

Annex C – System Voltage: 275kV

Schedule A: Eskom's particular requirements.

Schedule B: Guarantees and technical particulars of equipment offered

Item	Description	Unit	Schedule A	Schedule B
1	Surge arrester identification.			
1.1	Manufacturer.		-	
1.2	Type designation of arrester.		-	
2	Site and service conditions.			
2.1	Electrical conditions of service.			
2.1.1	Nominal system voltage (U_n).	kV	275	
2.1.2	Maximum system voltage (U_m).	kV	300	
2.1.3	Basic insulation level of equipment to be protected.	kV _(peak)	1 050	
2.1.4	Frequency of supply.	Hz	50	
2.1.5	System earthing.		Effectively Earthed	
2.2	Site conditions of service.			
2.2.1	Altitude.	m	Up to 1 800	
2.2.2	Maximum ambient temperature.	°C	40	
2.2.3	Minimum ambient temperature.	°C	-10	
2.2.4	Maximum diurnal variation.	°C	30	
2.2.5	Pollution condition as per IEC 60815	mm/kV	>25	
2.2.6	Intensity of solar radiation.	(U_m)	1.1	
2.2.7	Live spray washing.	kW/m ²	No	
3	Electrical characteristics.			

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3.1	Arrester classification.			
3.1.1	IEC long duration class.		4	
3.1.2	Nominal discharge current.	kA _(peak)	20	
3.2	Arrester ratings.			
3.2.1	Continuous operating voltage.	kV	192	
3.2.2	Rated voltage.	kV	240	
3.2.3	Arrester power frequency reference voltage.	kV	-	
3.2.4	Nominal lightning discharge current.	kA _(peak)	20	
3.2.5	High current (4/10 μ s)	kA _(peak)	100	
3.3	Arrester temporary voltage TOV (with a prior energy stress of two line discharges of class 4):			
3.3.1	1 μ s (not greater than).	kV _(peak)	276	
3.4	Peak residual voltage for 8 / 20 μ s current impulse of the following magnitudes:			
3.4.1	5 kA (not greater than).	kV _(peak)	547	
3.4.2	10 kA (not greater than).	kV _(peak)	576	
3.4.3	20 kA (not greater than).	kV _(peak)	622	
3.4.4	30 kA (not greater than).	kV _(peak)	680	
3.5	Operating duty test 1.			
3.5.1	Preferred arrester energy capability expressed as kilojoule per kV rated.	kJ/kV _r	12	
3.5.2	Total energy absorption capability.	kJ	-	

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3.6	Surge arrester expected life at 40°C and maximum continuous operating voltage, longer or equal than.	years		
3.7	Arrester insulation withstand with internal parts removed (at sea level).			
3.7.1	Lightning impulse (1,2/50µs) withstand level.	kV _(rms)	1 050	
3.7.2	Switching impulse (250/2500µs) withstand level.	kV _(peak)	850	
3.8	External insulation dimensions.			
3.8.1	Specific Creepage for external insulation (not less than).	mm/kV	25	
3.8.2	External flashover distance (at least).	mm	2 100	
4	Arrester construction details.			
4.1	Number of MOV elements in series per stack.		-	
4.2	Number of stacks in parallel.		-	
4.3	Dimensions of MOV elements.			
4.3.1	Outside diameter of MOV element	mm	-	
4.3.2	Inside diameter (if applicable).	mm	-	
4.3.3	Length (thickness).	mm	-	
4.4	Arrester mounting.			
4.4.1	Overall height of line terminal above arrester base or mounting bracket.	mm		
4.4.2	Method of mounting.			

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4.4.3	Diameter of voltage grading ring (if applicable).	mm	-	
4.4.4	Distance of grading ring from top of arrester.	mm	-	
4.5	Line terminals.			
4.5.1	Line terminal with stem: - Diameter. - Minimum length. - Orientation.	mm mm	Specify Specify Specify	
4.5.2	Other type of line terminal to be suitable for clamping of the following conductor (shunt): - Material. - Type. - Cross section dimensions.	mm	Specify Specify Specify	
4.6	Earth terminal to be provided with clamp suitable for the following conductor:		-	
4.6.1	Material.		Specify	
4.6.2	Type.		Specify	
4.6.3	Cross section dimensions.	mm	Specify	
5	Mechanical characteristics.			
5.1	Minimum fracture moment.	Nm	-	
5.2	Maximum permissible horizontal force.	N	-	
6	Miscellaneous.		-	

6.1	Colour of housing.		-	
6.2	Type of housing (silicon polymer).		-	
6.3	Mass of completely assembled single pole arrester.	Kg	-	
6.4	External diameter of arrester housing	mm	-	
6.5	Special arrester identification other than nameplate.		-	
6.6	Number of instruction/application manuals to be supplied.		3	