

Title: **Tender Technical Evaluation  
Strategy for Tutuka SSC  
Hydraulic spares**

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Compiled by



**Tebogo Motloutsi**  
**SSC System Engineer**

Date: 03/02/2021

Functional Responsibility



**Phil Hoop**  
**Boiler Engineering Manager**

Date: 03/02/2021

Authorised by



**Ntombifuthi Ngcobo**  
**Power Station Engineering  
Manager**

Date: 03/02/2021

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## 1. INTRODUCTION

Tutuka Power Station units consist of a boiler set that is fitted with a Submerged Scraper Chain Conveyor (SSC) system underneath the boiler for Boiler Bottom Ash (BBA) removal. Each boiler unit has one SSC. BBA removed by the SSC is discharged onto the short coarse ash conveyors (CAC) via a discharge grizzly assembly. The short coarse ash conveyor is linked to other ash conveyors to eventually feed the discarded ash to the ash disposal facility (Ash dump).

The SSC consists of the chain; scraper bars (flights), main drive system, tensioning system, idler wheels, stub shafts (submerged idler wheels), ash box, etc. The ash box has the horizontal section directly underneath the boiler nose, as well as the sloped section that guides the ash up to the exit onto the grizzly grating and short coarse conveyor. The purpose of the sloped section (dewatering slope) is to allow the water to drain as much as possible from the ash as it ascends up the slope to the exit point.

The ash box is the main container of the falling coarse ash from the boiler. In operation the ash box is filled to capacity with water that is high enough to reach the bottom of the boiler structure (dipper plates) to provide the seal to the boiler and prevent air ingress at the bottom of the boiler. The scrapers guided by the two chains enters the inside of the ash box (upper trough) at the rear, scraps and push the ash at the bottom of the ash box through to the dewatering slope until the ash falls over onto the grizzly gratings and the short coarse conveyor. The scrapers bars still guided by the chain, proceed to travel underneath the ash box upper trough in the return tray / lower trough back to the rear side were they will re-enter the ash box upper trough.

This strategy serves as the Technical Evaluation Strategy for the procurement of mechanical and machined SSC spare components to ensure technical requirements are met.

## 2. SUPPORTING CLAUSES

### 2.1 SPECIFICATIONS

#### Main Drive System

Main Drive system	
Make:	Hytec
Speed range:	1.2 to 6.2 m/min
Maximum hydraulic pressure:	320 bar
Maximum torque:	70 Nm
Drive Motor:	18.5 kW (Hugglands)

#### Tensioner System

Tensioner system	
Make:	Hytec
Maximum hydraulic pressure:	160 bar

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## 2.2 SCOPE

The description of the scope of this Works is as follows:

The scope of work entails the supply and delivery of SSC hydraulic components spares components as per the list below.

Description	Technical Description (Long Text)	OEM Supplier	Type/System
SSC Main drive oil supply filter element	ELEMENT: DISPOSABLE PART NO: HYTEC-0330D010BNHC ; FILTER DFNBN/HC330G010B1, DIMENSIONS: ID 30.5 X OD 65 X LG 12 MM MATERIAL: PAPER FILTERING RETENTION: 3 UM HYDAC BETAMICRON MORGANIC FIBRES -	Hytec	Hydraulic
SSC Main drive hugglunds motor	MOTOR, HYDRAULIC: TYPE: VANE SPEED: 600 RPM IGH TORQE REFERENCE NO: MK43, REFERENCE NO: MK 44 06800 D0 RN 00 00, NO EQUIVALENT	Hagglunds	Hydraulic
SSC Main drive hydraulic pump	PUMP: TYPE: HYDRAULIC SIZE: 35 X 20 MM SPEED: 1500 RPM RATING: 280 BAR DRIVER: MOTOR SPARES FOR WET ASH SCRAPER CONVEYOR PART NO: <b>A10 VO45 EPD1 /31R-PPA12N00/S0691 / A10VO45EP2D/53R-VSC11N00-S1514</b> VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER IF REQUIRED	Hytec	Hydraulic
SSC Main drive return line filter element	FILTER ELEMENT * HYDAC * PART NUMBER: 0330R010BN/HC * CATALOGUE NUMBER: RE00101 * MATERIAL: PAPER ELEMENT BETAMICRON INORGANIC FIBRE * SIZE: 195MMLONG X 48MM INSIDE DIAMETER X 95MM OUTSIDE DIAMETER * 10 MICRON NOMINAL PORE SIZE * TO BE USED ON SSC HYDRAULIC POWER PACK	Hytec	Hydraulic
Main drive oil supply filter element	FILTER, ELEMENT: DIMENSIONS: DIA 100 X LG 190 MM MATERIAL: PAPER FILTERING RETENTION: 10 UM HYDAC BETAMICRON, INORGANIC FIBRE, TO BE USED ON SSC HYDRAULIC POWER PACK CATALOGUE NO: RE00101 PART NO: 0330R010 BN/HC	Hytec/Rexroth	Hydraulic
SSC main drive pump coupling	SPIDER, COUPLING: COUPLING TYPE: FLEXIBLE MATERIAL: NYLON INSIDE DIAMETER: 45 MM APPLICATION: ROTEX HORIZONTAL THICKNESS: 20 MM OUTSIDE DIAMETER: 95 MM SIZE 42 SPIDER,NYLON ROTEX M42 Part no. K020421000001	Hytec/Rotec/Rexroth	Hydraulic

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SSC main drive pump coupling hub	COUPLING, SHAFT HALF: OUTSIDE DIAMETER: 360 MM LENGTH: 180 MM MATERIAL: STL COMPLETE FALK COUPLING, TORQUE RATEING: 3500 LB/IN, 4500 RPM, WITH HORIZONTAL SPLIT COVER UNBORED PART NO: Part no. K020423104800 and K020423002500	Hytec/Rotec/Rexroth	Hydraulic
25573	HOUSING:COUPLING,365 MM DIA,MATERIAL ALUMINIUM Part No. PK350/06/25	Hytec/Rotec/Rexroth	Hydraulic
Supply Pressure relieve valve	315 Bar calibrated pressure relieve valve , Part no. DBDS20G1X/315	Rexroth	Hydraulic
Return Pressure relieve valve	25 Bar calibrated pressure relieve valve, Part no. DBDS20G1X/25	Rexroth	Hydraulic
Main drive Oil cooler	Part no. OKO-40-5 (hydrive)	Hydirv/hytec	Hydraulic
SSC Tensioner Hydraulic Cylinder/Rams	SSC Tentioner Rams HYDRAULIC CYLINDER * TO L&C STEINMULLER DRAWING NUMBER F4E 51917 * ITEM 4 * TYPE 160DZ * 80/45 X 410 SG * FOR USE WITH WET ASH SCRAPER CONVEYOR	Hytec (RAZ Enginrering, BIZ Africa, Blue seal)	Hydraulic
SSC Tensioner Hydraulic Pump Tank	HAWE HC4 1,5-A4/150 UNIT: TYPE: HYDRAULIC POWER HAWE RATED OUTPUT: 0.75KW, 2.2A, 380V, 1420 RPM, 1.5 L/MIN, 700 BAR	Hytec/Hawe	Hydraulic
Pressure flow control valve	Valve type 2 way control, 315 Bar rating	Rexroth/Hytec	Hydraulic
SSC Tensioner Solenoid valve (Pump Tank unit)	Solenoid Valves for SSC tensioner	Rexroth/Hawe/Hytec	Hydraulic
Main drive piping	Flexible Hydraulic 25x2.5mm Main drive hoses 40 MPa rated		Hydraulic
Tensioner piping	Flexible Hydraulic Tensioner hoses 12x1.5mm 32 MPa rated		Hydraulic

### 2.3 PURPOSE

The purpose of this tender technical evaluation strategy is to define the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria and TET member responsibilities for tender technical evaluation. The technical evaluation strategy serves as basis for the tender technical evaluation process. This document will also provide a guideline as to what technical tender returnables are

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expected and how to assess each tender returnable by providing acceptable and unacceptable criteria's.

## **2.4 APPLICABILITY**

This document is applicable to the Tender Evaluation Team for Tender Technical Evaluation Strategy for the supply of SSC mechanical and Machined spares.

## **2.5 NORMATIVE/INFORMATIVE REFERENCES**

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

### **Normative**

- [1] ISO 9001 Quality Management Systems.
- [2] 240-48929482: Tender Technical Evaluation Procedure
- [3] 240-53716712: Tender Technical Evaluation Results Form Template
- [4] 240-53716726: Tender Technical Evaluation Scoring Form Template
- [5] 240-53114186: Document and Records Management
- [6] 240-53665024: Engineering Quality Manual
- [7] 15ENG BLR-032: Maintenance Execution Strategy for SSC, Grizzly and sumps

### **Informative**

- [8] NEC document for Supply, Supply and Delivery of SSC Mechanical and Machine spares at Tutuka Power Station .
- [9] OHSA: Occupational Health and Safety Act 85 of 1983
- [10] 240-106628253 Standard for Welding Requirements on Eskom Plant
- [11] Occupational Health and Safety Act, 1993 (No 85 of 1993): OHS Act, Regulation and code
- [12] QM58: Eskom's Quality Requirements

## **2.6 DEFINITIONS**

<b>Definition</b>	<b>Description</b>

### **Classification**

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

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## 2.7 ABBREVIATIONS

Table 1: Abbreviations

Abbreviation & Acronyms	Description
RFP	Request for proposal
RFQ	Request for Quotation
TET	Technical Evaluation Team
SOW	Scope of Work
BBA	Boiler Bottom Ash
ID	Inside diameter
ISO	International Organization for Standardization
ITP	Inspection and Test Plan
m/s	Meters per second
OEM	Original Equipment Manufacturer
OHS	Occupational Health and Safety
SANS	South African National Standards
SSC	Submerged Scraper Chain Conveyor
QCP	Quality Control Procedure
WPS	Welding Procedure Specification

## 2.8 ROLES AND RESPONSIBILITIES

As per 240-48929482: Tender Technical Evaluation Procedure

## 2.9 PROCESS FOR MONITORING

As per 240-48929482: Tender Technical Evaluation Procedure

## 2.10 RELATED/SUPPORTING DOCUMENTS

240-48929482, Tender Engineering Evaluation Procedure

## 2.11 PREREQUISITES

All personnel on the technical tender evaluation team must be familiar with this document before the tender evaluation can proceed.

Technical tender evaluation team must approve this document before the tender evaluation can proceed.

There shall at least be **three evaluation team members to meet a quorum** to be present in the scheduled meeting(s) to approve the evaluation criteria and to evaluate the tender documents.

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## **2.12 PRECAUTIONS AND LIMITATIONS**

N/A

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### 3. TENDER TECHNICAL EVALUATION STRATEGY

A weighted scorecard approach is used to evaluate the technical compliance of the tenders against the specifications or ability to perform the work. Tenderers need to have a minimum weighted score of 70% overall or more to technically qualify for further evaluation.

#### 3.1 TECHNICAL TENDER EVALUATION METHOD

Table 1: Evaluation Criteria

Gatekeepers		
No.	Mandatory Technical Criteria Description	
1.1	Provide verifiable reference that the Manufacture/Supplier has successfully completed similar equipment to Power Stations/ similar industries in the last 10 years.  References shall include the customer name, customer reference person with contact details, project scope.	
<b>NB: Tenders, which do not satisfy these gatekeepers, will not be given further consideration.</b>		
Technical Evaluation Criteria		Weighting [%]
2.1	Provide technical specification of hydraulic equipment to be used for calibration of PRV's in the scope.	20
2.2	Examples of completed QCPs and supporting work instruction (procedure) used for testing of hydraulic components (pumps, hoses and prv's) to the required ratings	20
2.3	Verifiable reference list of supplied variable axial piston pumps and hydraulic pressure relieve valves within Eskom and/or mining industry/or other heavy construction industries. References shall include the customer name, customer reference person with contact details, project scope.	20
2.4	Supplier/Manufacturer to supply the price schedule and lead times as per the spares detailed in section 2.1 Scope	20
2.5	Provide proof of that the Equipment spare parts are procured or received from the OEMs e.g. Official Authorized Distributor letter from OEM	20
<b>TOTAL</b>		<b>100%</b>

**NB: A minimum total of 70 % is required in this section for further consideration. The tenderer is to ensure that all the evaluation criteria are submitted as stated with the tender application.**

#### 3.2 SCORING TABLE

Table 2: Qualitative Evaluation Criteria Scoring Table

Score	Points	Definition
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5	100	<p><b>COMPLIANT</b></p> <p>Meet technical requirement(s) AND;                  No foreseen technical risk(s) in meeting technical requirements.</p>
4	80	<p><b>COMPLIANT WITH ASSOCIATED QUALIFICATIONS</b></p> <p>Meet technical requirement(s) with;                  Acceptable technical risk(s) AND/OR;                  Acceptable exceptions AND/OR;                  Acceptable conditions.</p>
2	40	<p><b>NON-COMPLIANT</b></p> <p>Does not meet technical requirement(s) AND/OR;                  Unacceptable technical risk(s) AND/OR;                  Unacceptable exceptions AND/OR;                  Unacceptable conditions.                  Omission of the SOW</p>
0	0	<p><b>TOTALLY DEFICIENT OR NON-RESPONSIVE</b></p>
<p>Note 1: The scoring table does not allow for scoring of 1 and 3.</p>		

### 3.3 TECHNICAL EVALUATION THRESHOLD

The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is **70%**. Tenderers need to have a minimum weighted score of 70% overall or more to technically qualify for further evaluation.

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### 3.4 TECHNICAL EVALUATION TEAM

The following personnel will form part of the technical evaluation team:

**Table 3: TET**

<b>TET Number</b>	<b>Evaluator's name</b>	<b>Designation</b>
TET 1	Tebogo Motloutsi	SSC System Engineer
TET 2	Ntsizwa Mabena	SSC Senior Supervisor
TET 3	Paul Muller	QC Technician Supervisor

### 3.5 TECHNICAL EVALUATION TEAM RESPONSIBILITIES

**Table 4: Evaluation Matrix**

<b>Section</b>	<b>TET 1</b>	<b>TET 2</b>	<b>TET 3</b>
1.1	x	x	x
2.1	x	x	x
2.2	x	x	x
2.3	x	x	x
2.4	x	x	x

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### 3.6 TECHNICAL EVALUATION SCORING GUIDE

In the table below is a guide on how to score each technical tender returnable. This guide is obtained for the Tender Engineering Evaluation Procedure.

**Table 5: Scoring guide**

GATEKEEPERS						
Section	Criteria					Yes / No
1.1.	Provide verifiable reference that the Manufacture/Supplier has successfully supplied similar equipment to Power Stations/ similar industries in the last 10 years. References shall include the customer name, customer reference person with contact details, project scope.					
Technical evaluation						
<b>NB: Tenders which do not satisfy this gatekeeper will not be given further consideration on this project. Contractors who qualify the gatekeeper must obtain a minimum of 70% on the quantitative evaluation to qualify.</b>						
Minimum score of 70% required			Score			
No	Criteria	Weight [%]	0	2	4	5
2.1	Provide technical specification of hydraulic equipment to be used for calibration of PRV's in the scope.	20	Deficient or non-responsive	Unacceptable risks	Acceptable risks	Fully compliant and no technical risks
2.2	Examples of completed QCPs and supporting work instruction (procedure) used for testing of hydraulic components (pumps, hoses and prv's) to the required ratings	20	Deficient or non-responsive	Unacceptable risks	Acceptable risks	Fully compliant and no technical risks
2.3	Verifiable reference list of supplied variable axial piston pumps and hydraulic pressure relieve valves within Eskom and/or mining industry/or other heavy construction industries. References shall include the customer name, customer reference person with contact details, project scope.	20	Deficient or non-responsive	Unacceptable risks	Acceptable risks	Fully compliant and no technical risks

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2.4	Supplier/Manufacturer to supply the price schedule and lead times as per the spares detailed in section 2.1 Scope	<b>20</b>	Deficient or non-responsive	Unacceptable risks	Acceptable risks	Fully compliant and no technical risks
2.5	Provide proof of that the Equipment spare parts are procured or received from the OEMs e.g Official Authorized Distributor letter from OEM	<b>20</b>	Deficient or non-responsive	Unacceptable risks	Acceptable risks	Fully compliant and no technical risks

**A. FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS**

**Risks**

**Table 6: Acceptable Technical Risks**

Risk	Description
1.	None

**Table 7: Unacceptable Technical Risks**

Risk	Description
1	No proof that the Equipment spare parts will be procured or received from the OEMs e.g Official Authorized Distributor letter from OEM

**Exceptions / Conditions**

**Table 8: Acceptable Technical Exceptions / Conditions**

Risk	Description
1.	None

**Table10: Unacceptable Technical Exceptions / Conditions**

Risk	Description
1	Examples of completed QCPs and supporting work instruction (procedure) used for testing of hydraulic components (pumps, hoses and prv's) to the required ratings

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## 2. AUTHORISATION

This document has been seen and accepted by

Name	Designation
Phil Hoop	Boiler Engineering Manager
Mikateko Matlole	MMD Line Manager
Tebogo Motloutsi	SSC System Engineer
Ntsizwa Mabena	MMD Senior Supervisor
Paul Muller	Quality Control Technician

## 3. REVISIONS

Date	Rev.	Compiler	Remarks
January 2021	1	Tebogo Motloutsi	New Document

## 4. DEVELOPMENT TEAM

Ntsizwa Mabena

Paul Muller

## 5. ACKNOWLEDGEMENTS

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