

	<b>Scope of Work</b>	Identifier	240-43921898
		Rev	0
		Effective Date	May 2021

#### Executive Overview:

This executive overview provides a concise summary of the tender proposal for CNC specifically focused on machining of boiler and turbine auxiliary components including valve machining, pressure test and recertification. The purpose of this document is to outline the key aspects of the tender, including scope of work, capabilities, quality assurance measures, and expected outcomes.

#### Purpose:

The tender issued by Eskom Arnot Power Station is intended for a period of 5 years, and the services of the selected service provider will primarily be required during power outages. The specific scope of work will be determined and assigned to the service provider during each outage.

Applicable corporate, generation and international guideline, directives and standards.

No.	Reference Number	Document title
1	Application National statutory standard	
1.1	OHSA (ACT 85 of 1992	Occupational Health and Safety Act
1.2	PER Rev 2	Pressure Equipment Regulation
1.3	SANS 347	Categorization and conformity assessment criteria
2	Eskom standards	
2.1	474-10327	Vup & PER Compliance and Management Position Paper
2.2	240-51544462	Supplier Contract Quality Requirements Specification
2.3	QM58	Supplies Contract Quality Requirements and specification
2.4	240-8479413	Maintenance and repair of high temperature/pressure valves and fittings
2.5	240-83539994	Eskom approval of personnel performing quality related special process on Eskom plant
2.6	240-83540088	Requirement for non-destructive testing on Eskom plant
3	International health and safety standards	
3.1	DIN EN 10222-2	Steel forging for pressure purpose
3.2	BS EN 1266-1	Industrial valves - Pressure test
3.3	BS EN 12516-1	Industrial Valve – Shell design strength

#### A. Scope of Work

##### Section A – CNC Machining of boiler and turbine components (refer to annex A)

1. CNC machining of boiler and turbine auxiliary components as per the specifications provided by Eskom Arnot Power Stations.
2. Employ precise and automated machining techniques to fabricate the boiler and turbine components according to the specified dimensions and tolerances.
3. Ensuring adherence to the required tolerances, dimensions, and material standards.
4. Quality control measures and procedures to be compliant with all relevant standards and regulations.
5. Facilitate the procurement and sourcing of the necessary materials required for machining of the components.
6. Quality inspection and testing of finished components to meet Eskom's specifications and industry standards.
7. Perform NDT on the final machined components.

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Section B – Valve butt ends machining, pressure testing and recertification (Refer to annex B)

1. Design strength calculations to determine valve ends Minimum Allowable WT.
2. Machine valve ends to specified dimensions. Prep ends to conform to BS EN 12627 requirements.
3. Rerating to appropriate PN rating as per site requirements.
4. Pressure test according to BS EN12266-1 requirements.
5. New name plate and stamping.

#### B. Quality Requirements

1. All machining processes must meet industry standards and adhere to Eskom Arnot Power Station's quality requirements.
2. Regular inspections and quality checks as per approved QCP should be conducted by relevant parties throughout the machining process to assure compliance.
3. Any non-conformities or quality issues found should be addressed promptly and necessary corrective actions taken.
4. The supplier will be responsible for keeping detailed records of all machining activities, including the process parameters, measurements, and inspection results. Final data package should be submitted to the Eskom for archive.
5. Regular progress reports should be submitted to Eskom Arnot Power Station, outlining the completed work, upcoming milestones, and any identified challenges or delays.

#### C. Qualifying Criteria

1. **Company Experience:** The bidding company must have a minimum of five years of experience in CNC machining services. This ensures that the company has a proven track record and can deliver high-quality work.
2. **Technical Expertise:** The company must possess skilled and trained personnel who are proficient in operating CNC machines. Additionally, they should have expertise in various machining techniques, including milling, turning, drilling, and grinding.
3. **Quality Management Systems:** The company should have an established quality management system in place to ensure that the manufactured products meet specified requirements. They should possess appropriate certifications such as ISO 9001:2015, demonstrating their commitment to quality.
4. **Safety Measures:** The bidding company must strictly adhere to safety protocols and maintain a safe working environment for their employees. They should have policies and procedures in place for hazard mitigation, personal protective equipment (PPE), and safe machine operation.
5. **Compliance with Standards:** The bidding company should comply with industry standards and regulations relevant to CNC machining processes. They should have a comprehensive understanding of material specifications, tolerances, and machining standards.
6. **Capacity and Timelines:** The bidding company should provide details of their capacity to handle the required workload within the specified timelines. This includes having sufficient resources, such as manpower, machines, and materials, to meet the project requirements.
7. **References and Client Testimonials:** The bidding company should provide references of previous clients and testimonials that demonstrate their excellence in CNC machining services.


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Annex A: Boiler and Turbine Components

Item No.	Component	Material	Approved Design Drawing No.	Quantity
1.	Deshttr Attemperator End Cap	13CrMo4-5	DRW-ARN-20221007-CAL01	40
2.	Main steam pipework stub end cap	11CrMo9-10	ARNPS-T-DRW-SMA-000049	40
3.	Desuperheater thermowell pipe stub Item 1	11CrMo9-10	ARNPS-DRW-SMA-000040	40
4.	Desuperheater thermowell pipe stub Item 2	X6CrNiMoTi17-12-2	ARNPS-DRW-SMA-000040	40
45.	Hot reheat pipework drain stub	10CrMo9-10	ARNPS-T-DRW-SMA-000032	40
6.	Desuperheater pipework thermocouple end cap	13CrMo4-5	ARNPS-T-DRW-SMA-000041	40
7.	Primary Roof header end cap	16Mo3	DRW-ARN-202202-CAL03	40
8.	Main superheater pilot spray valve reducer	16Mo3	ARNPS-T-DRW-SMA-000010	40
9.	Main steam attemperator nozzle end cap	13CrMo4-5	ARNPS-T-DRW-SMA-000009	40
10.	Main superheater pilot spray valve reducer	16Mo3	TDRW010917	40
11.	Main superheater main spray valve reducer	16Mo3	TDRW010918	40
12.	Hot Reheat pipework end cap	13CrMo4-5	TDRW010811	40
13.	Desuperheater loop drain line Reducer	P265GH	TDRW010919	40
14.	Main steam attemperator nozzle end cap	13CrMo4-5	TDRW010870	40
15.	Downcomer collection header	16Mo3	DRW-ARN-202010-BLR03	40
16.	RHS wall header end cap	16Mo3	DRW-ARN-202010-BLR02	40
18.	SHTR 2 Header end cap	13CrMo4-5	DRW-ARN-202010-BLR04	40
19.	LHS Wall header end cap	16Mo3	DRW-ARN-202010-BLR01	40
20.	Cold reheat pipework end cap	16Mo3	TDRW010801	40

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21.	Cold reheat pipework end cap	16Mo3	TDRW010800	40
22.	Main steam pipework end cap	11CrMo9-10	TDRW010793	40
23.	Mains team pipe end cap	11CrMo9-10	TDRW010794	40
24.	Main steam pipework end cap	11CrMo9-10	TDRW010795	40
25.	Hot reheat pipework end cap	13CrMo4-5	TDRW010796	40
26.	Hot reheat pipework end cap	13CrMo4-5	TDRW010799	40
27.	Hot reheat pipework end cap	13CrMo4-5	TDRW010798	40
28.	Hot reheat pipework end cap	13CrMo4-5	TDRW010797	40
30.	Hot reheat pipework end cap	13CrMo4-5	TDRW010811	40
31.	Reducer Flange	13CrMo4-5	HPIA-FLANGE-001	40
32.	Intermediate Header end cap	13CrMo4-5	DRW-ARN-20220919-CALC01	40
33.	Primary chamber Header end cap	16Mo3	DRW-ARN-20220919-CALC02	40
34.	Economiser outlet Header end cap	16Mo3	DRW-ARN-20220921-CALC02	40
35.	SHTR 2 Outlet header End cap	13CrMo4-5	DRW-ARN-20220921-CALC01	40
36.	Hot reheat CEGB thermowell pipe stub item 1	11CrMo9-10	TDRW003533	40
37.	Hot reheat CEGB thermowell transition piece	X6CrNiMoTi17-12-2	TDRW003533	40
38.	Hot reheat CEGB thermowell pipe stub item 1	11CrMo9-10	TDRW003521	40
39.	Hot reheat CEGB thermowell transition piece	X6CrNiMoTi17-12-2	TDRW003521	40
40.	HP Heater plug	15Mo3	26.41/57025	200

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Annex B: Valves Machining, pressure testing and recertification

Item No.	Valve	Size	Dimension	Rated Press/Temp	Test Pressure	Quantity
1.	Persta Globe Valve	DN15	As per site spec	400 bar @ 350°C	600 Bar	200
2.	Persta Globe Valve	DN25	As per site spec	400 bar @ 350°C	600 Bar	200
3.	Persta Globe Valve	DN32	As per site spec	400 bar @ 350°C	600 Bar	200
4.	Persta Globe Valve	DN50	As per site spec	400 bar @ 350°C	600 Bar	200