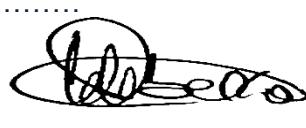


Title:	<b>PROCUREMENT, SUPPLY, INSTALLATION AND COMMISSIONING OF HORIZONTAL CNC MACHINE SIEMENS CONTROL SINUMERIK840DsI LATEST VERSION THEREOF INCLUDING ROTARY TABLE, FACING HEAD, MILLING FUNCTIONS WITH RELEVANT ATTACHMENTS, OPERATOR PENDANT HOUSING THE MACHINE SCREEN CONTROL PANEL AND A SERVICE FOR A PERIOD OF 36 MONTHS AT TGS ROSHERVILLE WORKS</b>	Unique Identifier:	<b>N/A</b>
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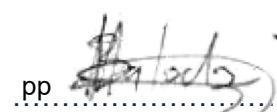
<b>Compiled by</b>	<b>Function Responsibility</b>	<b>Approved by (TGS Works)</b>
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## **1. INTRODUCTION**

The Mechanical Workshop located at Rosherville intends to procure an additional CNC Horizontal WRF 160 CNC Machine SIEMENS control in order to meet the production demand.

This scope makes provision for the procurement, supply, installation, commissioning of horizontal CNC machine siemens control sinumerik840dsl latest version thereof including rotary table, facing head, milling functions with relevant attachments, operator pendant housing the machine screen control panel and a service for a period of 36 months at TGS Rosherville works.

## **2. SUPPORTING CLAUSES**

### **2.1 SCOPE**

This document covers the procurement, supply, installation, commissioning of horizontal CNC machine siemens control sinumerik840dsl latest version thereof including rotary table, facing head, milling functions with relevant attachments, operator pendant housing the machine screen control panel and a service for a period of 36 months at TGS works. The scope also covers the minimum requirements to be met by the Service Provider which will ensure that the said machine is supplied, delivered, installed, commissioned, and serviced in accordance with the highest standard and effectiveness required by the Client (ERI).

The processes identified on this document are a guide to the process to be followed but is not limited to the SOW. The OEM's requirements are the minimum standards to be met by the maintenance and/or service to be rendered.

#### **2.1.1 Purpose**

The aim of this document is to define the scope of work for the procurement, supply, installation and commissioning of CNC Horizontal Machine with SIEMENS

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SINUMERICK840Dsl CNC control system and a Service for a period of 36 months at TGS Rossherville Works.

## **2.1.2 Applicability**

This document shall apply to this specific procurement.

## **2.2 NORMATIVE/INFORMATIVE REFERENCES**

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

### **2.2.1 Normative**

Parties using this document shall apply the most recent edition of the standards for best practices and in line with Eskom specifications that are indicated in this document.

- [1] SANS 1973-1 - Low-voltage switchgear and control gear ASSEMBLIES Part 1: Type-tested ASSEMBLIES with stated deviations and a rated short-circuit withstand strength above 10 kA
- [2] SANS 1973-3 - Low-voltage switchgear and control gear ASSEMBLIES Part 3: Safety of ASSEMBLIES with a rated prospective short-circuit current of up to and including 10 kA
- [3] SANS 10142-1 - The wiring of premises Part 1: Low-voltage installations
- [4] SANS 10142-2 - The wiring of premises Part 2: Medium-voltage installations above 1 kV a.c. not exceeding 22kV A.C. and up to and including 3 MVA installed capacity.
- [5] SANS 12100 – Safety of Machinery

### **2.2.2 Informative**

Parties using this document shall apply and have knowledge of the most recent edition of the standards as listed below.

- [6] ISO 9001 - Quality Management Systems.
- [7] ISO 14001 – Effective Environmental Management System

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- [8] OHSAS 18001 – Occupational Health and Safety Standards
- [9] OHS Act 85 of 1993, *specifically*: General Machinery Regulation (GMR), Electrical Installation Regulations (EIR), Electrical Machinery Regulations (EMR) and Driven Machinery Regulations (DMR)

## 2.3 DEFINITIONS

Definition	Description
ERI	Eskom Rotek Industries SOC LTD, the Client
TGS	Turbo Gen Service , an ERI Business Unit
Works	A TGS Department responsible for production
Plant Maintenance	A TGS Department responsible for maintenance effectiveness and control.

### 2.3.1 Disclosure Classification

**Controlled disclosure:** controlled disclosure to external parties (either enforced by law, or discretionary).

## 2.4 ABBREVIATIONS

The following are abbreviations and their descriptions are specific to this document.

Abbreviation	Description
CNC	Computer Numeric Control
RPM	Revolutions Per Minute (speed)
PM	Preventative Maintenance
CM	Corrective Maintenance
PdM	Predictive Maintenance
CMMS	Computerized Maintenance Management System

## 2.5 ROLES AND RESPONSIBILITIES

Roles	Responsibilities
Scope Compiler	Compilation of the scope of work
Functional Responsibility	Reviewing and acceptance of the scope
Support Personnel	End-user support and acceptance of the scope
Approval Authority	Approving the scope for tendering purposes

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Authorising Personnel	Reviewing and authorising the scope
Service Provider	Execution of the approved scope

## 2.6 PROCESS FOR MONITORING

Requirements	Monitoring Process
Computerised Management Process (SAP)	Monitoring of the execution progress

## 2.7 RELATED/SUPPORTING DOCUMENTS

- 240-109495432 – Horizontal Boring Mill Maintenance Philosophy

## 3. SCOPE OF WORK

### 3.1 CONTEXT FOR THE CNC MACHINE

The TGS Workshop at Rosherville is at the heart of the operation at Rosherville Works. The workload requires additional capacity of the work in order to fulfil the Client's expectations. Therefore requires that a CNC Machines be procured.

As part of this scope, the work should cover the Procurement, supply, installation, commissioning of horizontal CNC machine siemens control sinumerik840dsl latest version thereof including rotary table, facing head, milling functions with relevant attachments, operator pendant housing the machine screen control panel and a service for a period of 36 months at TGS works at TGS Rosherville Works.

**NB:** An external audit to be conducted by an Eskom Rotek representative must be done before any contract or order is awarded. The audit will confirm that the tools/parts issued are indeed the correct tools/parts according to the required specification and application of the part for the work intended at Rosherville Works.

Service provider must ensure the following:

- Service provider must have a 24-hour technical personal available in case of breakdowns.

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- Machines must be delivered, installed and commissioned at Rosherville Works.
- Service provider must have qualified technicians, riggers and crane operators for the purpose of installing the machine on site.
- Machines must be fully tested after commissioning and sign off by the client.
- Service provider must offer siemens controls with only ISO long hand programming capabilities and must be fitted to the CNC machines
- Service provider must issue on job training and certification where necessary as part of the hand over process
- Controls must have a USB as well as RS232 communications
- Supplier must issue after sales support in the form of 24/7 sales support including repair and spares availability for the purpose of breakdown work.
- In the interest of minimizing breakdown downtime, the service provider must be within short driving distance from Rosherville Works.

#### **RETURNABLE/DELIVERABLE DOCUMENTS:**

- Quality documentation in the form of material certificates, specification data sheets, instruction/owner's manuals.
- Warranty certificates, with a minimum 1-year original manufactures warranty and guarantee.
- Copy of Signed collection/delivery notes.

#### **3.2 SITE INFORMATION**

The scope entails works to be executed at Rosherville Works which is located in City deep Johannesburg.

#### **3.3 PLANT DESCRIPTION**

The plant description of the machine to be procured and maintained is a procurement, supply, installation and commissioning of a CNC Horizontal WRF 160 CNC Machine SIEMENS control and a Service for a period of 36 months at TGS Rosherville Works.

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### **3.4 DETAILS OF THE WORKS**

The specific tasks to be conducted are detailed below. The detailed tasks are the bare minimum and binding as the minimum contractual agreement between the Client and the Service Provider. OEM requirements that may, or may not, be different from the details scope will be considered as and when it may arise. The scope is for the procurement, supply, installation and commissioning of a CNC Horizontal WRF 160 CNC Machine SIEMENS control and a Service for a period of 36 months at TGS Rosherville Works.

#### **3.4.1 SPECIFIC TASK TO BE EXECUTED**

The work shall entail, but is not limited to:

- Procurement, supply, installation, commissioning of horizontal CNC machine Siemens control sinumerik840dsl latest version thereof including rotary table, facing head, milling functions with relevant attachments, operator pendant housing the machine screen control panel and a service for a period of 36 months at TGS Rosherville Works.
- Train a minimum of 3 (three) operators on the operation of the machine

### **3.5 DELIVERABLES**

The service provider shall ensure that the reports and documentation pertaining the service and maintenance of the machines are submitted to the Client's Plant Maintenance Manager. Below is a table that entails the minimum details to be contained in the report. The agreed template will be provided to the Service Provider upon finalization of the contract and prior to the initial rendering of the services.

**Table 1: Report Minimum Required Information**

<b>System</b>	<b>Report Content</b>
Housekeeping	The initial housekeeping prior to the execution of the task and the resulting housekeeping condition after the execution of the task
Machine condition	The condition of the machines prior to starting the task and the condition of the machine after the task has been completed
Lock-out facility	The condition of the lockout system to ensure the safety of both the Service Provider and the Client's personnel
Out-of-Normal Condition	The identification of any out of normal condition on the machine, both prior and post servicing and maintenance execution

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Electrical System	The condition of the electrical system of the machine
Environmental Condition	Identification of any environmental contravention, <i>if any</i> , in relation to, <i>but not limited</i> , the drip tray conditions, oil or grease leaks, etc.
Cooperation Between Service Provider and the Client	Ease of access to the machine and cooperation by the Client's personnel for the execution of the task.
Parts and Consumables	Details of all parts and consumables used
Duration	The duration of the task from start to finish
Machine Specification	<p>Horizontal CNC machine Siemens control sinumerik840dsl latest version thereof including rotary table, CNC D'Andre facing head, milling functions with relevant attachments, operator pendant housing the machine screen control panel.</p> <p>Maximum swing diameter: 1 meter.</p> <p>Spindle diameter: 200 mm</p> <p>Minimum cross travel: 17.36 meters</p> <p>Maximum vertical travel: 5.5 meters.</p> <p>Combined ram and spindle travel: 1.96 meter</p> <p>Maximum floor load: 300 Ton.</p> <p>Further details:</p> <p>CNC integrated 45Ton load with rotary table, other accessories like optical scope for line boring, line boring bars, various size angle plates, setting blocks, universal and vertical milling attachments.</p> <p>The further details of the machine maintained which shall include the name, serial number, asset number, design specs and data of the machine.</p>
Recommendations	Any recommendations outside of the contractual agreement of the execution contract of this scope of work.
Service Report	Detailed service report of all work done and list off all replacement parts used

### **3.6 ASSESSMENT CRITERIA**

Upon completion of the task, the Service Provider shall ensure that a Client's Plant Maintenance representation, *to be identified as and when required*, inspects and signs off the work executed prior to the acceptance of the work as complete in accordance to the contract by the Client's Plant Maintenance Manager. The Service Provider shall ensure that records are kept for the duration of the contract while the Client's Plant Maintenance

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Manager shall ensure that records are kept safe for duration as stipulated in the maintenance philosophy.

### **3.7 WARRANTY**

The work performed is warranted to be free from defects in material and workmanship from date of completion to the following periods. The warranty shall cover:

- 3.7.1 New electrical and Mechanical parts as stipulated by OEM.
- 3.7.2 Workmanship for 6 Months after acceptance of work by the Client
- 3.7.3 The product must be used in accordance with manufacturer's recommendations and must not have been subject to abuse, lack of maintenance, misuse, negligence, or unauthorized repairs or alterations. Should any defect in material or workmanship occur during the above time period in any product, as determined by supplier inspection of the product, the Service Provider, agrees, at its discretion either to replace (not including installation) or repair the part or product free of charge.

### **3.8 ELIGIBILITY EVALUATION CRITERIA**

The Service Provider intending to tender for this work shall ensure they are and/or employ qualified and competent personnel in the field of Maintenance. Notwithstanding other requirements that may arise during the tender process, the following are the minimum requirements.

- 3.6.1 Qualified Trade Tested Artisans
- 3.6.2 Proof on Knowledge of Machinery Safety
- 3.6.3 Proof of Knowledge of the OHS Act requirements
- 3.6.4 Must have worked on similar machines before, e.g. Lathes, Milling machines, etc.
- 3.6.5 Be capable of undertaking the magnitude of the work as per the contract
- 3.6.6 Be mobile and readily available for breakdowns in Rosherville and Matla Works.

### **3.9 GENERAL CONSTRAINTS**

The following are the general constraints that are to be considered:

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3.7.1 Working in an operational environment where machines and equipment are being handled.

3.7.2 Negotiating with Production Managers to arrange planned shutdowns specific within the contractual interval requirements.

3.7.3 Minimizing down periods as production will still be taking place in and round the vicinity of the working area.

3.7.4 Working in areas where there are vehicle and pedestrian traffic.

3.7.5 Accuracy of existing information may be outdated and need to be verified on site prior to proceeding with any work.

### **3.10 TERMS AND CONDITIONS**

The successful Service Provider will be expected to adhere to the following minimum conditions:

- a. Adherence and compliance to the health and standards set out by the Client.
- b. Provide adequate PPE to its employees.
- c. Provide its own working fully functional tools
- d. Fully sign and complete the PM Orders.
- e. Issue the service report for the work done and fully signed by the responsible Technician or Supervisor.
- f. Respond to the call out within 6 hours after receiving a call out.
- g. Hand over the replacement (parts removed from the machine) parts to the Client.

### **4. AUTHORISATION**

<b>Name &amp; Surname</b>	<b>Designation</b>
Xolani Ngidi	Works Engineering Manager
Vusi Sibeko	Mechanical Services Manager
Sisa Pantshwa	Matla Works Engineer
Martin Geustyn	Technical Supervisor -Heavy Machining

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## 5. REVISIONS

Date	Rev.	Compiler	Remarks
June 2023	1		Procurement, supply, installation, commissioning of horizontal CNC machine siemens control sinumerik840dsl latest version thereof including rotary table, facing head, milling functions with relevant attachments, operator pendant housing the machine screen control panel and a service for a period of 36 months at TGS works

## 6. DEVELOPMENT TEAM

The following people were involved in the development and content of this document:

- Tinus Erasmus /Martin Geustyn
- Johannes Pienaar
- Sisa Pantshwa/Xolani Ngidi
- Vusi Sibeko

## 7. ACKNOWLEDGEMENTS

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