



## TECHNICAL EVALUATION CRITERIA

BKR: KSK;22 KV;1250 A;25 KA;3;110 VDC

### IMPORTANT NOTICE:

This document must be read in conjunction with 240-70413969 (Technical Evaluation Criteria for OUTDOOR AIR INSULATED MV CIRCUIT BREAKERS WITH COMBINED CURRENT TRANSFORMERS & KIOSK CIRCUIT BREAKERS FOR 11 KV, 22 KV AND 33 KV) for the full Technical approach and criteria.

## 1. Technical Evaluation Criteria and Strategy

The technical tender strategy and criteria will be used to measure the bidders in their ability to supply Eskom with 22 kV OUTDOOR KIOSK (DOGBOX) MV CIRCUIT in accordance with the specific requirements of 240-69125210. This will be achieved by performing the desktop evaluation, using the tender returnable, which will be filled in schedules A&B, and applicable supporting documents e.g. drawings. Once successful bidders have been determined, Eskom reserves the right to undertake OEM factory and or product assessments should the bidder have not supplied this equipment to Eskom in the past or more than 10 years have elapsed since the factory had been assessed by Eskom.

## 2. Special Requirements – Technical Criteria and Strategy

In addition to the specific requirements stated in 240-70413969 document issued with the enquiry, the following special requirements are applicable to this process.

- a) Annexures A, C and E used in the 240-70413969 document would **not** be used.
- b) The scoring method used in the Annexures A, C and E of the 240-70413969 document would **not** be used. Instead, the scoring method that caters for the requirements of c) below has been prepared.
- c) The addendum has been structured to aid alignment between the requirements of the 240-70413969 document and the 240-69125210 document (STANDARD FOR 11 KV, 22 KV AND 33 KV OUTDOOR KIOSK CIRCUIT-BREAKERS). The 240-69125210 document has additional submissions required during the tender submission as indicated in the annexures in this addendum.

### 3. Desk evaluation

**ALL** documents submitted for technical evaluation need to be submitted in **PDF electronic format**.

**ALL** submitted technical documents need to be in the **English language**.

#### 3.1 Mandatory submissions – Stage 1 (Gatekeepers)

**NOTE: Refer to 240-66581487 – Standard for Outdoor Air Insulated MV Circuit Breakers With Combined Current Transformers & Control gear for 11 kV, 22 kV and 33 kV, SANS / IEC 62271-1 and SANS / IEC 62271-100: High-voltage switchgear and control-gear Part 100: Alternating-current circuit-breakers.**

The tenderer is required to submit the following documents as a **MANDATORY** requirement;

- a) Completed A & B Schedules
- b) Completed Annex B – Type test reports listing
- c) Outlines or general arrangements drawings (provide drawing numbers as required in Annex A)
- d) Detailed primary and secondary wiring diagrams (Item 19 of Annex A)
- e) Rating/Name plates (Clear and complete photos are accepted)
- f) Installation manual
- g) Operation manual
- h) Maintenance manual

*Note: f), g) and h) above could be included in a single manual as sections.*

- i) Annex A to Annex E (Submit ALL these annexures)

**NOTE: FAILURE TO SUBMIT ANY OF THE TENDER RETURNABLES IN STAGE 1 ABOVE SHALL RENDER THE TENDERER NON-RESPONSIVE AND WILL BE DISQUALIFIED FOR FURTHER EVALUATION**

*Further desk evaluation form part of Stage 2 desk evaluation.*

#### 3.2 Schedules A & B

**Points = 50**

The tenderer is required to complete and submit with the tender document the Technical Schedules A&B at the bottom of this addendum in Annex E. The technical schedule B shall

not be left blank. Where numerical values (e.g. rated values, dimensions, etc.) or specific information is required, the actual value/information offered shall be stated. In such cases, use of the words "COMPLY", "TBA", etc. is not acceptable.

Where the tenderer prefers to offer an item in Schedule B different from what the purchaser (Eskom) asks for in Schedule A, then this discrepancy shall be qualified in the Deviation Schedule in Annex D. By qualifying the discrepancy in the Deviation Schedule does not guarantee acceptance thereof. Should there be no deviation that requires to be explained in the Deviation Schedule, the tenderer is still required to indicate "NO DEVIATION" in the Deviation Schedule and submit it with the tender document.

### *Scoring on the Schedules A & B*

There are 12 items of the Schedule B that need to match those in the Schedule A. There are **12 points** allocated to these items. If **any one** of these items does not match those required in the Schedule A, then **all** 12 points would be lost by the tenderer. These items are listed below,

- a) Rated voltage
- b) Rated power-frequency withstand voltage
- c) Rated lightning impulse withstand voltage
- d) Rated frequency
- e) Rated continuous current
- f) Rated short-time withstand current
- g) Rated peak withstand current
- h) Rated duration of short circuit
- i) Rated d.c. supply voltage of closing and opening devices and of auxiliary control circuits
- j) Rated operating sequence for circuit breaker
- k) Unified Specific creepage distance
- l) Current transformer number of cores

The rest of the items in the Schedules B required are 319 in number. The rest of these items have **38 points** allocated to them. Thus, each item has  $38/319 = 0.11912$  point. Thus, each of these items correctly responded to in the B Schedule or in the Deviation Schedule would earn the tenderer 0.11912 point.

### **3.10 General arrangement drawings**

**Points = 15**

The tenderer is required to submit the circuit breaker general arrangement (GA) drawings with at least the information indicated in the table of Annex A. The tenderer is required to complete the table and indicate if information is included in the GA drawings. The tenderer is required to indicate the reference drawing and the sheet number in which the required information is indicated.

In the case that the information appears in many drawings or sheets, the tenderer may complete the number and sheet number for the most representative drawing number and/or sheet number.

#### *Scoring on general arrangement drawings*

**5 Points** are allocated to this annexure. There are two sheets of Annex A. The tenderer is required to indicate in this annexure if the drawings submitted include the information as indicated in this annexure. There are 21 information items considered. The tenderer is required to indicate next to each item name if the particular information item has been included in the drawings, the drawing number (at least one) where this attribute has been displayed and also the sheet number. If all three columns for a particular information item have been filled in, the tenderer earns  $5/21 = 0.2381$  point. If the sheet number is not included, the tenderer earns 0.11905 point for each item. If the tenderer misses to indicate if the information item is displayed in the drawings or there is no inclusion of the drawing number, 0 point would be earned by the tenderer.

In addition to the above, the tenderer would earn **10 points** if he/she actually submits all the items in Annex A. Thus, each submitted correct item diagram shall earn the tenderer 0.5 point.

### **3.13 Type test reports**

**Points = 30**

The manufacturer shall be fully responsible for performing or having performed all the required tests as specified in 240-69125210. These tests are according to SANS 62271-100. **Tests according to IEC60056 are not acceptable.**

Annex B contains a list of the type tests that are required for the circuit breaker on tender.

The tenderer is required to submit test reports (**and not just certificates**) for the tests listed in Annex B. The tests in Annex B are categorised as Critical Tests and as Additional Tests.

The tenderer is also required to complete Annex B, indicating the test report number corresponding to each test item listed in this annexure.

#### *Scoring on the type test reports*

The tenderer is required to submit type test reports for **ALL** Critical Tests. There are **17 points** allocated to these tests. If **any test report** of the 9 Critical Tests is not submitted, the tenderer would lose all the 17 points.

The tenderer is also required to submit test reports for the 14 Additional Tests as indicated in Annex B. There are **10 points** allocated to these Additional Tests reports. Each Additional Test report would earn the tenderer 0.715 point.

The tenderer is also required to complete Annex B, providing the test report numbers for the submitted type test reports. For each completed and correct corresponding report number filled in, the tenderer would earn 0.1305 point. For the 23 required test reports, the tenderer could earn a maximum of **3 points** for completely and correctly completing Annex B.

<b>3.15 Training commitment by the tenderer</b>	<b>Points = 5</b>
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The tenderer is required to submit with the tender document a written commitment that, should the tenderer be a successful supplier, he/she would provide training on the circuit breaker on tender according to the requirements of 240-56065202.

The tenderer is required to make use of Annex M. He/she needs to complete the template in this annexure and submit it together with the tender document.

*Scoring on training commitment by the tenderer*

**5 Points** are allocated to this annexure. There is one sheet of Annex M. There are five fields in this annexure that the tenderer is required to fill in. If all fields are completed, this would earn the tenderer 5 points. If **any** field is not filled in correctly or is left blank, this would earn the tenderer 0 point for this annexure.

## **Annex A – Minimum included information in the circuit breaker general arrangement drawings**

**(Sheet 1 of 2)**

The tenderer is required to submit the circuit breaker general arrangement (GA) drawings with at least the information indicated in the table of this annexure. The tenderer is required to complete the table and indicate if information is included in the GA drawings. The tenderer is required to indicate the reference drawing and the sheet number in which the required information is indicated.

In the case that the information appears in many drawings or sheets, the tenderer may complete the number and sheet number for the most representative drawing number and/or sheet number.

It is MANDATORY to submit this annexure.

<b>Item #</b>	<b>Required information</b>	<b>Information available? [YES/NO]</b>	<b>Drawing number</b>	<b>Sheet number</b>
1	Manufacturer's drawing number and revision number			
2	A descriptive title of the drawing			
3	Critical dimensions such as overall dimensions, structure dimensions, phase to phase spacing, phase to phase and phase to earth air clearances, working clearance, height of lowest part of insulation above ground, height of top of operating mechanism enclosure above ground, operating mechanism enclosure dimensions, overall height, width and depth of circuit-breaker, etc.			
4	Properly annotated drawing with a complete list of major components (bill of materials)			
5	Details of main terminals including dimensions of the fixing holes, terminal hole spacing, plate thickness and maximum permissible forces (loads) on main terminals (with directions) expressed in Newtons (N)			
6	Details of the main earthing terminal and operating mechanism enclosure earthing terminal			
7	Mass of circuit-breaker in kilograms (kg), which shall include the empty mass, mass and description of heaviest component, total mass of circuit-breaker ready for service and mass of filling medium			

**Annex A – Minimum included information in the circuit breaker general arrangement drawings**  
(Sheet 2 of 2)

Item #	Required information	Information available? [YES/NO]	Drawing number	Sheet number
8	Mounting and fastening arrangement for the circuit-breaker support structure onto the foundation including the minimum required length and diameter of foundation holding down bolts as well as the relative position of levelling nuts, spacers, washers, etc. in relation to the base plate			
9	Static and dynamic forces (loads), centre of gravity			
10	Relative location of circuit-breaker poles, base frame, operating mechanism enclosure(s), grading capacitors (where applicable) and closing resistors (where applicable)			
11	Location of all enclosure doors and handles			
12	Location and annotation of control facilities (gas filling/evacuation points, SF6 free density monitoring device with its environmental protection shelter/cover, etc.)			
13	Location and layout of LV control cable gland plates			
14	Type and dimensions of holding down bolts			
15	Insulation medium pressure and quantity requirements			
16	Location of nameplate on circuit-breaker			
17	Detailed drawings of insulators (including the profile and creepage distances)			
18	Detailed drawings of mechanisms (including the coupling and operating mechanisms)			
19	Detailed primary and secondary wiring			
20	Electrical clearances: to earth, between phases and working clearances			

**Annex B - Type test reports list****(Sheet 1 of 2)**

The tenderer is required to submit test reports for the tests listed in the table below. The tenderer should indicate in the last column the report number related to each test indicated below. The tenderer is required to submit this annexure with the tender document.

This annexure is MANDATORY.

<b>Type test reports list</b>		
<b>Item #</b>	<b>Test description</b>	<b>Report number</b>
	<b>Critical Tests</b>	
1	Equipment insulation level (SANS 62271-100 6.2)	
2	Temperature rise and measurement of resistance of circuits (SANS 62271-100 6.5 & 6.4)	
3	Current withstand - main circuit (SANS 62271-100 6.6)	
4	Kiosk circuit-breaker short-circuit making and breaking capacities (SANS 62271-100 6.102 to 6.106)	
5	Circuit-breaker mechanical operation (SANS 62271-100 6.101.2.1 - 6.101.2.3)	
6	Additional tests on auxiliary and control circuits (SANS 62271-100 6.10)	
7	Test under conditions of arcing due to an internal fault as per IEC 62271-200	
8	Insulator tests (as per 240-142598739)	
9	Current transformer tests according to SANS 60044-1	
	<b>Additional Tests</b>	
10	Critical current tests (where applicable) (SANS 62271-100 6.107)	
11	Single-phase tests (for $U_n \leq 52$ kV) (SANS 62271-100 6.108)	
12	Double earth fault tests (for $U_n \leq 132$ kV) (SANS 62271-100 6.108)	
13	Short-line fault tests (for class S2 circuit-breakers and $U_n \leq 52$ kV) (SANS 62271-100 6.109)	
14	Out-of-phase making and breaking tests (applicable if an out-of-phase rating is assigned) (SANS 62271-100 6.110)	
15	Capacitive current switching tests (SANS 62271-100 6.111)	
16	Switching of shunt reactors (for $U_n \geq 52$ kV) (SANS 62271-110)	



**Annex B - Type test reports list****(Sheet 2 of 2)**

Type test reports list		
Item #	Test description	Report number
17	Electrical endurance tests (for class E2 circuit-breakers) (SANS 62271-100 6.112)	
18	Circuit-breaker extended mechanical endurance tests (for class M2 circuit-breakers) (SANS 62271-100 6.101.2.4)	
19	Verification of the protection (IP coding) (SANS 62271-100 6.7)	
20	Tightness test (SANS 62271-100 6.8)	
21	Static terminal load tests (for $U_n \geq 52$ kV) (SANS 62271-100 6.101.6)	
22	Corrosion test on earthing connections and mechanisms	
23	KIPTS pollution performance test in accordance with 240-142598739	

**Annex C - Training commitment by the tenderer****(Sheet 1 of 1)**

The tenderer is required to submit with the tender documents a written commitment that, ***should the tenderer be a successful supplier***, he/she would provide training on the circuit breaker on tender according to the requirements of 240-56065202.

Training commitment by tenderer	
<u>Purpose:</u> This letter serves as a commitment by me, the tenderer, that should I be the successful bidder, I will provide training on the supplied circuit breaker on tender according to the requirements of 240-56065202.	
Name and surname	
Company	
Position	
Date	
Signature	

# Annex D – Deviation schedule

(Sheet 1 of 1)

Unique Identifier: EC19SIF-005	Document Type: Form	Revision:1	Effective Date: 01 January 2019
Deviation Schedule			

Product Description:			
Eskom SAP Number:		Product Code (Item Code):	
Latest Specification Applicable (i.e. Eskom D-DT # & Rev #):			

<p>This deviation schedule is to be completed by all potential suppliers or manufacturers <b>whether or not a deviation exists</b> from Eskom requirements. All deviations offered which does not conform to the latest specification applicable shall be listed below with reasons for the deviation. <b>Please indicate clearly.</b></p>		
Clause	Proposed Deviation	Reason

Product Manufacturer:		Deviation Exists:	Yes		No	
Supplier to Eskom		Supplier Representative:				
Supplier Representative Signature:		Date:				

Note: All Fields are mandatory and must be completed accordingly.

**ANNEX E - TECHNICAL SCHEDULES A & B FOR MV KIOSK (DOGBOX) OUTDOOR CIRCUIT-BREAKERS**  
**BKR: KSK; 22 KV; 1250 A; 25 KA; 3; 110 VDC**

Schedule A: Purchasers specific requirements (*To be completed by the purchaser*)

Schedule B: Guarantees and technical particulars of equipment offered (*To be completed by the tenderer*)

**Note:** All tender documentation to be provided in electronic format

1	2	3	4	5	6
Item #	Reference (240-69125210)	Description	Units	Schedule A	Schedule B
1		<b>Item and system description</b>			
1.1		Type of breaker		Kiosk	
1.2		Manufacturer		XXXXXXXXXX	
1.3		Country of origin		XXXXXXXXXX	
1.4		Breaker model		XXXXXXXXXX	
1.5		Product code		XXXXXXXXXX	
1.6		Total mass	kg	XXXXXXXXXX	
2		<b>Ratings</b>			
2.1	3.1	Nominal voltage ( $U_n$ )	kV	22	
2.2	3.1	Rated voltage ( $U_r$ )	kV	24	
2.3	3.1	Number of phases		3	
2.4	3.2	Rated short duration power frequency withstand voltage ( $U_d$ )	kV	50	
2.5	3.2	Rated peak lightning impulse withstand voltage ( $U_p$ ) ( <i>peak</i> )	kV	150	
2.6	3.3	Rated frequency ( $f_r$ )	Hz	50	
2.7	3.4	Rated normal current ( $I_r$ )	A	1250	
2.8	3.4	Temperature rise (ambient $\leq 40^\circ\text{C}$ ) for accessible enclosures and covers (SANS 62271-200(4.4.2)) (maximum)	K	30	
2.9	3.4	Temperature rise (ambient $\leq 40^\circ\text{C}$ ) for accessible enclosures and covers that are not touched during normal service (SANS 62271-200(4.4.2)) (maximum)	K	40	
2.10	3.5	Rated short time withstand current ( $I_k$ )	kA	25	
2.11	3.6	Rated peak withstand current ( $I_p$ ) ( <i>peak</i> )	kA	62.5	
2.12	3.7	Rated duration of short circuit ( $t_k$ )	s	3	
2.13	3.8	Rated d.c. supply voltage ( $U_a$ ) of closing and opening devices and of auxiliary and control circuits	V	110	
2.14	3.8	Rated a.c. supply voltage ( $U_a$ ) of heaters and other a.c. auxiliary circuits	V	230	
2.15	3.9	Rated supply frequency of closing and opening devices and of auxiliary circuits	Hz	50	
2.16	3.10	Rated short circuit breaking current ( $I_{sc}$ ) (minimum)	kA	25	
2.17	3.11	First-pole-to-clear factor ( $K_{pp}$ )		1.5	
2.18	3.12	Rated short circuit making current ( <i>peak</i> )	kA	62.5	

1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
2.19	3.13	Rated operating sequence (for feeder application)		O-t-CO-t'-CO t= 0.3 s and t'=3 min	
2.20	3.13	Open-Close-Open operation before closing spring recharge is required	Yes/No	Yes	
2.21	3.15	Rated out-of-phase making current	kA	8.84	
2.22	3.15	Rated out-of-phase breaking current ( $I_d$ )	kA	6.25	
2.23	3.16	Rated single capacitor bank breaking current ( $I_{sb}$ )	A	400	
2.24	3.16	Rated back-to-back capacitor bank breaking current ( $I_{bb}$ )	A	400	
2.25	3.16	Rated back-to-back capacitor bank inrush making current ( $I_{bi}$ ) (peak)	kA	20	
2.26	3.16	Frequency of the inrush current ( $f_{bi}$ )	Hz	4 250	
2.27	3.18	Number of mechanical operations (minimum)		10 000	
3		<b>Circuit breaker classification</b>			
3.1	3.20	Circuit breaker class		S2	
3.2	3.20	Electrical endurance		E2	
3.3	3.20	Re-strike performance during capacitive current breaking		C1	
3.4	3.20	Mechanical endurance		M2	
4		<b>Design and construction</b>			
4.1		<b>Service conditions</b>			
4.1.1	4.1	Location (indoor/outdoor)		Outdoor	
4.1.2	4.1	Ambient air temperature	°C	-10 to +40	
4.1.3	4.1	Compensation for rapid temperature changes	Yes/No	Yes	
4.1.4	4.1	Solar radiation	W/m <sup>2</sup>	1 100	
4.1.5	4.1	Wind speed	m/s	34	
4.1.6	4.1	Altitude (maximum)	m	1 800	
4.1.7	4.1	Class of pollution	mm/kV	31	
4.1.8	4.1	Seismic activity	g	0.3	
4.1.9	4.1	System earthing		Non-effective	XXXXXXXXXX
4.2		<b>General</b>			
4.2.1	4.2	Circuit breaker compliant with 240-69125210, SANS 62271-1, 62271-100 and 62271-200	Yes/No	Yes	
4.2.2	4.2	Circuit breaker design (live-tank/dead-tank)		XXXXXXXXXX	
4.2.3	4.2	Circuit breaker mobility (fixed/withdrawable)		Fixed	
4.2.4	4.2	CT arrangement (integrated/separated)		Integrated	
4.2.5	4.2	Breaker supplied with control, measuring, indicating, alarm, protective and regulating equipment	Yes/No	Yes	
4.2.6	4.2	Breaker supplied with bushings, interconnections, accessories and enclosures	Yes/No	Yes	

1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.2.7	4.2	Breaker supplied with supporting structure	Yes/No	XXXXXXXXXX	
4.2.8	4.2	Breaker designed with stored energy operation	Yes/No	Yes	
4.2.9	4.2	Energy storage device		Spring	
4.2.10	4.2	Manual and motorised spring charging	Yes/No	Yes	
4.2.11	4.2	Manual and electric energy release	Yes/No	Yes	
4.2.12	4.2	Mechanical energy stored in charged spring	J	XXXXXXXXXX	
4.2.13	4.2	Mechanical device provided to prevent over-charging of the closing spring for manual and motor charging	Yes/No	Yes	
4.2.14	4.2	Safe conditions produced in the case of failure to latch	Yes/No	Yes	
4.2.15	4.2	Safe conditions produced in the case of failure of command to trip during the closing operation	Yes/No	Yes	
4.2.16	4.2	Circuit-breaker interrupting technology (Vacuum/SF6)		XXXXXXXXXX	
4.2.17	4.2	Type of interrupter design (puffer, self-blast, etc.)		XXXXXXXXXX	
4.2.18	4.2	Configuration of moving contacts (single, double or triple motion)		XXXXXXXXXX	
4.2.19	4.2	Availability of the mechanical Trip and Close control facility	Yes/No	Yes	
4.2.20	4.2	Expected life-span of circuit-breaker	Years	≥ 40	
4.3		Architecture and accessibility to compartments			
4.3.1	4.3	Circuit breaker designed with Circuit Breaker compartment and LV compartment	Yes/No	Yes	
4.3.2	4.3	Circuit breaker compartment is tool-based accessible	Yes/No	Yes	
4.3.3	4.3	LV compartment is procedure-based accessible	Yes/No	Yes	
4.4		Construction requirements			
4.4.1	4.4	Standardised circuit-breaker elements to maximise interchangeability	Yes/No	Yes	
4.4.2	4.4	Modular, pre-assembled elements are designed to facilitate handling and installation	Yes/No	Yes	
4.4.3	4.4	Designed to facilitate ease of construction and maintenance	Yes/No	Yes	
4.4.4	4.4	SF6 filter material housing located (at the circuit breaker pole) to provide easy access during maintenance	Yes/No	Yes	
4.5		Partition class			
4.5.1	4.5	Partitioning class is PM (metallic partitions (SANS 62271-200 (8.103.4)))	Yes/No	Yes	

1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.6		Internal arc classification			
4.6.1	4.6	The internal arc classification is AFLR (SANS 62271-200 (8.104.6))	Yes/No	Yes	
4.6.2	4.6	Classification test current	kA	25	
4.7		Enclosure requirements			
4.7.1	4.7	Three pole circuit breaker, CTs and associated equipment housed in a steel enclosure	Yes/No	Yes	
4.7.2	4.7	Enclosure material		3CR12/Stainless steel	
4.7.3	4.7	Circuit breaker operated from the front of the kiosk	Yes/No	Yes	
4.7.4	4.7	Overall height	mm	2 900 – 3 100	
4.7.5	4.7	Height to the base of the external bushings	mm	2 500 – 2 700	
4.7.6	4.7	Width (maximum)	mm	2 200	
4.7.7	4.7	Depth (maximum)	mm	2 200	
4.7.8	4.7	Access to the LV compartment and circuit breaker operating mechanism enclosure is through the hinged front access door	Yes/No	Yes	
4.7.8	4.7	Access to the operating mechanism controls, LV terminals strips etc. provided through hinged front access door and these are accessible from ground level	Yes/No	Yes	
4.7.9	4.7	Front access door is secured with a three-point heavy duty locking mechanism	Yes/No	Yes	
4.7.10	4.7	Front access door equipped with travel stop to retain it in the open position even against wind.	Yes/No	Yes	
4.7.11	4.7	Kiosk is capable of being padlocked	Yes/No	Yes	
4.7.12	4.7	Padlocking facility shackle diameter (minimum)	mm	6	
4.7.13	4.7	Operating mechanism enclosure, handles and fixings material		3CR12/Stainless steel	
4.7.14	4.7	Operating mechanism enclosures are arranged to facilitate easy access for inspection and scheduled maintenance	Yes/No	Yes	
4.7.15	4.7	Removable covers fastened with corrosion resistant hexagon head bolts	Yes/No	Yes	
4.7.16	4.7	Degree of protection for the kiosk		IP 55	
4.7.17	4.7	With the front door open, degree of protection for moving parts		IP2X	
4.7.18	4.7	With the front door open, degree of protection for live parts		IP3X	
4.7.19	4.7	Lifting lugs with a minimum diameter of 30 mm to lift the complete assembly are attached to the roof at the top of the kiosk	Yes/No	Yes	
4.7.20	4.7	Gaskets type		Neoprene/heavy duty foam plastic	

1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.7.21	4.7	Steel documentation pocket provided on inside of front access door	Yes/No	Yes	
4.7.22	4.7	Facilities provided for securing operating tools on inside of front access door	Yes/No	Yes	
4.7.23	4.7	All metallic parts of the kiosk are electrically bonded together	Yes/No	Yes	
4.7.24	4.7	Earthing of the kiosk is via the steel supporting structure and foundation holding down bolts	Yes/No	Yes	
4.7.25	4.7	Enclosure colour (SANS 1091)		Light grey (G29)	
4.7.26	4.7	The roof material is of the non-ferrous type to prevent stray eddy currents	Yes/No	Yes	
4.8		Circuit breaker supporting structure			
4.8.1	4.8	"Static" dead weight of the circuit-breaker	N	XXXXXXXXXX	
4.8.2	4.8	Rated "static" terminal force $F_{shA}$ of the circuit-breaker due to connected conductors	N	XXXXXXXXXX	
4.8.3	4.8	Rated "static" terminal force $F_{shB}$ of the circuit-breaker due to connected conductors	N	XXXXXXXXXX	
4.8.4	4.8	Rated "static" terminal force $F_{sv}$ of the circuit-breaker due to connected conductors	N	XXXXXXXXXX	
4.8.5	4.8	"Dynamic" horizontal force exerted during operation on the foundation	N	XXXXXXXXXX	
4.8.6	4.8	"Dynamic" vertical force exerted during operation on the foundation	N	XXXXXXXXXX	
4.8.7	4.8	"Dynamic" moment (torque) exerted during operation about the foundation	Nm	XXXXXXXXXX	
4.8.8	4.8	"Dynamic" horizontal force exerted between circuit-breaker poles (centre phase interrupter chamber) during a rated (terminal fault) short-circuit	N	XXXXXXXXXX	
4.8.9	4.8	Wind force (load) exerted on the circuit-breaker due to a wind velocity of 34 m/s	N	XXXXXXXXXX	
4.8.10	4.8	Maximum torque required for the foundation holding down bolt nuts	Nm	XXXXXXXXXX	
4.8.11	4.8	Circuit-breaker steel support structure to be designed by manufacturer	Yes/No	XXXXXXXXXX	
4.8.12	4.8	Circuit-breaker concrete foundation to be designed by manufacturer	Yes/No	XXXXXXXXXX	
4.8.13	4.8	Circuit-breaker support structure designed to interface with the standard Eskom concrete foundation (D-DT-5216 and for A frames D-DT-5270)	Yes/No	Yes	
4.8.14	4.8	Circuit breaker supplied with galvanised steel surge arrester mounting brackets fitted on the breaker load side adjacent to the current transformer pole	Yes/No	Yes	



1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.8.15	4.8	The minimum surge arrester mounting bracket interface dimension	mm	70 x 70	
4.8.16	4.8	Surge arrester mounting bracket pre-drilled hole diameter in the centre of the interface bracket	mm	14	
4.8.17	4.8	Fitted surge arrester mounting bracket pre-drilled hole horizontal distance from the CT outer edge (minimum)	mm	250	
4.8.18	4.8	Fitted surge arrester mounting bracket pre-drilled hole height above foundation (minimum)	mm	2480	
4.9		Corrosion protection and lubrication			
4.9.1	4.9	Corrosion specification		240-75655504	
4.9.2	4.9	Corrosivity rating of environment		"high" to "very high"	
4.9.3	4.9	Minimum detailed specification (DS) number for exposed metal	DS	DS-11	
4.9.4	4.9	Provide detailed specification (DS) for enclosures	DS	XXXXXXXXXX	
4.9.5	4.9	Provide detailed specification (DS) for nuts, bolts, studs and washers	DS	XXXXXXXXXX	
4.9.6	4.9	Provide detailed specification (DS) for cable glands	DS	XXXXXXXXXX	
4.9.7	4.9	Provide detailed specification (DS) for cable strapping	DS	XXXXXXXXXX	
4.9.8	4.9	Provide detailed specification (DS) for structural steel (common base frame, etc)	DS	XXXXXXXXXX	
4.9.9	4.9	Details of lubricants provided with tender documentation	Yes/No	Yes	
4.9.10	4.9	Details of flange arrangements, treatments to prevent flange corrosion provided with tender	Yes/No	Yes	
4.10		Circuit-breaker operating mechanism enclosure heaters			
4.10.1	4.10	Heater size offered	Watt	XXXXXXXXXX	
4.10.2	4.10	Heater supply voltage (a.c.)	V	230	
4.10.3	4.10	Heater control circuit specification		240-56030489	
4.11		Terminal requirements			
4.11.1	4.10.1	HV main terminal type		Flat pad	
4.11.2	4.10.1	Flat pad number of holes		4	
4.11.3	4.10.1	Flat pad hole pitch	mm	50	
4.11.4	4.10.1	Flat pad thickness (minimum)	mm	20	
4.11.5	4.10.1	Flat pad hole diameter	mm	14	
4.11.6	4.10.1	Flat pad material		Silver plated copper	
4.11.7	4.10.1	Earthing of circuit-breaker via steel support structure and foundation holding down bolts	Yes/No	Yes	

1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.11.8	4.10.1	Additional earthing conductor (non-copper) provided between the circuit-breaker and the support structure, and indicate the material used for that conductor	Yes/No	XXXXXXXXXX	
4.12		<b>Safety clearances and personnel safety</b>			
4.12.1	4.10.2	Live parts isolated by means of elevation	Yes/No	Yes	
4.12.2	4.10.2	Electrical working clearance (minimum)	mm	2800	
4.12.3	4.10.2	Distance from lowest part of any high-voltage insulation above ground (minimum)	mm	2500	
4.12.4	4.10.2	Type of pressure relief devices provided		XXXXXXXXXX	
4.13		<b>Insulation requirements</b>			
4.13.1	4.10.3	Insulator manufacturer		XXXXXXXXXX	
4.13.2	4.10.3	Insulator material		Composite silicone rubber	
4.13.3	4.10.3	Silicone rubber composite type insulators in accordance with SANS 61462 and SANS 60815-3	Yes/No	Yes	
4.13.4	4.10.3	Circuit-breaker tested at KIPTS	Yes/No	Yes	
4.13.5	4.10.1	Insulator drawing provides the mechanical strength of the bushing	Yes/No	Yes	
4.13.6	4.10.3	External <i>unified</i> specific creepage distance (minimum)	mm/kV	53.7	
4.13.7	4.10.3	Phase to phase clearance in air	mm	400	
4.13.8	4.10.3	Phase to earth clearance in air	mm	320	
4.14		<b>Position / status indication</b>			
4.14.1	4.10.4	Main contact position indication is clearly visible from ground level	Yes/No	Yes	
4.14.2	4.10.4	Position indication visible with operating mechanism enclosure front access door closed	Yes/No	Yes	
4.14.3	4.10.4	Closed position: "I" in white lettering on a red background	Yes/No	Yes	
4.14.4	4.10.4	Open position: "O" in white lettering on a green background	Yes/No	Yes	
4.14.5	4.10.4	Lettering (symbol) size (minimum)	mm	30	
4.14.6	4.10.4	The closing spring condition (i.e. charged or discharged) is indicated by a mechanical device	Yes/No	Yes	
4.14.7	4.10.4	The closing spring status is indicated by "SPRING CHARGED" and "SPRING DISCHARGED" black lettering on a white background	Yes/No	Yes	
4.14.8	4.10.4	Spring indication lettering size (minimum)	mm	15	
4.14.9	4.10.4	Type of non-resettable circuit-breaker operation counter offered		Mechanical / electrical	
4.14.10	4.10.4	Counting capability of the counter (minimum)		99 999	
4.14.11	4.10.4	SF6 pressure gauge provided (compensated for temperature and responding to SF6 gas density) - where applicable	Yes/No	XXXXXXXXXX	

1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.14.12	4.10.4	All indicating devices and operations counter are clearly visible and legible by persons with normal vision standing at ground level	Yes/No	Yes	
4.15		Labels			
4.15.1	4.10.5	Operating labels associated with local operation of the circuit breaker are attached inside the mechanism enclosure	Yes/No	Yes	
4.15.2	4.10.5	Operating labels are black text on a white background	Yes/No	Yes	
4.15.3	4.10.5	Tripping and closing instructions are respectively "TO TRIP" and "TO CLOSE"	Yes/No	Yes	
4.15.4	4.10.5	Spring charging instruction is "TO CHARGE SPRING"	Yes/No	Yes	
4.15.5	4.10.5	Actuator(s) for local opening and closing of the circuit-breaker are labelled in accordance with 240-69125210	Yes/No	Yes	
4.15.6	4.10.5	Warning labels for manual operation of breaker with inadequate interrupting or insulation medium.	Yes/No	Yes	
4.15.7	4.10.5	A warning label is displayed within the operating mechanism enclosure to draw attention to the minimum time interval required between repeated CO operations during testing	Yes/No	Yes	
4.15.8	4.10.5	Function labels provided to identify all LV control equipment	Yes/No	Yes	
4.15.9	4.10.5	Function label text height (minimum)	mm	5	
4.15.10	4.10.5	Labels manufactured in accordance with 240-56062515	Yes/No	Yes	
4.16		Requirements for sulphur hexafluoride (SF6) gas (where applicable)			
4.16.1	4.11	SF6 is in accordance with IEC 60376	Yes/No	Yes	
4.16.2	4.11	The maximum SF6 gas leakage rate	%	0.5/year	
4.16.3	4.11	SF6 free content (purity) (minimum)	%	98	
4.16.4	4.11	Dew-point at rated filling pressure	°C	> -5	
4.16.5	4.11	Gas filling/evacuation points with DILO DN8 connections are provided	Yes/No	Yes	
4.16.6	4.11	Height of gas filling/evacuation point above ground (maximum)	mm	2 400	
4.16.7	4.11	Gas filling point and the gas pressure gauge separated	Yes/No	Yes	
4.16.8	4.11	Dial type gauge responding to SF6 density and indicating pressure compensated for temperature is provided (80 -100 mm dia.)	Yes/No	Yes	

1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.16.9	4.11	A medium density monitoring device (density switch), which may also be integrated into the dial type gauge as a dual function device, is provided.	Yes/No	Yes	
4.16.10	4.11	Pressure gauges numerical marking and calibration		kPa/MPa	
4.16.11	4.11	Gauges shall measure "absolute" pressure and shall be clearly labelled 'ABSOLUTE'	Yes/No	Yes	
4.16.12	4.11	Gauge rated pressure maximum percentage of the full-scale reading	%	80	
4.16.13	4.11	SF6 density monitoring device suitable for outdoor operation	Yes/No	Yes	
4.16.14	4.11	SF6 density monitoring device shielded against direct sunshine	Yes/No	Yes	
4.16.15	4.11	Non-return valves fitted on all DN8/DN20 fittings and pipe work to allow removal of poles and/or density monitoring device while maintaining system pressure	Yes/No	Yes	
4.16.16	4.11	Details of arrangement offered supplied with tender documentation	Yes/No	Yes	
4.16.17	4.11	Pipe work material		Stainless steel/Painted copper	
4.16.18	4.11	SF6 filling/evacuating and SF6 density monitoring point per pole provided (Separate/common)		Common	
4.16.19	4.11	Type of electrical connections to the density-monitoring device (non-plug in type)		XXXXXXXXXX	
4.16.20	4.11	Cabling to the medium density monitoring device protected using compression glands/grommets	Yes/No	Yes	
4.16.21	4.11	Details of all pressure devices provided with tender documentation	Yes/No	Yes	
4.16.22	4.11	Gas density monitoring device electrical interlocks and alarm requirements are in accordance with 240-56030489	Yes/No	Yes	
4.16.23	4.11	Pressure devices life span (minimum)	Years	40	
4.16.24	4.11	Management of SF6 gas in accordance with NRS 087	Yes/No	Yes	
4.17		Current Transformers			
4.17.1	4.13	Current transformers are manufactured and tested in accordance with SANS 60044-1	Yes/No	Yes	
4.17.2	4.13	Make of CT		XXXXXXXXXX	
4.17.3	4.13	Type of CTs		Ring	
4.17.4	4.13	Number of cores		XXXXXXXXXX	
4.17.5	4.13	The number of measurement and protection CT cores per phase, together with their position relative to the circuit-breaker and their respective specifications are in accordance with D-DT-5407	Yes/No	Yes	

1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.17.6	4.13	The CTs are properly fixed and mechanically supported so that no movement is allowed during transportation or service fault conditions	Yes/No	Yes	
4.17.7	4.13	CT short description		CT 22 kV_ 1250 A_ 25 kA 2P2M	
4.17.8	4.13	Core layout		PPMM	
4.17.9	4.13	Protection core ratio		1: 1200T MR	
4.17.10	4.13	Measuring core ratio		1200: 1 MR	
<b>4.18</b>		<b>Controlled switching</b>			
4.18.1	4.14	Full details of controlled switching provided in manuals/specifications	Yes/No	Yes	
4.18.2	4.14	The circuit breaker has been tested in accordance with SANS 62271-302	Yes/No	Yes	
4.18.3	4.14	Was the breaker tested independent or dependent of a particular controller, sensors and auxiliary equipment?		XXXXXXXXXX	
<b>4.19</b>		<b>Auxiliary and control circuits</b>			
4.19.1	4.15	Auxiliary and control circuit requirements are according to 240-56030489	Yes/No	Yes	
4.19.2	4.15	Circuit-breaker auxiliary and control circuit wiring interface is in accordance with D-DT-5407	Yes/No	Yes	
4.19.3		Auxiliary power supply provision		On site by Eskom	XXXXXXXXXX
4.19.4		Peak power requirement (maximum)	VA	XXXXXXXXXX	
4.19.5		Standby power requirements	VA	XXXXXXXXXX	
4.19.6		Spring charging motor control d.c. supply voltage range of operation	%	85 to 110	
4.19.7		Spring charging motor control d.c. current (peak starting)	A	< 30	
4.19.8		Spring charging motor control d.c. current (max continuous)	A	< 10	
4.19.9		Total time taken to charge spring	s	< 10	
4.19.10		Method offered for protection against continual motor running (over-run)		XXXXXXXXXX	
4.19.11		Automatic charging of closing spring	Yes/No	Yes	
4.19.12		Number of spare contacts of spring-limit-switch (SLS) provided		XXXXXXXXXX	
4.19.13		Breaker closing control d.c. supply voltage range of operation	%	85 to 110	
4.19.14		Breaker closing control d.c. power (peak)	W	≤ 500	
4.19.15		Number of close coils required		1	
4.19.16		Close coil current	A	XXXXXXXXXX	
4.19.17		Close coil resistance @ 20°C	Ω	XXXXXXXXXX	
4.19.18		Circuit-breaker equipped with anti-pumping circuitry	Yes/No	Yes	
4.19.19		D.C. isolation switch provided	Yes/No	Yes	
4.19.20		Circuit-breaker control circuit interlocks specification		XXXXXXXXXX	

1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.19.21		Circuit-breaker alarm circuits wiring specification		XXXXXXXXXX	
4.19.22		Auxiliary contacts a.c. and d.c. supply current	A	10	
4.19.23		Auxiliary contact N/O and N/C reference positions		Circuit-breaker opened, spring discharged, gas low, relay coils de-energised	
4.19.24		Number of low gas alarm contacts (N/C)		2	
4.19.25		Number of low gas block contacts (N/C)		2	
4.19.26		Spare breaker auxiliary switch contacts (N/C + N/O)		4 + 4	
4.19.27		Spare spring limit switch contacts (N/C + N/O)		3 + 3	
4.19.28		Number of spare terminals provided		≥ 6	
4.19.29		Terminal blocks to DSP 34-253, screw clamp, spring-loaded insertion type	Yes/No	Yes	
4.19.30		Terminal block width offered	mm	≥ 8	
4.19.31		Make of terminal block offered		XXXXXXXXXX	
4.19.32		Lugs (insulated hook blade type)		Crimped	
4.19.33		Earth sliding link types/equivalents		Weidmuller TVP SAKA 10	
4.19.34		Trunking provided on both sides of each terminal strip	Yes/No	Yes	
4.19.35		'Fine-tooth' trunking tooth width	mm	6.1	
4.19.36		Trunking size	mm	60 x 60	
4.19.37		CT and motor control circuit wires	mm <sup>2</sup>	2.5	
4.19.38		Control and other auxiliary wires	mm <sup>2</sup>	1.5	
4.19.39		Minimum number of wire strands		7	
4.19.40		CT wiring colour		Red/white/blue/black	
4.19.41		Earth wiring colour		Green/yellow	
4.19.42		Wiring identification		Ferruling	
4.19.43		Terminal strips numbered and designated as per drawing	Yes/No	Yes	
4.19.44		MCBs to SANS 60947-2 and IEC 60898	Yes/No	Yes	
4.19.45		MCB make and type		XXXXXXXXXX	
4.19.46		MCB I <sub>cu</sub> (min. = 5 kA)	kA	XXXXXXXXXX	
4.19.47		MCB I <sub>cs</sub> (min. = 5 kA)	kA	XXXXXXXXXX	
4.19.48		MCB utilisation category (SANS 60947-2)		'A'	
4.19.49		MCB maximum service voltage (min. = V <sub>n</sub> + 20%)	V	XXXXXXXXXX	
4.19.50		MCB rated voltage (d.c.)	V	≥ 250	
4.19.51		MCB pollution degree (SANS 60947-2)		≥ 3	
4.19.52		MCB suitable for isolation (SANS 60947-2)	Yes/No	Yes	
4.19.53		MCB protection curve		'C'	
4.19.54		MCB location		Mechanism enclosure	

1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.19.55		Circuit-breaker auxiliary and control circuit wiring interface (drawing number)		XXXXXXXXXX	
4.19.56	4.15	Bottom entry removable 3mm brass/aluminium LV gland plates (undrilled) provided	Yes/No	Yes	
4.19.57	4.15	Gland plate usable area (minimum)	mm <sup>2</sup>	200 x 100	
4.19.58	4.15	Securing of the gland plate (minimum)		6 x M8 screws with nuts and washers	
4.19.59	4.15	Terminal strips shall be arranged in a vertical orientation	Yes/No	Yes	
4.19.60	4.15	Earthing stud / terminals provided	Yes/No	Yes	
4.19.61	4.15	Distance between gland plate and terminal strip (minimum)	mm	150	
4.19.62	4.15	Earthing arrangement for at least 10 spare secondary cores available	Yes/No	Yes	
4.20		Nameplates			
4.20.1	4.16	The circuit breaker nameplate contains the necessary information specified in SANS 62271-100	Yes/No	Yes	
4.20.2	4.16	The breaker name plate contains the order and contract numbers	Yes/No	Yes	
4.20.3	4.16	The breaker name plate contains the Eskom stock (SAP) number	Yes/No	Yes	
4.20.4	4.16	The breaker name plate contains the rated single-phase short-circuit breaking current – if applicable	Yes/No	XXXXXXXXXX	
4.20.5	4.16	The breaker name plate contains the internal arc classification (IAC)	Yes/No	Yes	
4.20.6	4.16	The breaker name plate contains accessibility type (code)	Yes/No	Yes	
4.20.7	4.16	The breaker name plate contains arc test current and arc test duration	Yes/No	Yes	
4.20.8	4.16	Operating device nameplate contains the trip-coil rated voltage, current and d.c. resistance at 20°C	Yes/No	Yes	
4.20.9	4.16	Operating device nameplate contains the close-coil rated voltage, current and d.c. resistance at 20°C	Yes/No	Yes	
4.20.10	4.16	Operating device nameplate contains motor rated voltage and current (starting current and running current)	Yes/No	Yes	
4.20.11	4.16	Name plates are weather proof and corrosion resistant	Yes/No	Yes	
4.20.12	4.16	Method used to attach nameplates		XXXXXXXXXX	

1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.22		Documentation			
4.20.13	4.16	Nameplate material offered		Engraved aluminium/ stainless steel	
4.20.14	4.16	Duplicate nameplates provided for CTs on inside of operating mechanism enclosure front access door	Yes/No	Yes	
4.20.15	4.16	The actual ratings to which the circuit-breaker has been type-tested (and not merely the values specified) are displayed	Yes/No	Yes	
4.20.16		Name of manufacturer and year	Yes/No	Yes	
4.20.17		Type designation and serial no.	Yes/No	Yes	
4.21		Tools and spares			
4.21.1	4.17	A full set of operating tools necessary to carry out all mechanical (manual) operations of the circuit-breaker is supplied with each circuit-breaker (e.g. spring charging handle, etc.) (also, provide list on separate sheet)		1 set per circuit-breaker	
4.21.2	4.17	Operating tools fitted on inside of the front access door	Yes/No	Yes	
4.21.3	4.17	List of standard tools available for minor maintenance provided (provide list on separate sheet)	Yes/No	Yes	
4.21.4	4.17	List of specialised tools available for major maintenance purposes provided (provide list on separate sheet) if necessary	Yes/No	XXXXXXXXXX	
4.21.5	4.17	List of spares available for maintenance (provide list on separate sheet)	Yes/No	Yes	
4.21.6	7.3	Required lead time for spares required under emergency breakdown conditions from date of purchase order (maximum)	Hours	24	
4.22.1	4.18	General arrangement drawing (provide drawing number on separate sheet)	Set	1	
4.22.2	4.18	Drawing of all insulators used in the circuit-breaker (provide drawing number on separate sheet)	Set	1	
4.22.3	4.18	Generic layout of nameplates (provide drawing number on separate sheet)	Set	1	
4.22.4	4.18	Generic auxiliary and control circuit schematic wiring diagram (provide drawing number on separate sheet)	Set	1	
4.22.5	4.18	General arrangement drawing of the operating mechanism enclosure	Set	1	
4.22.6	4.18	List of spare parts with prices for each circuit-breaker offered (provide list on separate sheet)	Set	1	



1	2	3	4	5	6
Item #	Reference	Description	Units	Schedule A	Schedule B
4.22.7	4.18	List of all operating tools for each circuit-breaker offered (provide list on separate sheet)	Set	1	
4.22.8	4.18	List of all standard minor maintenance tools for each circuit-breaker offered (provide list on separate sheet)	Set	1	
4.22.9	4.18	List of all specialised major maintenance tools for each circuit-breaker offered (provide list on separate sheet)	Set	1	
4.22.10	4.18	Full list as well as copies of type test certificates and reports (provide report numbers on separate sheet)	Set	1	
4.22.11	4.18	Generic routine test certificates for each circuit-breaker	Set	1	
4.22.12	4.18	Transport, storage, installation, operating and maintenance manuals	Set	1	
4.22.13	4.18	Training material	Set	1	
4.22.14	4.18	All other relevant additional information requested	Set	1	
4.22.15	4.18	To be supplied with each breaker - Schematic wiring diagram for circuit-breaker	Set	1	
4.22.16	4.18	To be supplied with each breaker - Complete set of routine test certificates for circuit-breaker	Set	1	
4.22.17	4.18	To be supplied with each breaker - Commissioning and hand-over test sheet	Set	1	
4.22.18	4.18	To be supplied with each breaker - Transport, storage, installation, operating and maintenance manuals	Set	1	
4.23		<b>Packaging requirements</b>			
4.23.1	4.19	Each individual circuit-breaker unit packed	Yes/No	Yes	
4.23.2	4.19	Containers (e.g. wooden crates) suitable for transport and storage over long periods (for up to 18 months)	Yes/No	Yes	
4.23.3	4.19	Packaging designed to prevent damage to components during transportation and storage on site	Yes/No	Yes	
4.23.4	4.19	Suitable ventilation provided to minimise condensation	Yes/No	Yes	
4.23.5	4.19	Packaging able to withstand impact loadings of at least 18 kN	Yes/No	Yes	
4.23.6	4.19	Each crate clearly and sequentially marked	Yes/No	Yes	
4.23.7	4.19	Each container/crate clearly marked with a durable label using an indelible font with all specified information in ESP 32-1166	Yes/No	Yes	

4.23.8	4.19	Exposed shafts, bearings and machined surfaces treated with a temporary anti-corrosive coating	Yes/No	Yes	
4.23.9	4.19	Loose components or components that are subject to damage from exposure to dust or water packed in hermetically sealed plastic bags	Yes/No	Yes	
4.23.10	4.19	All components clearly marked	Yes/No	Yes	
4.23.11	4.19	Fork-lift lifting points provided on the packaging - where applicable	Yes/No	Yes	
4.23.12	4.19	External temporary 230 V a.c. connection point for the heater circuit provided	Yes/No	Yes	
4.23.13	4.19	Non-resettable impact recorder/detector provided	Yes/No	Yes	
4.23.14	4.19	Circuit-breaker transported with a positive gas pressure of maximum 150 kPa - where applicable	Yes/No	Yes	
4.23.15	4.19	Copy of the BOM shall be provided with the delivery note	Yes/No	Yes	
5		<b>Miscellaneous</b>			
5.1		Guarantee period	Years	XXXXXXXXXX	
5.2	7.3	Required period for spares availability	Years	25 years after discontinuation of switchgear	
6		<b>Training requirements</b>			
6.1	9	Training offered in accordance with 240-56065202	Yes/No	Yes	
E N D    E N D    E N D					
<b>SUPPLIER DETAILS</b>					
Supplier name					
Signature					
Date					

**Annex F – Summary of desktop scoring****(Sheet 1 of 4)**

This summary is based on the ECOU addendum for the 22 kV KIOSK MV circuit breaker.

<b>3.1 Mandatory submissions – Stage 1 (Gatekeepers)</b>	
Submissions	Submitted [Yes/No]
a) Completed A & B Schedules	
b) Completed Annex B – Type test reports listing	
c) Outlines or general arrangements drawings (provide drawing numbers)	
d) Detailed primary and secondary wiring diagrams	
e) Rating/Name plates	
f) Installation manual	
g) Operation manual	
h) Maintenance manual	
i) Annex A to Annex E (Submit ALL these annexures)	
<b>NOTE : FAILURE TO SUBMIT ANY OF THE TENDER RETURNABLES IN STAGE 1 ABOVE SHALL RENDER THE TENDERER NON-RESPONSIVE AND WILL BE DISQUALIFIED FOR FURTHER EVALUATION</b>	

<b>3.2 Schedules A &amp; B</b>		<b>Points = 50</b>
Item	Correct submission [Yes/No]	
a) Rated voltage		
b) Rated power-frequency withstand voltage		
c) Rated lightning impulse withstand voltage		
d) Rated frequency		
e) Rated continuous current		
f) Rated short-time withstand current		
g) Rated peak withstand current		
h) Rated duration of short circuit		
i) Rated d.c. supply voltage of closing and opening devices and of auxiliary control circuits		
j) Rated operating sequence for circuit breaker		
k) Unified Specific creepage distance		
l) Current transformer number of cores		
<b>All items a) to l) must match the Schedule A for the 12 points to be earned. For any incorrect submission 0 point would be earned by the tenderer.</b>	Points obtained	
	/ 12	
<b>For the rest of Schedule B submissions, the tenderer will earn 0.11912 point for each correct entry.</b>	Points obtained	
	/ 38	
<b>Total points obtained</b>	<b>/ 50</b>	

## Annex F – Summary of desktop scoring

(Sheet 2 of 4)

<b>3.10 General arrangement drawings</b>		<b>Points = 15</b>
Completion of Annex A	Points obtained	
		/ 5
Items indicated in Annex A are shown in drawings	Points obtained	
		/ 10
<b>Total points obtained</b>		<b>/ 15</b>

<b>3.13 Type test reports</b>		<b>Points = 30</b>
Critical tests	Correct submission [Yes/No]	
Equipment insulation level (SANS 62271-100 6.2)		
Temperature rise and measurement of resistance of circuits (SANS 62271-100 6.5 & 6.4)		
Current withstand - main circuit (SANS 62271-100 6.6)		
Kiosk circuit-breaker short-circuit making and breaking capacities (SANS 62271-100 6.102 to 6.106)		
Circuit-breaker mechanical operation (SANS 62271-100 6.101.2.1 - 6.101.2.3)		
Additional tests on auxiliary and control circuits (SANS 62271-100 6.10)		
Test under conditions of arcing due to an internal fault as per IEC 62271-200		
Insulator tests (as per 240-142598739)		
Current transformer tests according to SANS 60044-1		
Completion of Annex B	Points obtained	
		/ 3
Submission of test reports for <b>Critical Tests</b>  <b>For any incorrect submission, a score of 0 point will be earned.</b>	Points obtained	
		/ 17
Submission of test reports for Additional Tests	Points obtained	
		/ 10
<b>Total points obtained</b>		<b>/ 30</b>

## Annex F – Summary of desktop scoring

(Sheet 3 of 4)

<b>3.15 Training commitment by the tenderer</b>		<b>Points = 5</b>
<i>Total points obtained</i>		<b>/ 5</b>

<b>GRAND TOTAL</b>	<b>/ 100</b>
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