

TRANSFORMER BASIC INFORMATION

Design No : 50KVA M-1

Transformer Type	DT	Ref. Standard	IEC	Design Date	
Rating	50 KVA	Efficiency	Level 1	Impedance (Normal Tap)	4 %
HV	11000 V	Vector Group	Dyn11	Tolerance on Impedance	±10 %
LV	415 V	Phase	Three	Flux Density	1.59 Tesla
Cooling		Winding	Two Winding	Core Building Factor	1.25
Cooling Type	Rating	Frequency	50 Hz	Cooling Fluid	Mineral Oil
ONAN	50	Ref.Temp.	75 °c		
Ambient Temp.	50 °c	Tapping On	HV		
Oil Temp. Rise	40 °c	Tapping Range	-7.5 % to 2.5 %	Tapping Type	OCTC
Winding Temp. Rise	50 °c	Step Value	2.5 %		
Core Type	S Type StepLap				
Tank Type	Elliptical tube radiator (No conservator)				
Class of Insulation	A	Conductor Material	Copper		
Current Density (Amp/mm², Max.)			Gradient (°c, Max)		
LV	HV	-	LV	HV	-
3.2	3.2	-	20	20	-

WINDING DETAILS (Copper Wound)

Design No : 50KVA M-1

Rating : 50 KVA 11 / 0.415 KV

DESCRIPTION		Cooling Type	ONAN	Vector Group	Dyn11
Rating (KVA)	50	HV Voltage	11000	LV Voltage	415
HV Current(A)	2.63	LV Current(A)	69.56	Taps (V)	-7.5 to 2.5

PARAMETERS	UNIT	LV	HV
Type of winding		Layer	CO
Winding direction		L-R	L-R
Minimum turns	No	-	3227
Normal turns	No	76	3489
Maximum turns	No	-	3576
Rated Phase current	Amp	69.56	1.52
Discs / Layers/ Coils	No	4	4
Coils of Disc/ Foil	No	-	-
Turns per Coil	No	-	894
Layers	No	-	24
Turn per Disc / Turn per Layers	No	19	38
Insulation between Discs/ Layers (Axial)	mm	0.2	0.12
Ducts	No	-	-
Size of each duct	mm	-	-
Type of conductor		Rectangular	Round
Type of conductor covering	No	S.E	S.E
Conductor radially	No	1	1
Conductor axially	No	1	1
Total conductors	No	1	1
Bare conductor width/ conductor diameter	mm	8	0.9
Bare conductor thickness	mm	3	-
Paper covering over conductor (both side)	mm	0.5	0.1
Insulated conductor thickness	mm	3.5	1
Diameter compensation of insulation	mm	-	-
Radial thickness of winding	mm	15	27
Radial clearance between Core-LV/ LV-HV/ HV-Reg	mm	2.5	6
Inside diameter	mm	114	156
Outside diameter	mm	144	210
Height of total Disc (Electrical Height)	mm	170	158
Insulation gap between HV and tap section (Axially)	mm	-	-
Height of insulation	mm	-	12
Insulation for Gap between coils	mm	-	4
Extra packing	mm	-	-
Over all axial length of Winding (Physical Height)	mm	170	170
Top clearance	mm	8.5	8.5
Bottom clearance	mm	8.5	8.5

Leg Length/WH	mm	185	Core Diameter	mm	109
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Center Length/WW	mm	225	Phase to phase clearance	mm	12
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Tech. Parameter	Guar.	Design	Resistance in Ohms at 75 °C		Ambient	Temp. Rise (°C)	
			LV (Ohms)	0.02875	Temp.(°C)	Winding	Oil
Gradient LV	-	19.7544	HV (Ohms)	68.11162	50	50	40
Gradient HV	-	3.277	Losses @ 50 & 100 % Load		Copper Weight Detail (Kg)		
I ² R @ 75°C LV	-	417.33	50 % Load	344.91 (W)	LV Copper	21	
I ² R @ 75°C HV	-	460.61	100 % Load	1041.77 (W)	HV Copper	38.52	
Eddy Loss	-	29.902	Total Load Losses At 100% Load		Conductor Length (Mtrs)		
Stray Loss	-	36.26	@ Lowest Tap	964.48 (W)	LV	31.8	
No Load Loss (W)	140	112.62	@ Highest Tap	916.12 (W)	HV	2056.2	
Load Loss (W)	936	929.15					
Total Loss (W)	-	1041.77					
%R	-	1.86					
%X	-	3.54					
%Z	4	4					