

Title: **PURCHASE, SUPPLY,
DELIVERY, INSTALLATION &
COMMISSIONING OF AN
AUTOMATED 3D SCANNER**

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1. PURPOSE

The purpose of this document is to define the services required for the supply, delivery, installation, commissioning and maintain an automated 3D scanner at TGS Workshops in Rosherville, Johannesburg, South Africa.

2. PURCHASE, SUPPLY, DELIVERY, INSTALLATION & COMMISSIONING OF AN AUTOMATED 3D SCANNER

Eskom Rotek Industries (ERI), Turbo Gen Services (TGS), Rosherville, Johannesburg, South Africa is looking for Contractors, which will be able to supply, deliver, install, commission and maintain the required Automated 3D scanner as per scope of work and specifications provided.

3. SCOPE OF WORK

The Contractor is expected to perform a service as per scope of work and specifications below:

Number:	Item Description:	Quantity:	Additional Requirement:
1	Positive pressure Temperature controlled scanning room	1 Off	The room must be built/supplied at Rosherville workshops.
2	Temperature control equipment to keep temperature at 21°C +/- 1°C	1 Off	The temperature in the scanning room must not vary with more than +/- 1°C.
3	Air filtering system for the scanning room	1 Off	The filtering system must be adequate to achieve the scanning accuracy as specified below.
4	Automated 3D scanner to operate inside the scanning room	1 Off	The scanner must be able to scan the equipment in the room automatically without anybody inside the room. The scanner shall be manoeuvred by means of a robot/robotic arm. The position of the robot/robotic arm shall be by means of a rail or gantry system.

The detail SOW & Specifications for the required Hydraulic Workshop equipment:

1. Positive pressure Temperature controlled scanning room (1 Off):

The scanning room must comply to the following technical specifications:

Technical Specifications:

- It must be possible to scan objects with a length of 10 m and diameter of 5 m.
- The room must have doors to be able to fit the object.
- The object will be moved into the room on a trolley which will move on rails.
- The maximum weight of the component will be 80 000 kg.
- The temperature of the component must be stabilized within 12 hours when moved from the workshop environment.

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- The room must be airtight with positive pressure to prevent dust from entering the room and keep the temperature constant.
- The room must be insulated to keep the temperature at 21°C +/- 1°C.
- The heating and cooling equipment must be able to achieve the temperature stability with an ambient temperature variation between 5°C and 35°C with a relative humidity between 30% and 50%.
- The air filtering system must be able to filter the air so that a scanning accuracy of +/- 15 µm over 10 m can be achieved without the dust causing inaccuracies.
- The scanner must be able to scan the specified component (maximum dimensions) without a human being inside the room (fully automated) within 2 hours.
- The distance between scanning points must not be more than 200 µm.
- The scanner must be able to scan into holes with a depth of 4 times the diameter.
- The scanning head must be able to fit between blade stages of a steam turbine rotor.
- The accuracy of the scanner must be better than +/- 15 µm over 10 m.
- The software must be able to convert the point cloud of the object scanned into a 3 dimensional object which is recognizable by SolidWorks which can be used for 2D drawing creation.
- The scanner shall be manoeuvred by means of a robot/robotic arm.
- The position of the robot/robotic arm shall be by means of a rail or gantry system.

PROOF OF COMPLIANCE WITH THE LAW

The contractor shall ensure that:

1. All employees are registered with the Workmen's Compensation Commissioner in a manner which is acceptable to the Department of Labour, and which satisfies the requirement of the compensation for occupational injuries and diseases act.
2. All employees are registered for unemployment.
3. All unskilled/casual staff must be paid in accordance with the Labour Act. The contractor will be responsible for their training.
4. All personnel shall wear the necessary protective clothing in accordance with Occupational Health and Safety Act No.85 / 1993 and the Construction Regulations of 2003 and which is required in the workshop.

HEALTH AND SAFETY

The Contractor shall at all times comply with the requirements of the Occupational Health & Safety Act (1993), Construction Regulations (2003) and the Employer's Pre-construction Health and Safety Specification. In pursuit of the aforementioned, the Contractor shall allow for:

- Carrying out and documenting risk assessments of all work to be carried out under the contract.
- Preparation of safe work procedures for all work to be carried out under the contract.
- Preparation of an Health and Safety plan, discussing it with the Employer, and then amending it as agreed.
- Preparation for and conducting "toolbox talks" with relevant employees.
- Induction and training as and where required.

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- Preparation of a Project Health and Safety File.
- Regular updating of all the foregoing.
- Provision of PPE and protective clothing for employees
- Complying with all H&S requirements for the duration of the contract
- Storage of cleaning material / equipment

PERSONAL PROTECTIVE CLOTHING

- Overalls
- Heavy duty safety gloves
- Reflective bibs
- Safety Shoes
- Any other PPE over and above

4. REPORTING

Reporting shall be done in writing at the end of every shift to the TGS CED Project Manager. Major finding on the work provided shall be communicated to the TGS CED Project Manager. All contract information according to the signed NEC will be provided to the service provider.

5. SUPPORTING DOCUMENTS

NB: The following documentation must be returned for the purpose of technical evaluation:

- Quality report with recommendations
- Weekly Reports

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