Eskom	Standard	Distribution

Title: **TECHNICAL EVALUATION CRITERIA FOR DISTRIBUTION CLASS SURGE ARRESTERS**

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PCM Reference: **Engineering During Sourcing**

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Content

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1. Introduction

This document outlines the technical evaluation criteria for MV Distribution Class surge arresters. The purpose of this document is to establish a standardized framework for evaluating tender submissions, ensuring the selection of high-quality surge arresters that meet Eskom's technical requirements and operational needs.

This document contains the evaluation criteria used for desktop evaluation and factory evaluation.

2. Supporting clauses

2.1 Scope

This document covers the technical evaluation process and criteria for Distribution Class surge arresters as covered under Eskom standards within Eskom Holdings SOC (Ltd). This document contains the technical evaluation criteria and associated documents required for the manufacture, testing, supply and delivery of polymer distribution class, non-linear metal-oxide surge arresters without spark-gaps for installation on 11 kV, 22 kV, 33 kV and 19 kV SWER distribution systems.

2.1.1 Purpose

The document addresses the standard documented technical evaluation criteria to be used when evaluating the tender submission in line with the Eskom Holdings SOC (Ltd) requirement.

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions.

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

[1] ISO 9001, Quality Management Systems.

[2] 32-1034, Eskom procurement and supply chain management.

[3] 240-56062768, Distribution Class Metal Oxide Surge Arresters Without Spark Gaps Specification.

[4] IEC 60099-4:2014, Surge arresters Part 4: Metal-oxide surge arresters without gaps for a.c. systems.

[5] IEC 17025, General requirements for the competence of testing and calibration laboratories

[6] IEC 60815, Selection and dimensioning of high-voltage insulators intended for use in polluted conditions

[7] ISO 9001, Quality Management Systems.

[8] 240-170000774, INTERIM Insulation pollution standards required in PLACE of KIPTS.

[9] 240-171000134, Issuing of Insulation Test Certificates Until KIPTS Is Operational

2.2.2 Informative

[10] QM 58 Supplier contract quality requirements specification.

[11] 240-54585711, Technical Evaluation Criteria for Surge Arresters

[12] 240-170001064, Governance Rules and Processes for Managing the Technically Evaluated and Accepted Products (TEAP) Database In Eskom Distribution

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2.3 Definitions

2.3.1 General

Definition	Description
Eskom Assessment Representative(s)	The person(s) appointed by Eskom to perform evaluation of tender submission(s) in line with Eskom requirements.
Mandatory	Refers to criteria and associated returnable that must be included in the technical tender returnable. This is a must meet criteria and failing to meet the requirements will result in disqualification.
Functional	Refers to criteria and returnable that are scored and checked against the threshold.
Threshold	The pass mark applied to functional scoring.

2.3.2 Disclosure classification

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

2.4 Abbreviations

Abbreviation	Description
GA	General Arrangement
GM	General Manager
MV	Medium Voltage
n/a	not applicable
OEM	Original Equipment Manufacturer
QC	Quality Control
SA	Surge Arrester

2.5 Roles and responsibilities

The relevant SCOT Study Committee ensure that this document is updated.

All Eskom personnel and appointed contractors involved in the procurement of Distribution Class surge arresters within Eskom's Distribution Division are required to ensure that all offers meet the specified technical evaluation criteria.

2.6 Process for monitoring

The relevant SCOT Study Committee ensure that this document is updated.

2.7 Related/supporting documents

Technical standards and Normative references

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3. Technical tender evaluation procedure

Technical evaluations are a critical function carried out by engineers and technical specialists in alignment with the Eskom Procurement and Supply Chain Management Policy (32-1033) and the Eskom Procurement and Supply Management Procedure (32-1034). These evaluations play an essential role in ensuring that tender processes adhere to established procurement standards.

The Technical Evaluation Strategy will outline the following evaluation criteria:

- Mandatory Evaluation Criteria
- Functional Scoring Criteria
- Factory Evaluation Criteria

The process begins immediately after the receipt of tender submissions following the closing date, under the guidance of a Procurement Practitioner. Throughout the evaluation, if any indication of dishonesty or misrepresentation is found in a tenderer's submission, Eskom reserves the right to disqualify the tenderer and cancel any related contracts, if applicable.

3.1 Evaluation Methodology

The evaluation will be performed by the Eskom evaluating representatives. It begins at Level 1 followed by Level 2 and then proceeds to Level 3.

Level 1 will include the desktop evaluation of the mandatory criteria. Submissions failing to meet the requirements at Level 1 will be deemed non-responsive and will be immediately disqualified and removed from further evaluation. Submissions meeting the requirements will proceed to Level 2.

Level 2 will include a desktop evaluation of the functional criteria. The submissions will be evaluated and scored. Submissions failing to meet the stipulated threshold at Level 2 will be deemed non-compliant and will be immediately disqualified and removed from further evaluation.

The Level 2 threshold is set at 80%.

Submissions meeting the requirements will proceed to Level 3.

Each SAP number will be evaluated against the requirements of Level 1 and Level 2 and will receive a unique result based on the evaluations. Therefore, the Tenderer must submit the required evidence for each SAP number they are tendering for. Where evidence for a particular SAP number is missing or non-compliant, the effects will only be applied to tender for that specific SAP item. If a SAP number passes the Level 1 and Level 2 requirements, this result will not be used to qualify any other SAP numbers on the scope.

Level 3 is the factory evaluation. The Level 3 threshold is 80%.

Any factory failing to meet the threshold set at 80% will be deemed non-compliant. The factory will be allowed a single opportunity to address the deviations to meet the threshold, in a timeline specified by Eskom. If the deviations are not satisfactorily addressed within the specified timeline, and the threshold is not met, the factory will receive a failed result.

Offers from tenderers that include products from any failed factory will be immediately disqualified and removed from further evaluation if the factory assessment concludes with a failed result.

Submissions with offers that have met all technical requirements and thresholds will be evaluated further through the tender evaluation process. Where offers are in consideration for a contract award, deviations or deficiencies identified during functional evaluation and/or the factory assessment must be addressed prior to contract award or as negotiated.

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3.2 Factory Assessment

The Eskom assessment representative(s) will arrange a visit to the factory that has qualified for factory evaluation.
In view of potential travel restrictions, it may not be possible to physically visit manufacturing facilities of tenderers. Alternatives processes will be put in place to conduct factory evaluations virtually. Physical factory evaluations will be deferred to when restrictions are lifted and when it is safe to resume travel.

At the factory, the Eskom assessment representative(s) will conduct the assessment using checklists; refer to the annexes for these checklists. The checklists are used to ensure that all standards, capabilities and work procedures comply with Eskom's requirements and tender submission documents. At the end of this exercise, the Eskom assessment representative(s) will list all the deviations on the evaluation document. The representative will conduct formal discussions of the deviations in line with Eskom's requirements. Herein, the Tenderer and/or its Original Equipment Manufacturer (OEM) shall indicate whether they agree or disagree to meet Eskom requirements upon contract award. Finally, Eskom, the Tenderer and OEM representatives will sign the assessment document, which continues to be used for concluding the Technical Evaluation Report. Where the Tenderer and OEM agreed to meet Eskom requirements, all these items are documented for contract award purpose and subsequent verification.

Eskom reserves the right to refer to Factory Assessments completed by Eskom within the last five years for consideration of the results in lieu of conducting a new factory evaluation. Where the Eskom evaluating representatives deem previous Factory Assessments are not applicable or acceptable, the prior assessments will be disregarded.

3.3 Factory Assessment Methodology

The assessment will follow a documented supplier capability and capacity assessment criteria as shown in Annexure B.

These criteria are intended to assess the technical capabilities of the supplier and the product offered for tender to ensure it meets the tender requirements. During the assessment the following areas must be evaluated in detail:

- Manufacturing methods
- Workshop practices
- Design practices and application
- Testing facility and practices
- Raw material procurement, storage, and sub-contractor practices
- Site and other services
- Factory performance (incl. on-time delivery and factory failure rate)

The factory will be scored according to the criteria outlined in table 1. The total score is out of **270.**

The threshold is set at 80% (i.e. 216 points). Deviations or deficiencies identified during the factory assessment must be addressed prior to contract award.

Table 1: Factory Criteria scoring

0	Total non-compliance to the agreed requirements
2	Major deviation to the agreed requirements
3	Partial deviation to the agreed requirements
4	Minor deviation to the agreed requirements
6	No deviation to the agreed requirements / fully compliant

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At the end of this exercise, the Eskom assessment representative(s) will list all the deviations on the evaluation document. The representative will conduct formal discussions of the deviations in line with Eskom's requirements. Herein, the Tenderer and/or its Original Equipment Manufacturer (OEM) shall indicate whether they agree or disagree to meet Eskom requirements upon contract award. Finally, Eskom, the Tenderer and OEM representatives will sign the assessment document, which continues to be used for concluding the Technical Evaluation Report. Where the Tenderer and OEM agreed to meet Eskom requirements, all of these items are documented for contract award purpose and subsequent verification.

3.4 Insulator Requirements

The INTERIM insulation pollution standards required in PLACE of KIPTS will be document 240-170000774.

4. Requirements for Contract Award

Submissions contemplated for the award of the contract must resolve any non-compliances identified during the functionality evaluation and during the factory evaluations prior to the contract being awarded.

The resolution of the non-compliances will not change the scores awarded during the evaluation.

5. TEAP Listing

Eskom reserves the right to place the technically compliant products on the product database upon it meeting the threshold set for technical/functional evaluation.

Eskom reserves the right not to perform a technical/functional evaluation on a product that has been added to the product database as this product has previously been found to be technically compliant.

6. Authorization

This document has been seen and accepted by:

Name and surname	Designation
Dr Willem Dirkse van Schalkwyk	Chief Engineer Distribution
Gavin Strelec	Chief Engineer Research (HV Engineering)

7. Revisions

Date	Rev.	Compiler	Remarks
Feb 2025	1	S Behari	New document

8. Development team

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

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9. Acknowledgements

Authors of 240-170000866 and 240-54585711

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Annex A – Surge Arrester Technical Evaluation

Table A.1: Surge Arrester Technical Evaluation Criteria (Desktop)

Specification Referred to	240-56062768 Distribution Class Metal Oxide Surge Arresters Without Spark Gaps Specification
Voltage Class Referred to	11 kV, 22 kV, 33 kV and 19 kV SWER distribution systems (Coastal and Inland items)

Level 1			
Mandatory Criteria and Returnable PER SAP NUMBER ON THE TENDER SCOPE			
No	**Criteria**	**Return**	**Requirement**
1	The AB Schedule is returned with column B completed, per SAP number	The completed AB schedule, per SAP number	Must Meet
2	The deviation schedule is returned, per SAP number	The deviation schedule, per SAP number, even if there are nil deviations	Must Meet
3	The outline drawing is returned, per SAP number	The drawings per SAP number, clearly labelled with relevant dimensions.	Must Meet
4	The characteristic curves showing compliance to the rated voltage and 10s duty cycle are returned, per SAP number	The characteristic curves per SAP number, clearly marked to indicate which SAP number it is applicable to. The curves stipulated in section 3.9.2 of 240-56062768 must be submitted and must comply with the specific requirements of the SAP number.	Must Meet
5	The type tests and special test are returned, per SAP number	All tests as stated in section 4.2. of 240-56062768, per SAP number 1. Insulation withstand tests on the arrester housing 2. Insulation wet withstand test on insulated mounting bracket 3. Residual voltage test 4. Long duration current impulse withstand test 5. Operating duty tests 6. Power frequency voltage versus time characteristic 7. Short-circuit test 8. Internal partial discharge test 9. Water immersion test 10. Weather ageing and pollution performance test 11. Tests on ground lead disconnector including: • Long duration current impulse withstand test • Operating duty test • Time versus current curve test • High lightning duty current impulse withstand test • Repetitive surge withstand ability test • Thermal pre-conditioning and water immersion test • Mechanical test(s)	Must Meet

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Level 1			
Mandatory Criteria and Returnable PER SAP NUMBER ON THE TENDER SCOPE			
No	**Criteria**	**Return**	**Requirement**
6	Test Report Schedule Submitted	Completed Annex B (See Annex B of this TEC).	Must Meet
7	Tests performed at an accredited facility or alternative	Type testing shall be conducted by an accredited testing laboratory as defined in IEC17025 – either confirmed on the Test Report Schedule or on the Test Report. Alternatively, testing can be performed at the factory and witnessed by an accredited test facility.	Must Meet
8	All evidence must be in English	All evidence included in the technical submission	Must Meet
Any submission failing to meet 100% of the stated mandatory criteria and returnable requirements will deem the submission non-responsive. These submissions will be immediately disqualified and removed from further evaluation.			

Level 2			
Functional Criteria and Returnable – Total points available = 100			
No	**Criteria**	**Return**	**Scoring**
Specific Requirements – Total points available = 30			
1	Electrical characteristics meet requirement for specific voltage level?	AB Schedule to demonstrate compliance to the following: IEC line discharge class, Nominal lightning discharge current (8/20 µs), MCOV (U_c) and Maximum residual voltage (U_{res}) at 10 kA (8/20 µs).	2.5
2	Arrester housing meet requirements?	AB Schedule to demonstrate minimum external creepage distance, rated power frequency withstand voltage, compliance with IEC 60815 - 1 and 2 Annex D parameters- c, s/p, Ld/d, P1 – P2, CF and PF and all items stated in 240-56062768 section 3.4	2.5
3	Mounting arrangements meet requirements?	AB Schedule to demonstrate compliance to requirements stipulated in 240-56062768 section 3.5 including diameter of mounting hole in bracket, minimum bracket length, i.e. dimension C, supplied M12 x 50 mounting bolt, nut, serrated washer and three flat washers. Compliance to requirements stipulated in 240-56062768	2.5
4	Terminal arrangement meet requirements?	AB Schedule to demonstrate compliance to requirements stipulated in 240-56062768 section 3.6 including bolted connector on line terminal shall be suitable for clamping conductors with Material, Type and Diameter as stated in Schedule A of the relevant AB Schedule.	2.5
5	Ground leads meet requirements?	AB Schedule to demonstrate compliance to requirements stipulated in 240-56062768 section 3.7 including minimum length, diameter of hole on free end.	2.5
6	Minimum expected life of arrester at 40 °C and MCOV meet requirements?	AB Schedule to demonstrate compliance to 25 years minimum.	2.5

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Level 2			
Functional Criteria and Returnable – Total points available = 100			
No	**Criteria**	**Return**	**Scoring**
7	Insulation withstand test meets requirements?	AB Schedule to demonstrate compliance to lightning impulse and withstand level, 60 s wet power frequency withstand as per schedule A.	2.5
8	Insulation withstand test on insulated mounting bracket meets requirements?	AB Schedule to demonstrate compliance to 10 s wet withstand from earth terminal to earthed mounting bracket as per schedule A.	2.5
9	Residual voltage test meets requirements?	AB Schedule to demonstrate compliance to Maximum residual voltage for a 10 kA steep current impulse, Maximum residual voltage for a lightning current impulse as per schedule A.	2.5
10	Long duration current impulse withstand test meets requirements?	AB Schedule to demonstrate compliance to Charging voltage, Virtual duration of peak, Number of discharge operations, Number of grouped operations, Operations per group, Maximum interval between operations, Interval between groups, Maximum permitted change in residual voltage after long duration current impulse withstand test as per schedule A.	2.5
11	Operating duty test, Short-circuit test and Internal partial discharge test meets requirements?	AB Schedule to demonstrate compliance to Power frequency voltage applied and Maximum partial discharge as per schedule A.	2.5
12	GLD time versus current curve test meets requirements?	AB Schedule to demonstrate compliance to Disconnector operating time at current levels as per schedule A.	2.5
Ground Lead Disconnector (GLD) – Total points available = 4			
13	Torque on GLD meets requirements?	AB Schedule to demonstrate compliance to 50 Nm as per schedule A.	2
14	Horizontal force on GLD meets requirements?	AB Schedule to demonstrate compliance to 500 N as per schedule A.	2
Drawings – Total points available = 11			
15	Drawing number stated?	Drawing to demonstrate compliance.	1
16	Revision number stated?	Drawing to demonstrate compliance.	1
17	Dimensions demonstrated on drawing?	Drawing to demonstrate compliance.	1
18	Detailed description provided in ‘Title Block’?	Drawing to demonstrate compliance.	1
19	Drawing dated and approved (signed)?	Drawing to demonstrate compliance.	1
20	Complete legend provided?	Drawing to demonstrate compliance.	1
21	Line terminal details demonstrated?	Drawing to demonstrate compliance.	1
22	Mass in kilograms stated on the drawing?	Drawing to demonstrate compliance.	1
23	External insulation details demonstrated on the drawing?	Drawing to demonstrate compliance.	1

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Level 2			
Functional Criteria and Returnable – Total points available = 100			
No	**Criteria**	**Return**	**Scoring**
24	Drawing fields for Eskom order No., Eskom Contract No., Eskom Stock (SAP) No., Eskom Drawing No. shown on drawing?	Drawing to demonstrate compliance.	1
25	Nameplate/rating plate details provided on drawing?	Drawing to demonstrate compliance.	1
Test Compliance – Total points available = 50			
26	Insulation withstand tests on the arrester housing passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
27	Insulation wet withstand test on insulated mounting bracket passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
28	Residual voltage test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
29	Long duration current impulse withstand test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
30	Operating duty tests passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
31	Power frequency voltage versus time characteristic passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
32	Short-circuit test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
33	Internal partial discharge test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
34	Water immersion test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
35	Weather ageing and pollution performance test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number) The following test reports are to be returned: 1. The 1000hr salt fog test as contemplated in IEC60099-4, clause 10.8.17 shall have been passed by the surge arresters under offer. 2. The 1000hr UV test as contemplated in IEC60099-4, clause 10.8.17 shall have been passed by the surge arresters under offer. 3. Pollution performance curves. 4. Material fingerprint. OR As per EI 240-170000774 a pre-existing KIPTS certificates will be accepted per SAP number. NOTE:	8 All requirements to be satisfied, no part marks

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		If there are no pre-existing KIPTS tests for a specific item, an extrapolation of the pollution insulation test results (pollution curves) will be accepted provided that the product has the same profile as the item offered on the tender. The extrapolation will be accepted if it is supported by a registered testing authority. This will only be accepted on the discretion of Eskom's SME's.	
36	**Tests on ground lead disconnector:** Long duration current impulse withstand test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
37	**Tests on ground lead disconnector:** Operating duty test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
38	**Tests on ground lead disconnector:** Time versus current curve test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
39	**Tests on ground lead disconnector:** High lightning duty current impulse withstand test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
40	**Tests on ground lead disconnector:** Repetitive surge withstand ability test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
41	**Tests on ground lead disconnector:** Thermal pre-conditioning and water immersion test passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
42	**Tests on ground lead disconnector:** Mechanical test(s) passed?	Test report to demonstrate testing against the correct standard and passed (per SAP number)	2.5
43	**All**: Type Test Reports are recent (not older than 10 years)?	Test reports to demonstrate recency related to updates to standards and or design/manufacturing changes.	2
Transport, Storage, Installation – Total points available = 5			
44	Transport and Storage information provided?	A manual/guide/datasheet demonstrating basic requirements for transport and storage.	2.5
45	Installation information provided?	An installation guide providing clear steps related to installing the surge arrester.	2.5
Any submission failing to meet the threshold set at 80% will be deemed non-compliant. These submissions will be immediately disqualified and removed from further evaluation.			

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Annex B – Surge Arrester Test Report Schedule

To be completed per SAP number. Blanks in the Test Report No and Test Facility Column will be treated as non-responsive/non-compliant.

SAP Number:					
Spec Ref	**Test Name**	**Test Report No**	**Test Facility**	**Accreditation Body/Accredited Witness**	**Comments No.** (number the comment and provide the detail in the blank space provided below.)
4.2.1	Insulation withstand tests on the arrester housing				
4.2.2	Insulation wet withstand test on insulated mounting bracket				
4.2.3	Residual voltage test				
4.2.4	Long duration current impulse withstand test				
4.2.5	Operating duty tests				
4.2.6	Power frequency voltage versus time characteristic				
4.2.7	Short-circuit test				
4.2.8	Internal partial discharge test				
4.2.9	Water immersion test				
4.2.10	Weather ageing and pollution performance test				
4.2.11 Tests on ground lead disconnector including:					
4.2.11.1	Long duration current impulse withstand test				
4.2.11.2	Operating duty test				

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4.2.11.3	Time versus current curve test				
4.2.11.4	High lightning duty current impulse withstand test				
4.2.11.5	Repetitive surge withstand ability test				
4.2.11.6	Thermal pre-conditioning and water immersion test				
4.2.11.7	Mechanical test(s)				
Comments Section – Number all the comments in the Comment No. column then capture the comments in the section below in as much detail as possible, ensure the comment matches the numbering					

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Annex C – Surge Arrester Factory Evaluation

The factory will be scored according to the criteria outlined in table 1. The total score is out of 270.

Table C.1: Factory Criteria scoring

0	Total non-compliance to the agreed requirements
2	Major deviation to the agreed requirements
3	Partial deviation to the agreed requirements
4	Minor deviation to the agreed requirements
6	No deviation to the agreed requirements / fully compliant

Any factory failing to meet the threshold set at 80% will be deemed non-compliant. Submissions linked to the factory will be immediately disqualified and removed from further evaluation.

No:	Technical Questions	Score	Criteria	Evidence and comments
1	**Work Systems**	**30**		
1.1	Works procedures and instructions: a. What work procedures are in place? b. What ISO standards are used		*If both in place and documents are traceable then = **6*** *Both in place, but non-traceable documents = **4*** *If either 'a' or 'b' are omitted = **2*** *None = **0***	
1.2	Continuous improvement and international compliance: *Do they comply with IEC 60099 and other associated IEC/IEEE specs fully, and are persons of the OEM on the latest CIGRE working groups regarding surge arresters?*		*They comply with IEC 60099 and other associated IEC/IEEE specs fully, and are on latest CIGRE working groups regarding surge arresters = **6*** *They comply fully to IEC60099 and other associated IEC/IEEE specs fully = **4*** *Partial compliance to IEC60099 and other associated IEC/IEEE specs = **2*** *Non-compliance to IEC/IEEE specs = **0***	

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No:	Technical Questions	Score	Criteria	Evidence and comments
1.3	Quality control plans and systems (PQPs) (Choose one of each)		*QCP's and PQP's in place and traceable = 6* *QCP's and PQP's in place = 4* *Some QCP's and PQP's in place = 2* *None in place = 0*	
1.4	Inspections, audits and reviews (Choose one of each)		*All inspections, audits and reviews in place, up to date and traceable = 6* *All inspections, audits and reviews in place = 4* *Some inspections, audits and reviews in place = 2* *None in place = 0*	
1.5	Staff training and accreditation systems and controls What training do they offer their staff? Who are they accredited with? (Choose minimum 2 random staff members)		*Staff trained and accredited, and traceable = 6* *Staff trained and traceable = 4* *Staff trained = 2* *Staff not trained = 0*	
2	**Operation – Manufacturing methods**	**78**		
2.1	Which composite material is used, and how is it checked?		*All composite material quality checked, handled, stored and catalogued correctly, and is traceable = 6* *All composite material quality checked, stored and catalogued correctly = 4* *Some of the above checks not done = 2* *No tracing of composite material, or stored incorrectly = 0*	

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No:	Technical Questions	Score	Criteria	Evidence and comments
2.2	Are blocks manufactured in-house? If not, how is the intake and use of blocks handled? What are the checks done on these blocks?		*All blocks quality checked, handled, stored and catalogued correctly, and is traceable =* ***6*** *All blocks quality checked, stored and catalogued correctly =* ***4*** *Some of the above checks not done =* ***2*** *No tracing of blocks, or stored incorrectly =* ***0***	
2.3	Which fibreglass material is used, and how is it checked?		*All fibreglass material quality checked, handled, stored and catalogued correctly, and is traceable =* ***6*** *All fibreglass material quality checked, stored and catalogued correctly =* ***4*** *Some of the above checks not done =* ***2*** *No tracing of fibreglass material, or stored incorrectly =* ***0***	
2.4	Which metallic parts are used, and how is it checked?		*All metallic parts quality checked, handled, stored and catalogued correctly, and is traceable =* ***6*** *All metallic parts quality checked, stored and catalogued correctly =* ***4*** *Some of the above checks not done =* ***2*** *No tracing of metallic parts, or stored incorrectly =* ***0***	
2.5	Is the test bay area closed off?		*Yes =* ***6*** *Partially closed off =* ***3*** *No =* ***0***	

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No:	Technical Questions	Score	Criteria	Evidence and comments
2.6	What is the quality and availability of test reports?		*Test certificate has all relevant data, easy to read and understand, signed off by authorised personnel and is traceable = 6* *Test certificate has all relevant data, easy to read and understand, signed off by authorised personnel = 4* *Test certificate has relevant data, not signed off by authorised personnel = 2* *Test certificates do not display all relevant criteria = 0*	
2.7	Clean conditions in workshop		*Clean-room environment (dust-free, static-free) = 6* *Workshop is clean overall = 4* *Workshop is fairly clean = 2* *Workshop not clean = 0*	
2.8	What is the supplier's estimate of current capacity limit?		*Can meet on time delivery for our unit = 6* *Some potential delays for the production of our unit = 3* *Major delays anticipated = 0*	
2.9	Are there any bottlenecks in the manufacturing process? (e.g., test bay, block stacking, etc.)		*Can meet on time delivery for our units = 6* *Some potential delays for the production of our unit = 3* *Major delays anticipated = 0*	
2.10	Does the supplier intend to make use of a substitute factory if capacity increase is required? If so, has it been evaluated for this project?		*Yes, fully accredited = 6* *Yes, not accredited yet = 0*	

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No:	Technical Questions	Score	Criteria	Evidence and comments
2.11	How has the supplier expedited orders if required?		*Adequate process to fast-track orders, and is traceable = 6* *Adequate process to fast-track orders = 4* *Process exists, but needs improvement = 2* *No process = 0*	
2.12	Plant Capacity: can the factory provide all the equipment, and to Eskom's specification		*Aligns completely to Eskom specifications = 6* *Partially aligns to Eskom specifications = 3* *Doesn't align to Eskom specifications = 0*	
2.13	What are factory failure rates for the last 5 years and how is daily limit managed if exceeded?		*Less than 1%, and traceable = 6* *Less than 1% = 4* *Between 1-2% = 2* *Greater than 2% = 0*	
3	**Technical Infrastructure**	**18**		
3.1	What manufacturing equipment/tools does the supplier have, who manufactures this equipment, what is the capacity of this equipment?		*Equipment/tools bought from accredited and known manufacturers, and traceable = 6* *Equipment/tools bought from accredited and known manufacturers = 4* *Some equipment/tools bought from accredited and known manufacturers = 2* *Equipment/tools bought from unrecognised manufacturers = 0*	

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No:	Technical Questions	Score	Criteria	Evidence and comments
3.2	How are supervisors and workers trained on handling equipment?		*Certificate or accreditation, and traceable = 6* *Certificate or accreditation = 4* *Some workers accredited, certified = 2* *No certificate or accreditation = 0*	
3.3	What is the maintenance operating model for the production line?		*Complete maintenance records, and traceable = 6* *Complete maintenance records = 4* *Incomplete maintenance records, procedures = 2* *Limited/no maintenance records = 0*	
4	**Design Practices and Application**	**72**		
4.1	Please describe your design criteria basis and guidelines – Electrical, Mechanical		*Clear tools and software for designs = 6* *Have tools (software) available, however no clear philosophy on how tools are employed = 4* *Have tools only = 2* *No philosophy = 0*	
4.2	What is the design team's composition/structure, numbers, experience levels?		*Chief engineer has >10 years experience in design, CVs, certifications are current = 6* *Chief engineer has 5-10 experience in design, CVs and/or certifications are not current = 3* *No CVs, certifications = 0*	

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No:	Technical Questions	Score	Criteria	Evidence and comments
4.3	Please provide design process flowchart / systems for similar products		*Up to date flowchart = 6* *Flowchart not current = 3* *No flowchart = 0*	
4.4	How do you ensure internal design verification/ validation as part of your design process?		*Authorised person checks and signs off design = 6* *No checks, self-release = 0*	
4.5	What is the process to deal with design change requests (concession), internal or external?		*Formalised design review process that includes customer, internal personnel and design expert, plan and schedule = 6* *No formalised design review process = 0*	
4.6	Following final design approval, how is the final design linked to the manufacturing process?		*Approved inspection and test plans includes hold points to verify execution of design = 6* *No monitoring system = 0*	
4.7	What engineering tools are used for the relevant designs? What is the staff's level of experience with these tools?		*Tools are certified and up to date, calibration, software updates – must be of the latest version, user accreditation must be current = 6* *Some certification of tools, software, user has accreditation but not of latest value = 3* *No certified tools = 0*	
4.8	How do you ensure continuous development of staff with respect to design systems and philosophy? (i.e., software and manually)		*Training programme for all involved staff, individual development plans for staff, adequate and up to date learning = 6* *Training programme exists, process not adequate = 3* *No continuous development = 0*	
4.9	How does the system flag excursions outside internal design rules?		*Flags excursions, calibration is current = 6* *Flags some but not all = 3* *No excursions flagged, not calibrated properly = 0*	

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No:	Technical Questions	Score	Criteria	Evidence and comments
4.10	As design technology backup, who are your technology partners?		*Partners aligned with Eskom-approved partners = 6* *Partners not aligned with Eskom-approved partners = 3* *None = 0*	
4.11	How do you support/co-ordinate the use of academic/research institutions for technology support, if any?		*Clear functional role and responsibilities, collaboration with universities (i.e., sponsorship of students) = 6* *No = 0*	
4.12	How do you support/co-ordinate external partners for component manufacturers, if any?		*Clear functional role and responsibilities, collaboration with manufacturers = 6* *No = 0*	
5	**Testing Facility and Practices**	**48**		
5.1	Please provide proof of calibration of all test equipment		*Calibrated within date, done by accredited person, and traceable = 6* *Calibrated within date, done by accredited person = 4* *Calibrated within date = 2* *Not calibrated = 0*	
5.2	Test capabilities		*Fully capable of performing type, acceptance and routing tests, and is traceable = 6* *Fully capable of performing acceptance and routing tests, and is traceable = 4* *Capable of performing acceptance and routing tests = 2* *Cannot perform any tests = 0*	
5.3	Measurement of reference voltage (U_{ref})		*Within IEC60099-4, and traceable = 6* *Not within IEC60099-4 = 0*	

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No:	Technical Questions	Score	Criteria	Evidence and comments
5.4	Residual voltage test		*Within IEC60099-4, and traceable = 6* *Not within IEC60099-4 = 0*	
5.5	Internal partial discharge test		*Within IEC60099-4, and traceable = 6* *Not within IEC60099-4 = 0*	
5.6	Leakage check		*Within IEC600990-4, and traceable (or N/A) = 6* *Not within IEC60099-4 = 0*	
5.7	Reports, timeousness on-time, quality thereof		*All test reports produced immediately, checked by accredited person, and is traceable = 6* *All test reports produced immediately, and is traceable = 4* *Test reports produced = 2* *No test report available = 0*	
6	**Research and Development capabilities**	**24**		
6.1	Do you own your R&D? If not, who are R&D partners?		*Accredited and validation should be current = 6* *Not accredited and validation is not current = 0*	
6.2	How is R&D triggered in your organisation?		*Clear triggers for R&D – optimising for performance or cost, continuous improvement (i.e., new Line-to-ground clearance requirements), and traceable = 6* *Clear triggers for R&D – optimising for performance or cost, continuous improvement = 4* *R&D supported, but no clear mandate = 2* *No support or mandate for R&D = 0*	

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No:	Technical Questions	Score	Criteria	Evidence and comments
6.3	What initiatives are you pursuing to introduce the new IEC60099-4?		*Pursuing newest technology actively = 6* *No research into the new IEC60099-4 = 0*	
6.4	Do you outsource your designs? How much of your designs are outsourced? What controls are in place		*Do not outsource = 6* *Outsource, accredited and validation should be current, controls should be in place = 3* *Outsource but not accredited and validation, no clear controls = 0*	

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