to SANAS to add on
- Thickness meter calibration certificate
- Certificate for Technician/Inspector carrying out the wall thickness tests
- NDT Certificate for the Technician if NDT will be carried out
- Transnet's (User) appointment letter (OSH Act) to carry out the in-service inspection

**B) The inspections will consist of:**

- The AIA shall come for a site visit before quoting for the work, to discuss Scope of work /or Inspection procedure, to check documentation, data plates for compliance to Pressure Equipment Regulation of Act 85 and applicable Codes
- Safety Induction
- The Pressure Vessel Inspector (Authorised Person) and AIA shall ensure that the requirements of the relevant health and safety standard incorporated in Act 85, PER of Act 85, SANS 347, SANS 10227, SANS 10228, SANS 10254, SANS 329 and SANS/ISO 17020 is complied with at all times
- The AIA shall state beforehand what preparation needs to be done by Transnet, eg. access permit, availability of pressure vessels, etc.
- A review of the known and previous history of the pressure vessel must be performed
- Full external visual inspection (welding, pitting, corrosion, etc.)
- Non-Destructive Tests (dye penetrate, magnetic particle, radiography, etc.) if required
- Ultrasonic wall thickness measurements
- Transnet's LMI or Examiner or SPE to be on site to witness inspection by AIA and verify certificates of the PV Inspector, NDT Technician and Thickness Meter



- Examine vessel for permanent deformation and any defects
- Examine the safety devices (safety valve/pressure gauge) and verify that they are fitted, functioning and Certified or state condition in report
- Recommend Engineering Survey, if necessary
- Write an inspection/assessment report on findings
- AIA to issue a 9 years written approval of dispensation with the internal inspection and hydraulic pressure test for nine years.
  
- AIA to state that visual external inspection and wall thickness tests will be carried out every 36 months.
- Issue Certificate of Continuance if inspection is satisfactory and acceptable or issue a Stop Certificate (Non Conformance) if not acceptable and unsatisfactory
- Explain the report to the Maintainer or Examiner (LMI) and the User (Maintenance Supervisor, Plant Supervisor, Maintenance Manager or Depot Manager)
- Report Stop Certificate (Non Conformance) to Management and IPE (PER Auditor) for Transnet (Omesh Beeharie), and advise on the way forward
- Pressure vessel inspector to sign off work done on Transnet 9 Logsheet for each vessel
- PV Inspector to give a written onsite inspection report (work done, authorisation to use vessel or not) on the day of inspection
- To hand in final inspection report in 5 days or as soon as possible

**C) Issuing of fitness of service inspection/assessment report**

**Report will contain the following:**

- Certificate of continuance or inspector states on inspection report “fit for use or continued use” or Stop Certificate (Non Conformance)
- Inspection/assessment report or statutory periodic vessel inspection report
- Previous dispensation approval letter/certificate if still valid.
- New dispensation approval letter/certificate for nine years
- Non-destructive test report if conducted
- Manufacturer’s Certificate if available
- Name/Data plate details
- Photograph of Name/Data plate
- Drawing of vessel if available
- Wall thickness measurements
- Photographs if required
- Previous history details (Certificate of Continuance/Pressure test certificate) if required

PORT RAIL TERMINALS	Elmec Compressor Service and Installation			RICHARDSBAY PORT RAIL TERMINAL
	SOW	Compiled By: Mndeni Mthethwa	Page 1 of 2	



## **Scope of Work for Approved Inspection Authority – In Service (AIA-IS) Statutory (36 months) Inspections of Pressure Vessels**

To carry out statutory periodic internal, external inspection, wall thickness tests and hydraulic pressure test as per Pressure Equipment Regulation of Act 85, sub regulation 11 - Inspection and Test, Clause (1) (d) & (2) by an Approved Inspection Authority for Inservice inspection (hereafter referred to as AIA-IS).

### **A) Issuing of documentation and certification prior to the inspection:**

- AIA-IS accreditation certificate from SANAS
- AIA-IS approval certificate from Dept of Labour
- AIA-IS schedule from SANAS
- SAQCC PV Certificate of the authorised inspector carrying out the inspection. Inspector's name must be stated on schedule or proof of application to SANAS to add on
- SANAS calibration certificate for their Test Pressure Gauge used to do the pressure test. Serial numbers must reflect on report
- Thickness meter calibration certificate
- Certificate for Technician/Inspector carrying out the wall thickness tests
- NDT Certificate for the Technician if NDT was carried out
- Transnet's (User) appointment letter (OSH Act) to carry out the in-service inspection

### **B) The inspections will consist of:**

- The AIA-IS shall come for a site visit before quoting for the work, to discuss Scope of work /or Inspection procedure, to check documentation, data plates for compliance to Pressure Equipment Regulation of Act 85 and applicable Codes
- Safety Induction
- The Pressure Vessel Inspector (Authorised Person) and AIA-IS shall ensure that the requirements of the relevant health and safety standard incorporated in Act 85, PER of Act 85, SANS 347, SANS 10227, SANS 10228, SANS 10254, SANS 329 and SANS/ISO 17020 is complied with at all times
- The AIA-IS shall state beforehand what preparation needs to be done by Transnet, eg. access permit, availability of pressure vessels/availability of water, etc.
- A review of the known and previous history of the pressure vessel must be performed
- Full internal and external visual inspection (welding, pitting, corrosion, etc)
- Non-Destructive Tests (dye penetrate, magnetic particle, radiography, etc) if required
- Ultrasonic wall thickness measurements
- **AIA-IS to carry out all Mechanical Work (Blanking Off and Filling of Water)**
- **AIA-IS to supply their own SANAS Calibrated Gauges, Thickness Meter and Pressure Pump**
- The pressure vessel inspector must be on site when vessel is pressurised
- Transnet's LMI or Examiner or SPE to be on site to witness pressure test and inspection by AIA-IS and verify certificates of the PV Inspector, NDT Technician, Test Gauges and Thickness Meter
- Hydraulic pressure test the vessel to 1.25 times the design pressure
- Check for leaks and /or pressure loss and any deformations
- Examine vessel for permanent deformation and any defects



- Examine the safety devices (safety valve/pressure gauge) and verify that they are fitted, functioning and Certified or state condition in report
- Recommend Engineering Survey, if necessary
- Write an inspection/assessment report on findings
- Issue Certificate of Continuance if inspection is satisfactory and acceptable or issue a Stop Certificate (Non Conformance) if not acceptable and unsatisfactory
- Explain the report to the Maintainer or Examiner (LMI) and the User (Maintenance Supervisor, Plant Supervisor, Maintenance Manager or Depot Manager)
- Report Stop Certificate (Non Conformance) to Management and IPE (PER Auditor) for Transnet (Omesh Beeharie), and advise on the way forward
- Pressure vessel inspector to sign off work done on Transnet 9 Logsheet for each vessel
- PV Inspector to give a written onsite inspection report (work done, authorisation to use vessel or not) on the day of inspection
- To hand in final inspection report in 5 days or as soon as possible

**C) Issuing of fitness of service inspection/assessment report**

**Report will contain the following:**

- Certificate of continuance or inspector states on inspection report “fit for use or continued use” or Stop Certificate (Non Conformance)
- Inspection/assessment report or statutory periodic vessel inspection report
- Hydraulic Pressure test certificate or details of hydraulic pressure test is reflected/stated on inspection report
- Non-destructive test report if conducted
- Manufacturer’s Certificate if available
- Name/Data plate details
- Photograph of Name/Data plate
- Drawing of vessel if available
- Wall thickness measurements
- Photographs if required
- Previous history details (Certificate of Continuance/Pressure test certificate) if required

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