TECHNICAL SPECIFICATION OF 1000 KVA TRANSFORMER **(Ref. No: NIN/ST/12/Transformers/2017-18/7317-7321)**			
1.01.	**GENERAL SPECIFICATIONS**		
1	Rated KVA		**1000**
2	Service & Duty		Continuous
3	Make		Reputed make
4	Type		Core Type - Oil Immersed
5	Location		Outdoor
6	Specifications & Standard as per IS		IS 2026
7	Type of Cooling		ONAN
8	Wound		Copper Double Wound
1.02.	**SYSTEM PARTICULARS**		
1	Nominal Voltage (V)		11000
2	Highest System Voltage (V)		12000
3	No. Of Phases		3
4	Frequency (Hz)		50
5	Voltage Variation		+ / - 5%
6	Frequency Variation		+ / - 3 %
7	Combined Voltage & Frequency Variation		+ / - 5%
8	Terminal Arrangement	HV	Bare Bushings Porcelein
		LV	Busduct Epoxy moulded
1.03.	**RATING**		
1	Rated Voltage of H.V. (Volts)		11000 Current: 52.49 amps
2	Rated Voltage of L.V. (Volts)		433 Current: 1333.37 amps
3	Max. Temperature rise above 50 C ambient		
	temperature of winding by resistance		
	method. (Deg. C)		55
4	Max. Temperature rise in oil by		
	thermometer above 50 C ambient		
	temperature (Deg. C)		50
5	Over load capacity		As per IS: 6600
1.04.	**WINDING CONNECTION DETAILS**		
1	Connections		
	a. H.V. Winding		Delta
	b. L.V. Winding		Star
	c. Neutral brought out for earthing		Yes
2	Tapings		OLTC
	a. No. of Positions		17
	b. Range		+ 10% to -10 % in steps of 1.25 %
	c. Voltage of each step		137.5
3	Vector Symbol		Dyn11
1.05.	**LOSSES AND OTHERS**		
1	No load losses at rated frequency and		
	Voltage (Watts)		1200
2	Copper losses at rated current and rated		Subject to IS Tolerance
	frequency at 75 deg. C (Watts) At Normal Tap.		12500
3	Percentage Impedance at 75 deg. C at		
	Normal Tap.		6.00
4	No load Current Approx		1.5% of full load current
5	Regulation at full load at 75 deg. C u.p.f.		1.270%
6	Regulation at full load at 75 deg. C 0.8 u.p.f.		3.89%

1.06. EFFICIENCY					
1	Efficiency at 75 deg. C	U.P.F.	0.8 P.F.		
	a. 100 % full load	98.73	98.42		
	b. 75% full load	98.97	98.71		
	c. 50 % full load	99.16	98.95		
	d.25% full load	99.18	98.98		
3	Load at which Max. efficiency occurs KVA	352.62			
4	Maximum Efficiency	99.22			
1.07. CONSTRUCTIONAL DETAILS					
1	Type of Construction	Core Type			
2	Insulation between laminations	Carlit			
3	Type of joint between core limb and yoke	Mitered			
4	Type of Winding				
	a. HV Winding	Disc/Crossover			
	b. LV Winding	Spiral / Helical			
1.08. WINDING INSULATION LEVEL					
	a. HV Winding (KV uniform)	11			
	b. LV Winding (KV uniform)	1.14			
1.09. INSULATION OF CONDUCTORS					
	a. HV Winding turn Insulation	DPC			
	b. LV Winding turn Insulation	DPC			
	c. Between HV and LV Winding	Oil Duct + Solid Cylinder + Oil Duct			
	d. Between LV Winding and Core	Solid Cylinder			
1.10. TYPE OF JOINTS IN WINDING		Brazed			
1.11. MINIMUM CLEARANCES					
	H.V.to Earth (mm)				
	In Oil	25			
	Out of Oil	280			
	L.V. to Earth (mm)				
	In Oil	7			
	Out of Oil	20			
1.12.TEST VOLTAGES					
	a. Impulse (1.2 / 50 micro second wave)				
	withstand voltage				
	H.V. Winding (KV peak)	75			
	L.V. Winding (KV peak)	N. A.			
	b. One minute power frequency				
	withstand voltage				
	H.V. Winding (KV)	28			
	L.V. Winding (KV)	3			
1.13. DETAILS OF TANK AND MATERIALS M.S.					
1	Thickness of side plates (mm)	5			
2	Thickness of bottom plates (mm)	8			
3	Thickness of cover plates (mm)	8			
4	Thickness of radiator (pipes or sheets)	1.2mm			
1.14. WEIGHTS AND DIMENSIONS (APPROX.)					
1	Net untanking Weight (Kg.)	1530			
	(Core and windings with clamps)				
2	Volume of insulating Oil (Ltr.)	990+300 Ltrs			
3	Tank and fittings (Kg.)	1670			
4	OLTC Weight (Kg) with Oil	610			
5	Total Weight of Transformer (Kg.)	4300			
6	Overall dimensions of the Transformer	Length	Breadth	Height	
	(approx.) in mm	2800	2900	2200	

1.15.	**ARTS TO BE DETACHED FOR TRANSPORT**	Rollers, Breather , Radiators
1.16.	**STANDARD FITTINGS AND ACCESSORIES**	

S.No.	DESCRIPTION	QTY.
1	Rating and terminal marking plate	One
2	Earthing Terminals	Two
3	Lifting Lugs	Four
4	On Load Tap changer OLG make surge relay	One
5	Conservator with Drain plug	One
6	Oil filling hole with cap	One
7	Oil Level Indicator	One
8	Dehydrating Silicagel Breather	One
9	Air release device	One
10	Thermometer Pockets	Two
11	Drain valve with blanking plate	One
12	Filter valve with blanking plate	One
13	Explosion vent with double diaphragm	One
14	Detachable Radiators	Four
15	Uni-directional Flat Rollers	Four
16	Separate Neutral Bushing	One
17	GOR with A&T Contacts	One
18	Oil Temp Indicator with A&T	One
19	Winding Temperature Indicator with A&T	One
20	Magneting Oil Gauge with A&T	One
21	Marshaling Box	One
22	HV Bare Bushings	Three
23	L.V Busduct	Four
24	Jacking pads	Four
25	RTCC Pnel	One
26	AVR	One
1.17.	**DETAILS OF ON LOAD TAP CHANGING GEAR:**	
1	Make	OLG
2	Type	High Resistor transition
3	Rating	
	Rated Voltage KV	11
	Rated Curren Amps	200
	Step voltage	137.5
	No.steps	9
4	Control	Local / Manual / electrical
5	Auxillary supply details	250 VA, 250 / 55 - 0 - 55 V
6	Voltage control	110V
7	Line drop compensation	---
8	Paralle operation	---
9	Protective devices	Oilsurge relay & Fuses.
10	Approx. Overall weight kg with Oil kg	610
11	Approx. Overall dimensions mm	1311 x 830 x 840
12	Approx. Overall quantity of oil Ltrs.	282
1.18.	**PAINTING**	
1	Surface preparation	By Grit Blasting
2	Paint	Enamel Light Grey, Shade No.631, of IS : 5
1.19.	**TESTS**	
1	**ROUTINE TESTS**	
	As per IS: 2026 all the routine tests are carried out.	

NOTE: The transformer make should be approved as per the CEIG / CEA & TSSPDCL norms.