Eskom	Scope of Work	Engineering

Title: **Supply and Delivery of Electrical Heater Elements.**

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Content

1. Introduction

This document specifies the technical requirements for the supply and delivery of electrical heater elements at Kendal Power Station Stores Department. Different types of electrical heater elements are specified in the document and they must be delivered as specified.

2. Supporting Clauses

2.1 Scope

This document defines the technical scope of work to be performed by the contractor or supplier, which includes the supply and delivery of the electrical heater elements that must be delivered at Kendal Power Station Stores Department.

2.1.1 Purpose

This document defines the requirements for supply and delivery of electrical heater elements at Kendal Power Station

2.1.2 Applicability

This documents it only applicable to Kendal Power Station.

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

- IEC 60947-1: Low Voltage Switchgear and Control gear – Part 1: General rules
- IEC 60947-3: Low Voltage Switchgear and Control gear – Part 3
- ISO 9001 Quality Management Systems.

2.2.2 Informative

- None.

2.2.3 Disclosure Classification

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

2.3 Abbreviations

Abbreviation	Description
IEC	International Electrotechnical Commission
MCC	Motor Control Centre
UPS	Uninterrupted Power Supply
A	Ampere
kA	Kilo - Ampere
V	Voltage
VAC	Voltage Alternating Current
VDC	Voltage Direct Current
Mm	Millimetre
mm^2	Square Millimetre
IP	Internal Protection

2.4 Roles and Responsibilities

This document shall apply to Kendal Power Station Stores Department, the supply and delivery of electrical components at Stores Department.

2.4.1 Engineering Department

- ***Plant Engineer*** is responsible for doing QC and making sure work is done according to the scope of work issued.

2.4.2 Inventory Management Department

- Maintaining the approved stock levels
- Storage of stock according to approved methods
- Forward planning to ensure stock availability
- Ensure reviewing of stock levels
- Stock accuracy and control
- Stock Optimisation
- Issuing of materials to end users
- Receiving of goods

2.4.3 Safety and Environment Department

- Implementation of SHE systems.
- Ensure compliance with OHS Act and putting in place of enforcement mechanism.
- Regular internal communication at all levels by way of meetings and discussions concerning health and safety.
- Identify hazards in different areas and conduct task risk assessments regarding employee's acts.
- Coordinate and identify SHE training gaps.
- Development and implementation of safety policies and procedures.
- Report incidents.

2.4.4 Quality and Assurance Department

- Ensure quality control processes are in place.
- Ensure adherence to Eskom operating procedures, policies, guidelines and plant safety regulations.
- Review and accept quality plans.

2.4.5 Contract Management Department

- Management of contract services.
- Ensure quality control of activities during the term of the contract.
- Management of time cost and quality.

2.4.6 Contractor

- The responsibilities of the contractor are as per NEC and compliance to the relevant standards.

2.5 Process for Monitoring

- The ***Contract Service Manager*** must ensure that the contractor follows all Eskom procedures and process
- The ***Contractor*** is to ensure the use of Inspections and quality to monitor progress and quality of the work.

2.6 Related/Supporting Documents

- Not Applicable

2.7 General Considerations

Description	Reference
Competency	
Competency shall be as indicated in Kendal Quality Manual, section 6.2.2	*1017374
Safety	
Kendal Power Station SHE specifications for principal contractors	
Kendal Power Station Occupational Health and Safety Hazard Identification	*1017372
Environment	
Waste Management procedure	*1014102
Kendal Environmental Procedures for Contractors	*1018332
Kendal Power Station Occupational Health and Safety Hazard Identification	*1017372
Quality	
To comply to Kendal Quality Manual	*1017374
Kendal Document and Records Management Procedure	*1015682
Occupational Health and Safety Act no. 85 of 1993	Act no. 85 of 1993
Existing Defects (04 Defects)	
None	

2.8 Preservation of Product

Unless specified, product handling shall comply with the following;

1. Eskom Procurement and Supply Chain Management – 32-1034
2. Critical Spare procedures
3. Maintenance procedures

2.9 Risk

Risk management during shall comply with *1017401 - Integrated Risk Management

Table 1 List of Required Heaters

Material	Material Description	Quantity
173140	HEATER, IMMERSION: TYPE: GEYSER; POTENTIAL: 230 V; POWER: 1.5 KW	10
138281	ELEMENT: DIMENSIONS: DIA 32 X LG 340 MM; TYPE: LUBE OIL; FOR BOILER FEED PUMP, ELEMENT; SADIA; MATERIAL: NICHROME, CERAMIC SHEATH; POTENTIAL: 220VAC 50HZ VAC; POWER: 1.5 KW	18
053946	ELEMENT, HEATER: POTENTIAL: 220 VAC; POWER: 800 W; DRAWING NO: CWW20 REV 1; 50HZ, MILL TRINION, FOR MILL LUBE OIL HEATER	30
135360	HEATER: TYPE: RADIANT; POTENTIAL: 220 VAC; POWER: 1 KW; DIMENSIONS: DIA 370 X LG 70 MM; SUPPL P/N: WCA	300
173699	THERMOSTAT: TYPE: OVEN; SUPPL P/N: 019934; CONTROL, 6MM BUSH MOUNT, COMPLETE WITH KNOBS	40
173658	THERMOSTAT: TYPE: GEYSER; POWER: 3 KW; SUPPL P/N: MK II; FIG NO: 17210	100
0053802	HEATER, SPACE: TYPE: ELECTRIC CONVECTION; POWER: 900 W; POTENTIAL: 380 VAC; SUPPL P/N: HTAM 320-111; 6.10	30
53806	ELEMENT, HEATER: DIMENSIONS: LG 2.34 M X THK 45 MM; POTENTIAL: 380 V; POWER: 9 KW; 16.3OHM	2000
54353	ELEMENT, HEATER: DIMENSIONS: DIA 20 MM X LG 2.28 M; POTENTIAL: 220 VAC; POWER: 4.3 KW; MATERIAL: NICR/CERAMIC SHEATH; 50HZ; ELECTRICAL INLINE; FUEL OIL PLANT; TWO WIRES PARALLEL; SINGLE STEEL WIRE FOR TENSION	4000

3. Delivery of Electrical Instrument

The Supplier shall be responsible for:

1. Providing adequate notice of equipment delivery and co-ordinating site access with responsible personnel onsite.
2. Checking of delivery contents, as well as packing and marking of equipment before dispatch.
3. Delivery loading, transportation to site and unloading of diodes, rectifiers and thyristors once onsite.

NOTE: In cases where the Supplier employs subcontractor/s, any disagreements between the Supplier and their subcontractor/s shall not affect supply and/or delivery, such as the withholding of supply and/or delivery in the event of a dispute that is independent of Eskom.

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Ntobeko Mthembu	System Engineer
Remember Sigawuke	Electrical Engineering Manager
Phindile Takane	Engineering Manager
Johan van Niekerk	Senior Supervisor
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Xolisa Sotomela	Electrical Maintenance Manager
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5. Revisions

Date	Rev.	Compiler	Remarks
May 2025	00	N Mkhize	This document was compiled for Suppliers to understand what need to be done.
September 2025	01	N Mthembu	Scope review and update

6. Development Team

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

- Nathi Mkhize
- Tose Tose

7. Heater element schedule

Schedule A : Eskom requirements
Schedule B : Guarantees and technical particulars of equipment offered

Description	Schedule A	Schedule B
Viscosity @ 38oC (cSt)	250	
Oil Working Pressure (kPa)		
Oil Design Pressure (kPa)	300	
Inlet Temperature max (oC)	30	
Inlet Temperature min (oC)	120	
Inlet Viscosity (cSt) max	50	
Inlet Viscosity (cSt) min	153	
Outlet Temperature (oC)	15	
Temperature Rise (oC)	120	
Mean Superheat (J/kg oC)	60	
SG at working Temperature	2014	
# of units	0.90 to 0.96	
Unit Rating (kW)	6	
Connection type	232.2	
Material Type	Delta	
Rated voltage (V)	Ceramic	
Element control method	380	
Element Application	Thermostat	
	Fuel oil	