

 Eskom	Report	Technology
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Title: **TECHNICAL EVALUATION
CRITERIA FOR MV INDOOR
PRIMARY SWITCHGEAR**

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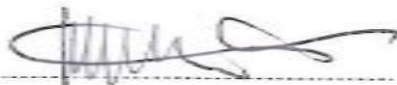
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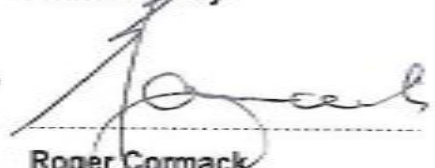
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Content

	Page
Foreword.....	3
Revision history	3
Acceptance	3
Development team.....	3
Introduction	3
Keywords	3
1. Scope.....	4
1.1 Purpose	4
1.2 Applicability	4
2. References	4
2.1 Normative	4
2.1.1 SANS document(s)	4
2.1.2 Eskom national document(s)	4
2.2 Informative references.....	4
3. Definitions and abbreviations	5
3.1 Definitions.....	5
3.2 Abbreviations.....	5
4. Technical evaluation criteria	5
4.1 Documentation Evaluation	5
4.2 Evaluation at factory.....	5
Annex A – Level 1 Gatekeepers.....	7
Annex B – Level 2 Gatekeepers.....	9
Annex C – Level 3 Scoring for MV indoor primary switchgear	11

Foreword

This is the technical evaluation criteria for MV indoor primary switchgear.

Revision history

This is a new document

Date	Rev.	Compiled by	Clause	Remarks
Nov 2013	0	T.P Du Plessis		New document

Acceptance

This document has been seen and accepted by:

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Introduction

This document has been developed to set the standard technical evaluation criteria to be used when performing MV indoor primary switchgear tender evaluations for both withdrawable air insulated type switchgear and fixed pattern type switchgear. It has annexures developed to address various aspects required to perform the technical evaluation per individual switchgear type and has been developed based on the Eskom MV Indoor Primary Switchgear specifications.

This document contains both the evaluation criteria used for the documentation evaluation and factory evaluation. In addition it contains the technical evaluation structure.

Keywords

MV, Indoor, Primary, Switchgear, withdrawable air insulated, fixed pattern, gatekeeper, evaluation, technical score

1. Scope

1.1 Purpose

The document covers the criteria for the evaluation of MV indoor primary switchgear used within Eskom Holdings SOC (Ltd). The document addresses the standard documented technical evaluation criteria to be used when evaluating the tender submissions for the MV indoor primary switchgear in line with the Eskom Holdings SOC (Ltd) requirements and it is applicable to all the technical evaluations for the related tender submissions.

1.2 Applicability

This document shall apply for the Eskom Holdings Limited Distribution and Transmission Divisions wherein Eskom has a controlling interest.

2. References

Parties using this document shall apply the most recent edition of the following documents:

2.1 Normative

2.1.1 SANS document(s)

- [1] SANS 62271-100, High-voltage switchgear and control gear - Part 100: High voltage alternating-current circuit-breakers.
- [2] SANS 62271-102, High-voltage switchgear and control gear - Part 102: High-voltage alternating current disconnectors and earthing switches.
- [3] SANS 62271-200, High-voltage switchgear and control gear - Part 200: AC metal-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 52 kV.

2.1.2 Eskom national document(s)

- [4] 240-56065131, Distribution Standard Part 7: Specification for 11 kV, 22 kV and 33 kV withdrawable pattern air-insulated indoor primary switchgear.
- [5] 240-56062704, Distribution Standard Part 7: Specification for 11 kV, 22 kV and 33 kV fixed pattern indoor primary switchgear.
- [6] 240-56063705, Requirements for the Wiring of Indoor Switchgear from 11kV up to and Including 33kV Standard
- [7] D-DT-5408 – Various sheets

2.2 Informative references

- [8] 32-9: Definition of Eskom documents.
- [9] 32-644: Eskom documentation management standard.
- [10] 474-65: Operating manual of the Steering Committee of Technologies (SCOT).
- [11] OHSA 85 of 1993 Occupational Health and Safety act No 85 of 1993
- [12] NRS 040 – 3 2007 High Voltage Operating Regulations Part 3: Model regulations

3. Definitions and abbreviations

3.1 Definitions

Definition	Description
Eskom evaluating representative(s):	The person(s) appointed by Eskom to perform the evaluation of tender submission(s) in line with the Eskom requirements.

3.2 Abbreviations

Abbreviation	Description
kV	Kilo Volt
MV	Medium Voltage

4. Technical evaluation criteria

The three phases of the technical evaluation criteria are applicable to each one of the MV indoor primary switchgear equipment types evaluated. The evaluation methodology will include two main parts, namely the documentation evaluation and the factory evaluation. Furthermore the factory evaluation shall include a sample evaluation of the MV indoor primary switchgear equipment that shall be supplied to Eskom. The supplier is required to manufacture the MV indoor primary switchgear panel types offered in accordance with Eskom specifications for the evaluation and it should be an exact replica of the unit that will be supplied if a tender is awarded to the supplier.

4.1 Documentation Evaluation

The documentation evaluation exercise is performed by the Eskom evaluating representatives. This initial part of the evaluation starts when submissions are opened and assessed for the first time. It begins with the gate-keepers (Level 1 and Level 2) and then proceeds to the scoring method, refer to Annexures A, B and C.

The Level 1 gate-keeper requirements (Annexure A Table 1) are meant for establishing if all the key tender returnable documentation is met. The submissions that do not meet the Level 1 gate-keeper requirements are immediately disqualified. Only a submission that meets the Level 1 gate-keeper requirements progresses to the Level 2 gate-keepers compliance verification stage (Annexure B Table 2). The Eskom evaluating representatives will go through the details of all submissions that met the Level 1 gate-keeper requirements and ensure all Level 2 gate-keeper requirements are met. If a submission does not meet the Level 2 gate-keeper requirements, it gets disqualified. A submission that progresses to the scoring stage (Level 3) must pass the Level 2 gate-keeper requirements. The Level 3 scoring method (Annexure C Tables 3 to 9) is applied on each panel item listed in the evaluation criteria. The tender submission must score a minimum of 70 % to be considered for the next stage of evaluation, i.e. factory evaluation. A submission scoring below 70 % is disqualified on the documentation phase.

Note: Only a 100% score achieved at level 3 equates to full compliance. Any score below 100% will require full technical compliance to be proven or committed to during the negotiation phase.

4.2 Evaluation at factory

The factory evaluation is only performed on the submission that has met the final threshold of 70 %. Eskom Commercial shall make the arrangements for factory visits.

At the factory, the Eskom evaluating representative(s) conducts the evaluation through the use of checklists. The checklists are used to verify factory capability and the type tested manufacturing method.

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The factory evaluation will consist of both the main components manufacturing evaluation (i.e. busbar, switch-disconnectors, vacuum circuit breaker, gas or air insulated compartments, SF6 filling if applicable, etc) and also the assembly manufacturing evaluation (i.e. Metal work, labelling, wiring, painting, etc) plant evaluation.

The following areas shall be assessed during the main components manufacturing evaluation:

- a) Components sample evaluation used for manufacturing both withdrawable and fixed pattern units where applicable. Exact records and replica on what the supplier shall be supplying if awarded the tender is required for the evaluation.
- b) Machinery capability.
- c) Production process and critical check points.
- d) Engineering and manufacturing design capability.
- e) Material handling and storage.
- f) Packaging of materials.
- g) Testing facilities including certification and calibration of testing equipment.
- h) Routine testing procedures.

The following areas shall be assessed during the assembly factory evaluation:

- a) Sample(s) evaluation of the final replica units for withdrawable and fixed pattern units where applicable. Exact records and replica on what the supplier shall be supplying if awarded the tender is required for the evaluation.
- b) Machinery capability.
- c) Production process and critical check points.
- d) Engineering and manufacturing design capability.
- e) Material handling and storage.
- f) Packaging of materials.
- g) Testing facilities including certification and calibration of testing equipment.
- h) Routine testing procedures.

At the end of this exercise, the Eskom evaluating representative(s) list all the deviations, if any. The representative conducts a formal discussion of the deviations in line with Eskom's requirements. If major discrepancies are identified the supplier will be disqualified. For minor discrepancies, the Tenderer and their OEM are given opportunity to decide whether they agree or disagree to meet Eskom requirements upon contract award. The action plans for resolving the discrepancies will be agreed between Eskom representative(s) and the supplier. At the end, the Eskom, Tenderer/Vendor and OEM representatives sign the evaluation 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 form part of the contract and verification afterwards.

Annex A – Level 1 Gatekeepers

Table 1

MV Indoor primary switchgear (Withdrawable air and Fixed pattern) technical evaluation for the documentation exercise			
Level 1 Gatekeeper			
TASK / MEASURE			
Criteria	Clause	Acceptance	Score
Is a technical covering letter containing a list of items offered submitted?		Yes/No	
Is a full list as well as complete English copies of type test reports as per the specification requirements submitted? In addition is a full list as well as complete English type test certificates as per the specification requirements submitted if available?	5.24, 6	Yes/No	
Is the MV indoor primary switchgear IAC-AFLR Videos submitted?	6	Yes/No	
Is the completed pdf and excel summary of the type test schedules submitted per panel type offered?	6	Yes/No	
Is the completed pdf and excel summary of drawings and part number schedule submitted per panel type offered?	5.24	Yes/No	
Are the completed technical schedules B and deviation schedules for each panel type and rating submitted?	Technical Schedules A and B (5.24)	Yes/No	
Are a full set of the MV indoor primary switchgear general arrangement (GA) drawings submitted per panel type offered?	5.24	Yes/No	
Are details of drawings showing the generic layout of all the nameplates submitted per panel type?	5.24	Yes/No	
Are generic auxiliary and control circuit schematic wiring diagrams for each panel type and rating submitted?	5.24	Yes/No	
Is a full list of operating tools submitted with the related drawings per panel type?	5.24	Yes/No	
Is a detailed list of additional specialised tools for major (specialised) maintenance submitted with the related drawings per panel type?	5.24	Yes/No	
Is a full list of spares required for maintenance submitted with the related	5.24	Yes/No	

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MV Indoor primary switchgear (Withdrawable air and Fixed pattern) technical evaluation for the documentation exercise			
Level 1 Gatekeeper			
TASK / MEASURE			
Criteria	Clause	Acceptance	Score
drawings per panel type?			
Are the generic routine test certificates for each panel type submitted?	5.24	Yes/No	
Are the transport manuals in English submitted?	5.24	Yes/No	
Are the storage manuals in English submitted?	5.24	Yes/No	
Are the installation manuals in English submitted?	5.24	Yes/No	
Are the operating manuals in English submitted?	5.24	Yes/No	
Are the maintenance manuals in English submitted?	5.24	Yes/No	
Is a proposal for condition monitoring functions and sensors that can be supplied with each panel type in English submitted?	5.24	Yes/No	
Is the manufacturing address, country and company name for all main components offered submitted?	5.24	Yes/No	
Is the manufacturing address, country and company name for the final panel assembly offered and routine testing location submitted?	5.24	Yes/No	
Are the unique manufacturing product code, voltage ratings and current withstand ratings for each panel type and main component offered submitted?	5.24	Yes/No	
Is the manufacturing address, country and company name for the main components for the submitted type test reports submitted?	5.24	Yes/No	
Is the manufacturing address, country and company name of the final panel assembly for the submitted type test reports submitted?	5.24	Yes/No	
Are the unique manufacturing product code, voltage ratings and current withstand ratings for each panel type and main component in the submitted type test reports submitted?	5.24	Yes/No	
Any one "NO" on the above scores in Table 1, the supplier will be disqualified.			

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Annex B – Level 2 Gatekeepers

Table 2

MV indoor primary switchgear technical evaluation for the documentation exercise			
Level 2 Gatekeeper scoring/rating - (only submission that passes Level 1 gatekeepers)			
TASK / MEASURE			
Criteria	Clause	Acceptance	Score
Has all type testing been performed at an accredited test facility?	6	Yes/No	
Has proof of the tests laboratory's accreditation by an accreditation body that is a full ILAC member as well as proof that the accreditation body is an MRA signatory of ILAC been submitted.	6	Yes/No	
Is all type testing requirements met in accordance with the Eskom requirements?	6	Yes/No	
Are IAC-AFLR Videos compliant with the Eskom specification requirements and the Eskom safety review approval of the arc venting operation, indicator burning and indicator movement?	6	Yes/No	
Does the completed schedule B meet Eskom schedule A requirements? (i.e. all items with value/ description on schedule A)	5.24	Yes/No	
If applicable are deviation schedules completed correctly for Eskom consideration? (i.e. all items not complying with value/ description on schedule A)	5.24	Yes/No	
Are all manuals referred to in clause 5.24 of the Eskom specifications submitted in both hard copy and soft copy? (Drawings, type test reports, Transport, storage, installation, maintenance, operating manuals, etc)	5.24	Yes/No	
Are all drawings, manuals and type test reports submitted in English?	5.24	Yes/No	
Are the minimum information requirements as stipulated in clause 5.24 of the Eskom specifications submitted for the general arrangement (GA) drawings compliant?	5.24	Yes/No	
Is the training material submitted in accordance with the Eskom specification requirements?	5.24 & 34-2207/240-56065202-	Yes/No	
Were type tests performed in the last 10 years?	6	Yes/No	

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MV indoor primary switchgear technical evaluation for the documentation exercise			
Level 2 Gatekeeper scoring/rating - (only submission that passes Level 1 gatekeepers)			
TASK / MEASURE			
Criteria	Clause	Acceptance	Score
Is the type test manufacturing address, country and company the same as the offered unit manufacturing address, country and company for both the main components and panel assembly? Or was sufficient technical information submitted to verify compliance of the item/equipment/panel design, manufacturing process and materials used where the stated item manufacturing location may be different from the type tested manufacturing location?	6	Yes/No	
Factory routine tests failure rate. (Number of MV indoor primary switchgear panel routine tests failed per year/number of MV indoor primary switchgear panels tested per year) – Figures must be auditable for the last 5 years	6	Ratio compliance	
Any one "NO" on the above scores in Table 2 or a factory routine test failure rate > than 0.01 or > 10% constitutes a failure and the supplier will be disqualified.			

Annex C – Level 3 Scoring for MV indoor primary switchgear**Table 3**

MV indoor primary switchgear technical evaluation for the documentation exercise			
Level 3 Scoring/Rating - (only submission that passes Level 1 and 2 gatekeepers)			
Routine testing and type testing Weight: 20%			
Criteria	Clause	Weight	Score
Type tests evaluation score?	6	50 %	
Generic routine test certificate & reports submitted. (For all routine tests) For each missing sample routine test supplier loses	6	20 %	
Compliance to material, surface and adhesion test as specified in DSP 34-1658 (Corrosion specification requirements)	5	30%	
<ul style="list-style-type: none"> A 5% penalty will apply for every non-compliant type test requirement For each routine test certificate non-compliance a 2% penalty will apply Compliance to each related painted surface test, the supplier is awarded 10 % 			

Table 4

MV indoor primary switchgear technical evaluation for the documentation exercise			
Level 3 Scoring			
Technical schedules Weight: 20%			
Criteria	Clause	Weight	Score
Correctness of completion i.e. no "TBA", "Comply", "Noted", "supplied later" ("Noted" acceptable only when Eskom informs)	Technical schedules A & B	25 %	
Does schedule B meet Eskom requirements	Technical schedules A & B	50 %	
Completed technical deviations (Where applicable – 100 % score is obtained where there are no deviations)	Technical schedules A & B	25 %	
<p>NB: The technical schedules B are provided in word in a separate attachment and should be completed on the computer and not handwritten.</p> <ul style="list-style-type: none"> Negative marking is done and a penalty of 2 % for each correctness of completion deviation. Negative marking is done and a penalty of 2 % is applicable for each deviation from meeting Eskom schedule B. Where technical deviations is not specified supplier loses 2 % 			

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Table 5

MV indoor primary switchgear technical evaluation for the documentation exercise			
Level 3 Scoring			
Technical drawings and diagrams Weight: 20%			
Criteria	Clause	Weight	Score
Drawing number	5.24	4 %	
Revision number	5.24	4 %	
Detailed description provided in "Title".	5.24	4 %	
Approved & date drawings	5.24	4 %	
Complete legend	5.24	4 %	
Busbar and main circuit rated current	5.24	4 %	
Critical dimensions/information including the following: <ul style="list-style-type: none"> • overall panel dimensions, • location and overall dimensions of various compartments as defined in this specification, • location of internal arc pressure relief flaps, • position of earth terminals or bars, • location of compartment heaters, and • minimum design creepage distance for all components in panels (indicating whether specific creepage distance or unified specific creepage distance) 	5.24	12 %	
Incomer and feeder panel drawings shall show the following additional information: <ul style="list-style-type: none"> • cable compartment overall dimensions, • position of vermin proof plates, cable support clamps and rubber grommets, • distance from cable support clamps to terminal fixing centre line, • spacing between cable terminal fixing points (phase to phase and phase to earth), • number of cable terminal fixing points (busbar flags) per phase, • location of surge arresters and dedicated fixing points (busbar 	5.24	10 %	

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MV indoor primary switchgear technical evaluation for the documentation exercise			
Level 3 Scoring			
Technical drawings and diagrams Weight: 20%			
<ul style="list-style-type: none"> flags), location of CTs, location of cable termination earth terminals or bars, cable trench overhang dimensions, minimum width of cable trench required, minimum distance required from the rear of the panel to rear switch room wall, and location of cable earthing switch 			
<p>Circuit-breaker panel drawings shall show the following additional information:</p> <ul style="list-style-type: none"> location of circuit-breaker and operating mechanism, location of mechanical trip button, location of status indication on circuit-breakers and earthing switches, and location of the orifice shutters 	5.24	4 %	
<p>VT and CPAT panel drawings shall show the following additional information:</p> <ul style="list-style-type: none"> location of VT and CPAT (where applicable); and location of busbar earthing switch (VT panel or with integral earthing switch) 	5.24	4 %	
Location of all mechanical operating tool insertion positions (as applicable for each panel type)	5.24	4 %	
Position and wording of all labels specified in this specification	5.24	4 %	
Colour coding relevant to the type of panel	5.24	4 %	
Location and layout of LV control cable gland plates	5.24	4 %	
Lifting eyes and transportation details - including required clearance above panel if lifted with crane	5.24	4 %	

MV indoor primary switchgear technical evaluation for the documentation exercise			
Level 3 Scoring			
Technical drawings and diagrams Weight: 20%			
Mass of switchgear panel	5.22 & 5.24	4 %	
Location of panel nameplate; and	5.22 & 5.24	4 %	
Foundation / holding down bolt fixing details	5.24	4 %	
Drawings showing the generic layout of all the nameplates (panels, circuit-breakers, CTs, VTs, CPATs) specified	5.24	4 %	
Generic auxiliary and control circuit schematic wiring diagrams for each panel type and rating in accordance with 240-56063705	5.24	10%	
<ul style="list-style-type: none"> Negative marking and supplier loses 1 % per each drawing with a deviation in case of drawing labelling. Supplier loses all the indicated marks for not indicating on the drawings the items listed above. 			

Table 6

MV indoor primary switchgear technical evaluation for the documentation exercise			
Level 3 Scoring			
Operating and maintenance tools Weight: 10%			
Criteria	Clause	Weight	Score
Full list of operating tools	5.23	30 %	
Detailed list of tools required for minor maintenance	5.23	35 %	
Detailed list of additional specialised tools for major (specialised) maintenance	5.23	35 %	
Negative marking and supplier loses 10 % for each deviation or omitted information identified by Eskom.			

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Table 7

MV indoor primary switchgear technical evaluation for the documentation exercise			
Level 3 Scoring			
Spares list Weight: 10%			
Criteria	Clause	Weight	Score
full list of spares required for all maintenance activities	5.23	100 %	
Negative marking and supplier loses 5 % per Eskom identified deviation or non submittance			

Table 8

MV indoor primary switchgear technical evaluation for the documentation exercise			
Level 3 Scoring			
Manuals and training material Weight: 10%			
Criteria	Clause	Weight	Score
Transport manual	5.24 & 7	10 %	
Storage manual	5.24 & 7	10 %	
Installation manual	5.24 & 7	20 %	
Operating manual	5.24 & 7	20 %	
Maintenance manual	5.24 & 8	20 %	
Training material	5.24 & 7	20 %	
Negative marking and supplier loses 5 % for each deviation from Eskom specification.			

Table 9

MV indoor primary switchgear technical evaluation for the documentation exercise			
Level 3 Scoring			
Other technical requirements and information Weight: 10%			
Criteria	Clause	Weight	Score
If applicable details regarding the procedure for the on-site replacement of a damaged/faulted panel in a switchboard, including the necessary in-situ gas-work	5	10 %	
If applicable details of the effect of reduced internal gas-pressure on the operation, safety and insulation levels of the switchgear	5	10 %	
Details of internal arc pressure relief / absorption / cooling devices and ducting –	5	10 %	

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where applicable			
Special requirements or limitations for installation	5	10 %	
Details of steel support frame / base for installation of panels over the cable trench	5	10 %	
Details of the bare, insulated or fully screened solid dielectric insulated busbar system offered (where applicable)	5	5 %	
Auxiliary wiring diagrams indicating all required wiring circuits. (RTU circuit)	5	5 %	
All information requested relating to air filled compartments or gas-filled compartments – where applicable	5	5 %	
Details regarding the VT protection offered to prevent ferro-resonance	5	5 %	
If applicable details of the means offered to disconnect the VT from the busbar	5	5 %	
Quality control plans indicating all inspection hold points	7	5 %	
Details of equipment requiring maintenance during storage	7	5 %	
A written commitment from the supplier regarding the submission of the maintenance DVD	8	5 %	
Spares availability philosophy	8	5 %	
Data sheet for the surge arresters offered where applicable	5	5%	
Negative marking and supplier loses 5 % for each deviation from Eskom specification.			