

ANNEXURE C (KEBU_SPEC_004)

TECHNICAL COMPLIANCE SCHEDULES A AND B FOR
GROUND-MOUNTED CLOSED BUSHING DISTRIBUTION TRANSFORMERS

Schedule A: Keetmanshoop Electricity Business Unit specific requirements

Schedule B: Guarantees, Technical Compliance and technical particulars of equipment offered

Item	Sub-clause of SANS 780	Description	Unit	Schedule A	Schedule B
1		Identification Name of manufacturer Place of manufacture Product code for transformers Does transformer bear the SABS mark SABS permit number		xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx Must bear SABS Approved Mark xxxxxxxxxx	
2		Number of units required a) firm b) optional		Refer to the List of Goods and Price Schedule	xxxxxxxxxx xxxxxxxxxx
3	4	Ratings Power rating	kVA	100 / 200 / 315 / 630	
	4.5	Rated primary voltage	kV	11	
		Rated no-load secondary voltage	V	420	
		Frequency	Hz	50	
		Number of phases (single-phase/three-phase)		3ph	
		Vector group (Dyn11 or Yzn11)		Dyn11	xxxxxxxxxx
3	4.6	Insulation levels BIL - Primary BIL - Secondary Power frequency withstand voltage - Primary Power frequency withstand voltage - Secondary	kV kV kV kV	95 30 28 8	
4	5.2	Tapping connections Type of operating handle Tapping range Off circuit tap switch operating padlockable	% Yes/No	Switch 0, ± 2.5, ± 5 Yes	
5	5.6	Losses, if other than as specified a) no-load losses b) load losses	W W	refer to detail spec refer to detail spec	
6	8.4	Dimensions (not exceeding underbase) a) overall height b) overall length c) overall width Total mass Oil capacity	mm mm mm kg l	xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx	
7	8.5	Constructional details and fittings (see table 3 of SANS 780)		as per table 3 of SANS 780	xxxxxxxxxx
	8.8	Windings MV - material (Cu/Al) - type (e.g. Round, Strip or Foil) LV - material (Cu/Al) - type (e.g. Round, Strip or Foil)		Cu xxxxxxxxxx Cu xxxxxxxxxx	
8	8.9	Tank and tank cover Tank type (Sealed/free-breathing)		Sealed with Bolted Cover	
	8.9.4	Expansion space	%	xxxxxxxxxx	
	8.9.6	Tank cover of sealed transformer to be bolted, if so agreed		Bolted Top Covers Required	
	8.9.11	Pressure-relief device	Yes/No	Yes	
9	8.10	Conservator (Removable conservator tank painted white in colour) Conservator filter arrangement. Conservator drain plug.	Yes/No Yes/No Yes/No	Yes Yes Yes	xxxxxxxxxx

10	8.12	Bushings, cable boxes and terminal arrangement			
	8.13.1	The type of arrangement required in an air-filled arrangement (i.e. type 3 or 4)		type 3	xxxxxxxxxx
	8.13.2	Number and type of connection required		Refer to Table 4.3 of the detail specs	xxxxxxxxxx
	8.14	Terminations (Cable box or outdoor) Medium-voltage bushings		Cable box	xxxxxxxxxx
		a) material		porcelain	
		b) creepage distance	mm	xxxxxxxxxx	
		BIL	kV	95	
		Low-voltage bushings			
		a) material		xxxxxxxxxx	
		b) creepage distance	mm	xxxxxxxxxx	
		BIL	kV	30	
		Number of conductors per terminal		Refer to detail specs	xxxxxxxxxx
		Position of bushings		Side mounted	
	8.14.2	The form of protection against accidental contact with an MV overhead line connection		xxxxxxxxxx	
	8.14.3	The mounting position of bushings		Side mounted	xxxxxxxxxx
		11 kV air insulated MV cable box bottom entry	Yes/No	Yes	
		420 V Air insulated LV cable box bottom entry	Yes/No	Yes	
	8.15	Mounting of an MV surge arrester on a transformer with outdoor bushings	Yes/No	No	xxxxxxxxxx
11	8.16	Breather (Oil sealed silica gel breather)	Yes/No	Yes	
12	8.17	Oil-level gauge / Indicator (> 400 kV sealed)	Yes/No	Yes	
13		Transformer underbase			
	8.20	Underbase (Flat/skid)		Skid	xxxxxxxxxx
	8.20.4	Fixing hole spacing details		xxxxxxxxxx	
	8.20.5	Mounting holes	Yes/No	xxxxxxxxxx	
14		Lifting lugs			
		Lifting lugs required	Yes/No	Yes	
		Hole diameter	mm	>30	
15	8.21	Details of jacking pads for transformers greater than 315 kVA		xxxxxxxxxx	
16	8.23	Corrosive environment (High/low) Installation Site: (Inland/ Coastal) Installation method: (Indoors or Outdoors or both)		Low Inland Indoors and Outdoors	xxxxxxxxxx
17		Colours of finishing coats		Tank: "Avo Green" Conservator "White" Radiator: "Galvanised"	
18	8.24.1	Insulating material , if other than specified			
19	8.24.2	Cooling method Cooling tubes.	Yes/No	ONAN Yes	xxxxxxxxxx
20	8.25.1	Overload protection Open/close convention, if other than specified	Yes/No	No	xxxxxxxxxx
21	8.25.2	MV fuses	Yes/No	No	xxxxxxxxxx
22		No-load voltages			
	8.26	Number of phases, rated primary and secondary no-load voltages		xxxxxxxxxx	
23	8.27	Impedance voltage , if other than specified		Yes	
24	10	Other Requirements			
		20 BSP Drain valve.	Yes/No	Yes	
		Earthing terminals.	Yes/No	Yes	
		Air release plug.	Yes/No	Yes	
		Dial type Oil thermometer with contacts	Yes/No	Yes	
		Tank stiffeners.	Yes/No	Yes	
		Rollers that are uni-directional in one direction e.g. to and from movements only	Yes/No	Yes	
		Buzholts (Provision only with Spacer pipe between conservator tanks and Main tank)	Yes/No	Yes	
25	10	Tests			
		Number of copies of routine test results to be provided		2 (Two)	
		Details of previous type-test results		Yes	
		Type-test certificate serial numbers and dates		xxxxxxxxxx	
		The sequence of panels of depth exceeding 260 mm in the corrugated tank fatigue test		xxxxxxxxxx	
		Short-circuit withstand test	Yes/No	refer to detail spec	
		Sound level determination	Yes/No	refer to detail spec	