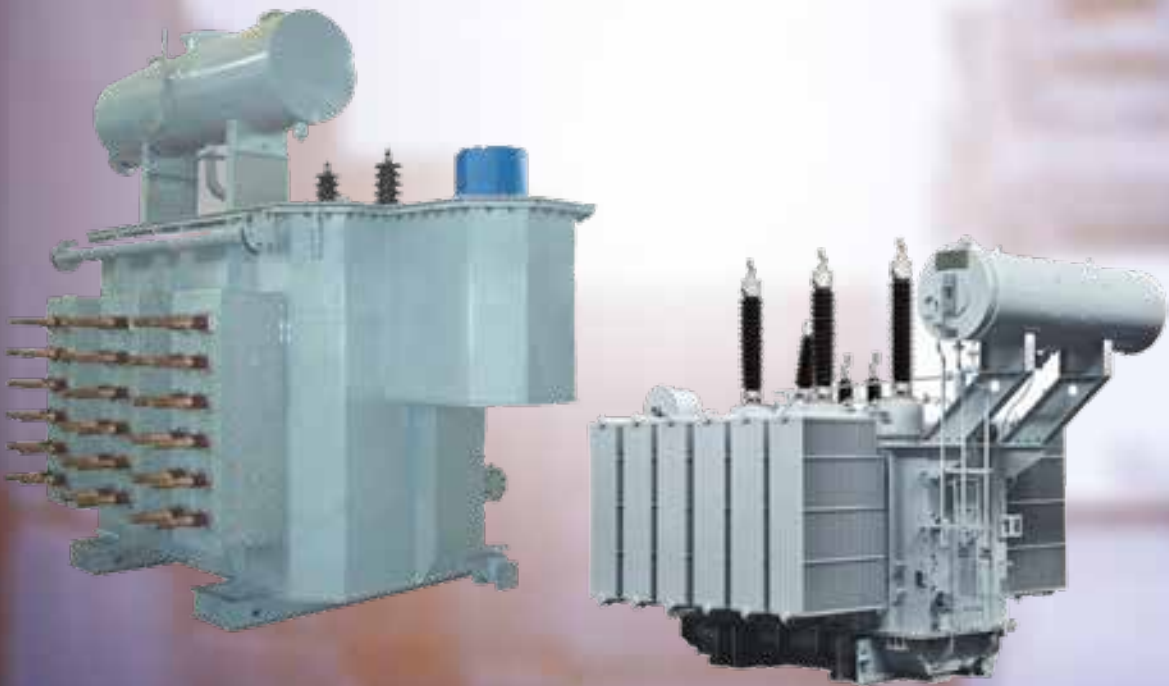


TRANSFORMER





Leading The Future of Electrification

- A Global Heritage Brand with 130 Years of Product Innovation
- Perfect Products, Creative Services, and Competitive Price

**Since 1886,
Westinghouse
Has Brought
The Best
To Life.**

Westinghouse remains a trusted name globally in consumer and industrial products. Built on a heritage of innovation and entrepreneurial spirit, Westinghouse products were the first to supply the United States with AC electric power, transmit a commercial radio broadcast and capture man's first step on the moon. Today, Westinghouse continues to grow its diverse portfolio with a wide range of product categories that include home appliances, consumer electronics, lighting and power generation.

PRODUCT TEST REPORT & CERTIFICATES

The quality assurance programs of WESTINGHOUSE are mandatory require to executed to guarantee its high quality performance. In accordance with IEC & Chinese GB standard or customized requirements to design and implement produce equipments.

We did well in process of equipment under 1S09001, 1S014001 and OHSAS1800.

Honors of test report and certificates were awarded from independent laboratory which had been authorized by KEMA, Nederland B.V.& China National Transformer Quality Supervision Testing Center.

The certified transformers by KEMA are as following.

- 180MVA, 220kV/121kV/10.5kV, power transformer

- 50MVA, 110kV/38.5kV/11kV, power transformer

- 16MVA, 35/ 0.4kV, distribution transformer

The certified transformers by CTQC are as following.

- 150MVA, 220kV/110kV/10.5kV, power transformer

- 50MVA, 110/10.5kV, power transformer

**Advanced production and test equipments,
Complete and perfect processing equipments ,
and scientific and rational processing technology,**

Transformer



Contents

1. 220kV Power Transformer		2
2. 110 / 66kV Power Transformer		10
3. 35kV Power Transformer		15
4. 20kV Distribution Transformer		18
5. 10kV Distribution Transformer		20
6. Amorphous Alloy Core Distribution		22
7. Dry type Transformer		24
8. Single phase Pole Mounted Transformer		30
9. Completely Self Protected Transformers		32
10. Rectifier Transformer		34
11. Furnace Transformer		36
12. Step Voltage Regulator		40
13. Three phase step voltage regulator		43
14. Pad-mounted Transformer		45
15. Prefabricated Transformer		47
16. Integrated Solar Substations and Inverter Stations		50

220kV POWER TRANSFORMER

Transformer



SUMMARY

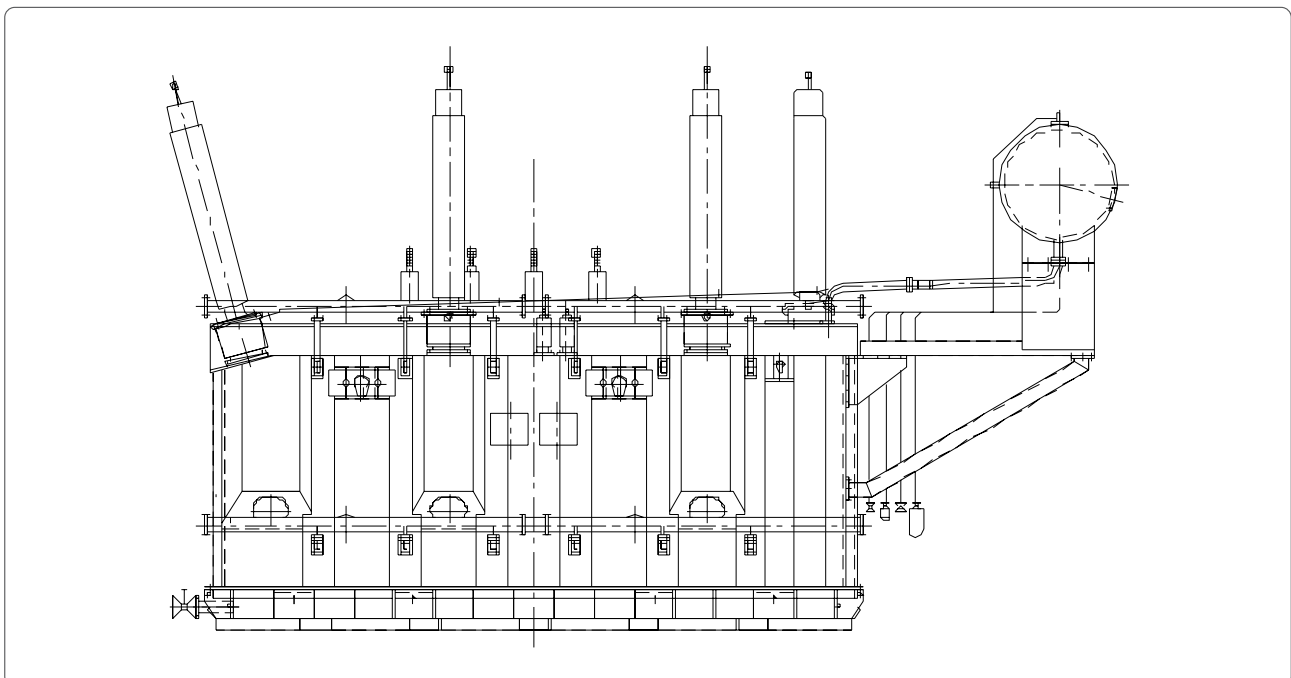
Environmental Conditions

>

220kV Three-phase Duplex-winding Non- eld Excitation Changing Power Transformer

Rated capacity (kVA)	Voltage ratio		Vector group	No-load loss (kW)	load loss (kW)	No-load current (%)	Short circuit impedance (%)	
	HV	LV						
31500	220 ± 2 × 2.5% 242 ± 2 × 2.5%	6.3	YNd11	28.0	128	0.56	12 - 14	
40000		6.6		32.0	149	0.56		
50000		10.5		39.0	179	0.52		
63000		10.5		10.5	46.0	209		0.52
75000					53.0	237		0.48
90000					64.0	273		0.44
120000		13.8		10.5	75.0	338		0.44
150000					89.0	400		0.40
160000		15.75		10.5 、 13.8	93.0	420		0.39
180000					102	459		0.36
240000		18 、 20		15.75	128	538		0.33
300000					154	641		0.30
360000		15.75		18	173	735		0.30
370000					176	750		0.30
400000		20		20	187	795		0.28
420000	193		824		0.28			

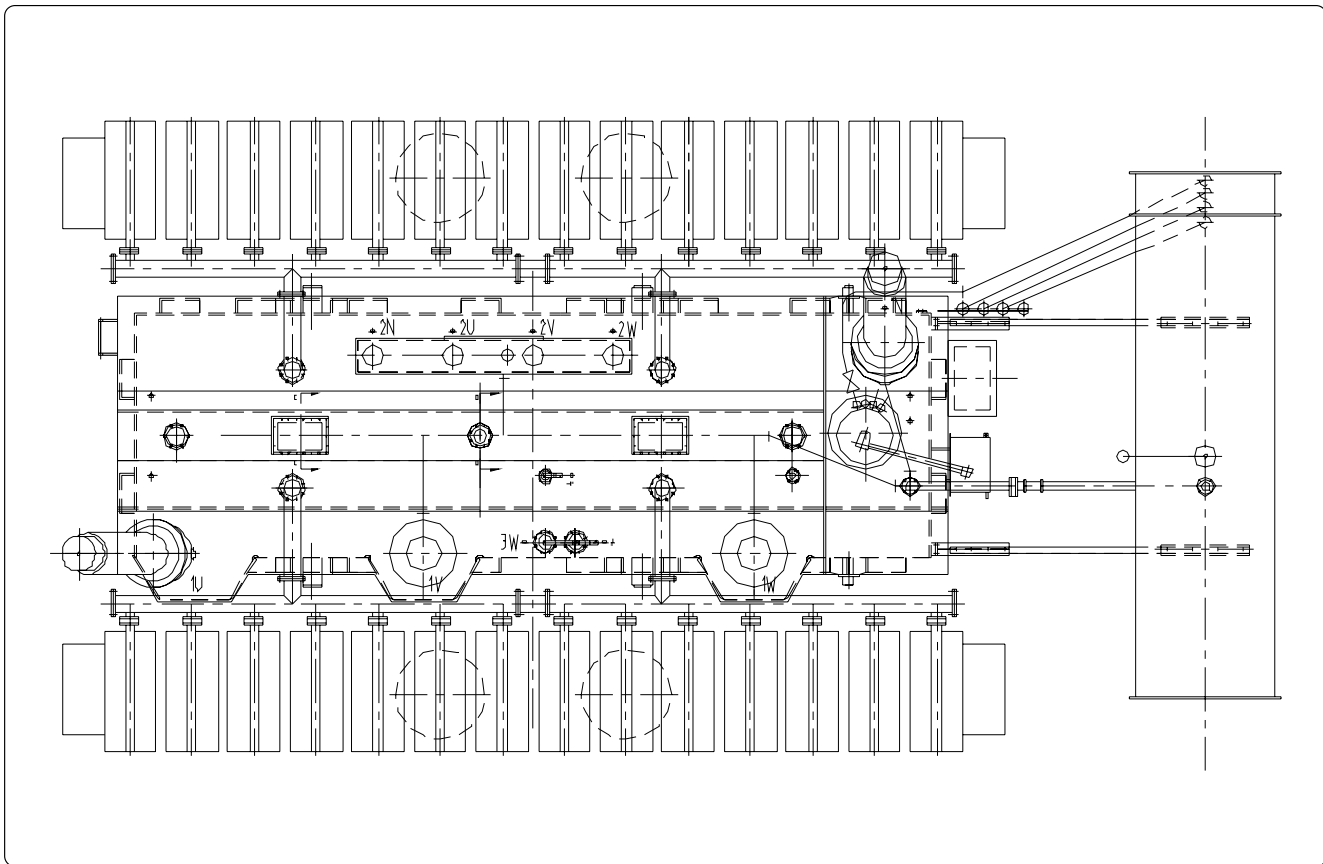
Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.



220kV Three-phase Three-winding Non- eld Excitation Changing Power Transformer

Rated capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (kW)	load loss (kW)	No-load current (%)	Short circuit impedance (%)	
	HV	MV	LV					Step up	Step down
31500	220±2	69 115 121	6.3/6.6/10.5/ 21/36/37/38.5	YNyn0d11	32.0	153	0.56	HV-MV 22-24 HV-LV 12-14 MV-LV 7-9	HV-MV 12-14 22-24 MV-LV 7-9
40000					38.0	183	0.50		
50000	×2.5%				44.0	216	0.44		
63000	230±2				52.0	257	0.44		
90000	×2.5%		10.5/13.8/ 21/36/37/38.5		68.0	333	0.39		
120000			84.0		410	0.39			
150000	242±2		10.5/13.8/15.75/21, 36/37/38.5		100	487	0.33		
180000					113	555	0.33		
240000	×2.5%		36/37/38.5		140	684	0.28		
300000					166	807	0.24		

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

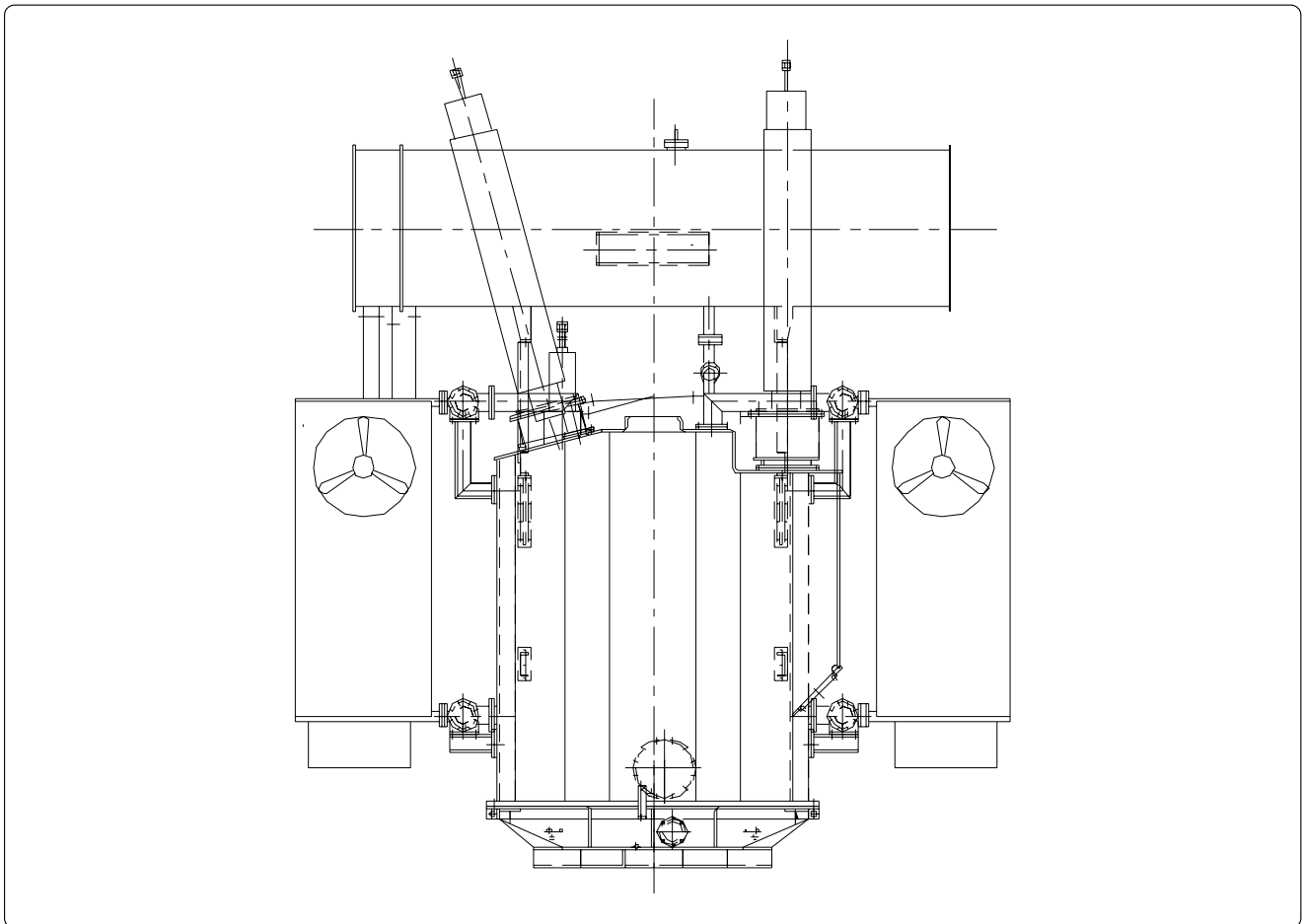


220kV Low Voltage 66kV Three-phase Duplex-winding Non-eld Excitation Changing Power Transformer

Rated capacity (kVA)	Voltage ratio		Vector group	No-load loss (kW)	load loss (kW)	No-load current (%)	Short circuit impedance (%)
	HV	LV					
31500	220 ± 2 × 2.5%	63	Ynd11	30.0	143	0.71	12-14
40000				36.0	167	0.71	
50000				42.0	200	0.65	
63000				50.0	234	0.65	
90000				66.0	306	0.60	
120000	230 ± 2 × 2.5%	69		81.0	367	0.60	
150000				97.0	430	0.54	
180000				110	487	0.54	
240000				136	603	0.48	

Transformer

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

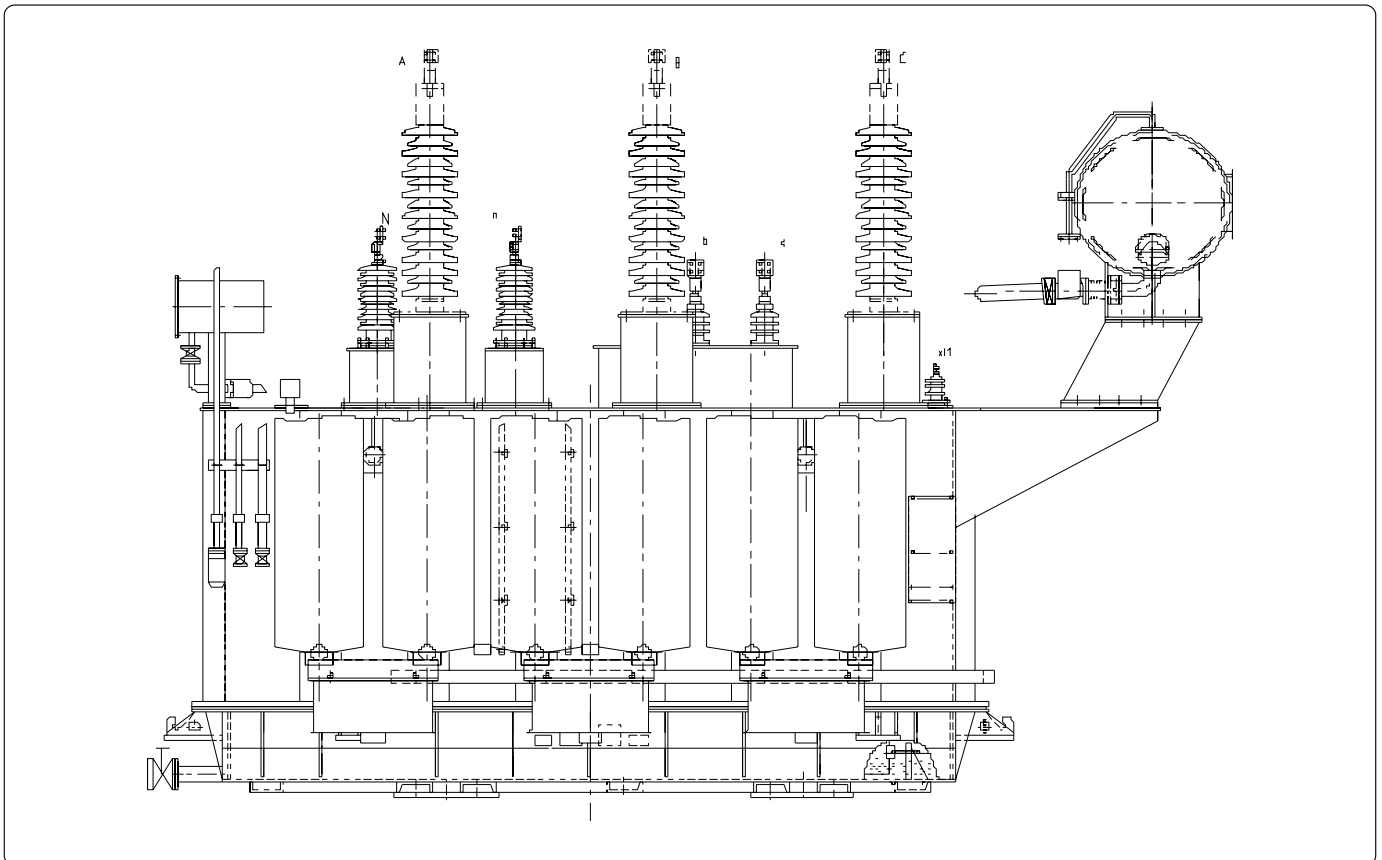


220kV Three-phase Three-winding Non-field Excitation Changing Self-coupled Power Transformer

Transformer

Rated Capacity (kVA)	Voltage combination and range of tapping			Vector group	Step up combination			Step down combination			Short circuit impedance	
	HV	MV	LV		No-load loss (kW)	load loss (kW)	No-load current	No-load loss (kW)	load loss (kW)	No-load loss	Step up	Step down
31500	220±	115 121	6.6/10.5	YNa0d11	20.0	111	0.45	17.0	94.0	0.40	HV-MV 12-14 HV-LV 8-12 MV-LV 14-18	HV-MV 8-10 HV-LV 28-34 MV-LV 18-24
40000	2x		21/36		23.0	136	0.45	20.0	114	0.40		
50000	2.5%		37/38.5		27.0	161	0.40	24.0	136	0.34		
63000	230±		10.5/13.8		32.0	190	0.40	28.0	162	0.34		
90000					2x	40.0	262	0.34	36.0	222		
120000	2.5%		15.75/18		49.0	323	0.34	44.0	273	0.28		
150000	242±		21/36		58.0	384	0.28	52.0	324	0.26		
180000					2x	67.0	439	0.28	60.0	367		
240000	2.5%		37/38.5		79.0	545	0.26	71.0	478	0.20		

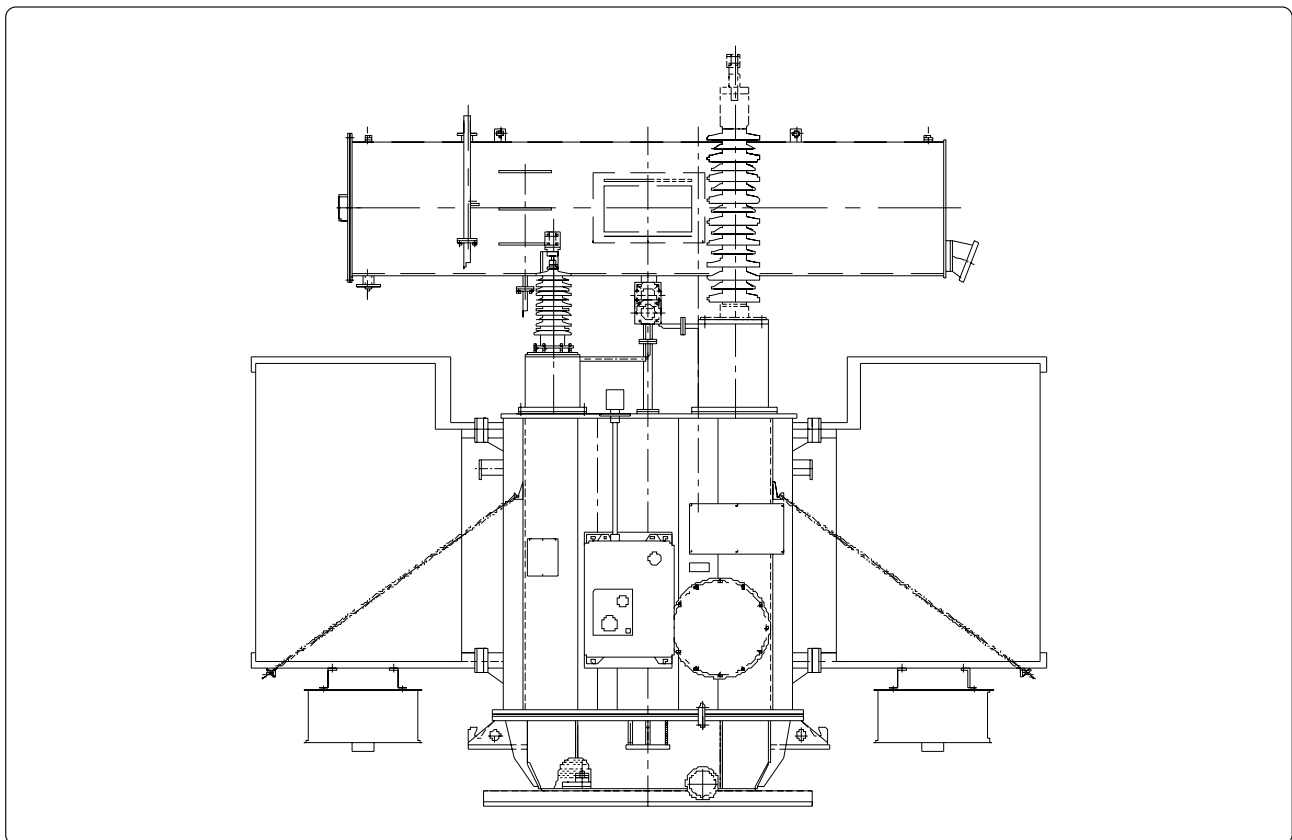
Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.



220kV Three Phase Double Windings Power Transformer With On Load Tap Changer

Rated Capacity (kVA)	Voltage ratio		Vector group	No-load loss (kW)	load loss (kW)	No-load current (%)	Short circuit impedance (%)
	HV	LV					
31500	220 ± 8 × 1.25%	6.3/6.6/10.5/21, 36/37/38.5	Ynd11	30.0	128	0.57	12-14
40000				36.0	149	0.57	
50000				43.0	179	0.53	
63000				50.0	209	0.53	
90000				64.0	273	0.45	
120000				79.0	338	0.45	
150000	230 ± 8 × 1.25%	10.5/21/36/37/38.5		92.0	400	0.41	
180000				108	459	0.38	
120000				81.0	337	0.45	
150000				96.0	394	0.41	
180000				112	451	0.38	
240000				140	560	0.30	
		66					
		69					

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

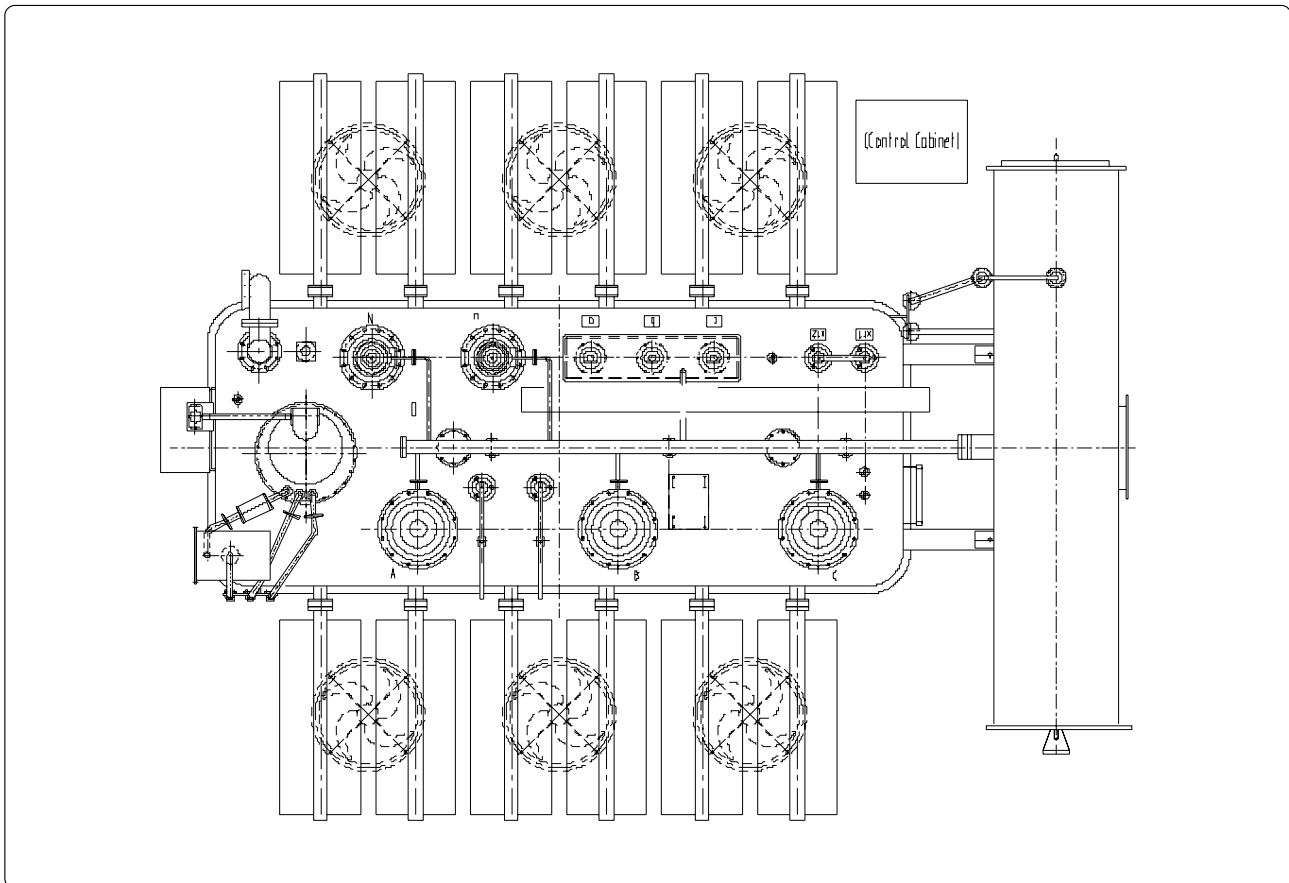


220kV Three-phase Three-winding On-load Transforming Power Transformer

Transformer

Rated Capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (kW)	load loss (kW)	Load current (%)	Capacity Assignment (%)	Short circuit impedance (%)
	HV	MV	LV						
31500	220±8×	69	6.3/6.6	YNy n0d11	35.0	153	0.63	100/100/100 100/50/100 100/100/50	HV-MV 12-14 HV-LV 22-24 MV-LV 7-9
40000			10.5/21		41.0	183	0.60		
50000			36/37		48.0	216	0.60		
63000			38.5		56.0	257	0.55		
90000	1.25%	115	10.5		73.0	333	0.44		
120000	230±8×	121	21		92.0	410	0.44		
150000	1.25%		36		108	487	0.39		
180000			37		124	598	0.39		
240000			38.5		154	741	0.35		

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.



220kV Three-phase Three-winding On-load Transforming Self-coupled Power Transformer

Rated Capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (kW)	load loss (kW)	No-Load current (%)	Capacity Assignment (%)	Short circuit impedance (%)
	HV	MV	LV						
3150	220±8×	115	6.3/6.6	YNa0d11	20.0	102	0.44	100/100/50	HV-MV 8-11 HV-LV 28-34 MV-LV 18-24
40000			10.5/21		24.0	125	0.44		
50000			36/37		28.0	149	0.39		
63000	230±8×	121	38.5		33.0	179	0.39		
90000			1.25%		40.0	234	0.33		
120000			1.25%		51.0	292	0.33		
150000	1.25%		10.5/21		60.0	346	0.28		
180000			36/37		68.0	39	0.28		
240000			38.5		83.0	513	0.24		

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.



220kV Steel plant installation



35kV steel Furnace Plant installation



20kV Glad Mine installation



110/66 kV POWER TRANSFORMER



SUMMARY

We have adopted series of important reforms on the 110kV level three-phase oil-immersed on-load tap-changing transformer referring material, process and structure. The transformer has the features of small size, light weight, high efficiency, low loss, low noise, reliable operation etc. which can reduce a large amount of power network loss and operation expense with significant economic benefits. It is suitable for power plant, substation, heavy section plant or enterprises etc.

Environmental Conditions

1. Type: outdoor
2. Ambient temperature: max. Temperature: +40°C; min. temperature: -30°C
3. Altitude: $\leq 1000\text{m}$ (temperature rise shall be corrected when 1000m)
4. Relative humidity: $\leq 90\%$ (25°C)
5. Installation place: without corrosive gas and apparent fouling.

110kV Three-phase Double-winding NLTC Power Transformer

Rated Capacity (kVA)	Voltage ratio		Vector group	No-load loss (kW)	load loss (kW)	No-Load current (%)	Short circuit impedance (%)			
	HV	LV								
6300	110±2×2.5%	10.5	Y Nd11	7.40	35.0	0.62	10.5			
8000				8.90	42.0	0.62				
10000				10.5	50.0	0.58				
12500				12.4	59.0	0.58				
16000				15.0	73.0	0.54				
20000				17.6	88.0	0.54				
25000				20.8	104	0.50				
31500				24.6	123	0.48				
40000				29.4	148	0.45				
50000				35.2	175	0.42				
63000	121±2×2.5%	13.8	Y Nd11	41.6	208	0.38	12~14			
75000				47.2	236	0.33				
90000				54.4	272	0.30				
120000				67.8	337	0.27				
150000				80.1	399	0.24				
180000				90.0	457	0.20				
				15.75						
				18						
	21									

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

110kV Three-phase Three-winding NLTC Power Transformer

Rated Capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (kW)	Load loss (kW)	No-Load current (%)	Short circuit impedance (%)	
	HV	MV	LV					Step up	Step down
6300	110±2×2.5%	33	6.6	YNyn0d11	8.90	44.0	0.66	HV-MV 17.5~18.5	HV-MV 10.5
8000					10.6	53.0	0.62		
10000					12.6	62.0	0.59		
12500					14.7	74.0	0.56		
16000					17.9	90.0	0.53		
20000					21.2	106	0.53		
25000					24.6	126	0.48		
31500					29.4	149	0.48		
40000					34.8	179	0.44		
50000					41.6	213	0.44		
63000	49.2	256	0.40	MV-LV 6.5	MV-LV 6.5				

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

110kV Three-phase Double-winding OLTC Power Transformer

Rated capacity (kVA)	Voltage ratio		Vector group	No-load loss (kW)	load loss (kW)	No-load current (%)	Short circuit impedance (%)
	HV	LV					
6300	110±8×1.25%	6.3 6.6 10.5 21	Y N d11	8.00	35.0	0.64	10.5
8000				9.60	42.0	0.64	
10000				11.3	50.0	0.59	
12500				13.4	59.0	0.59	
16000				16.1	73.0	0.55	
20000				19.2	88.0	0.55	
25000				22.7	104	0.51	
31500				27.0	123	0.51	
40000				32.3	156	0.46	12~18
50000				38.2	194	0.46	
63000				45.4	232	0.42	

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

110kV Three-phase Three-winding OLTC Power Transformer

Rated capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (kW)	Load loss (kW)	No-load current (%)	Short circuit impedance (%)
	HV	MV	LV					
6300	110±8×1.25%	36	6.6 11 24	Y N yn0d11	9.6	44.0	0.76	HV-MV 10.5 HV-LV 18~19 MV-LV 6.5
8000					11.5	53.0	0.76	
10000					13.6	62.0	0.71	
12500					16.1	74.0	0.71	
16000					19.3	90.0	0.67	
20000					22.8	106	0.67	
25000					27.0	126	0.62	
31500					32.1	149	0.62	
40000					38.5	179	0.58	
50000					45.5	213	0.58	
63000					54.1	256	0.53	

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

66kV Three-phase Power Transformer with Off-load Tap Changer

Rated power (kVA)	HVe (kV)	Tap (kV)	LV (kV)	Vector group	Short-circuit impedance (%)	No-load Loss (W)			On-load Loss (W)			No-load current (%)
						The 9 type of loss	The 10 type of loss	The 11 type of loss	The 9 type of loss	The 10 type of loss	The 11 type of loss	
6300	63 66 69	±2× 2.5%	6.3 6.6 10.5 11 13.2 15	YNd11	9	9.5	8.5	7.5	36	34	34	0.63
8000						11.4	10.2	9	42.8	40.4	40.4	0.63
10000						13.5	12.1	12.1	50.4	47.6	47.6	0.75
12500						15.9	14.2	12.6	59.9	56.5	56.5	0.53
16000						19.1	17.1	15.1	73.53	69.5	69.5	0.49
20000						22.6	20.3	17.9	89.1	84.2	84.2	0.49
25000						26.7	23.9	21.1	105.3	99.5	99.5	0.42
31500						31.8	28.4	25.1	126.9	120	120	0.42
40000						38	34	30	148.5	140.3	140.3	0.39
50000						44.9	40.1	35.4	184.5	174.3	174.3	0.39
63000						53.3	47.7	42.1	222.3	210	210	0.39

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

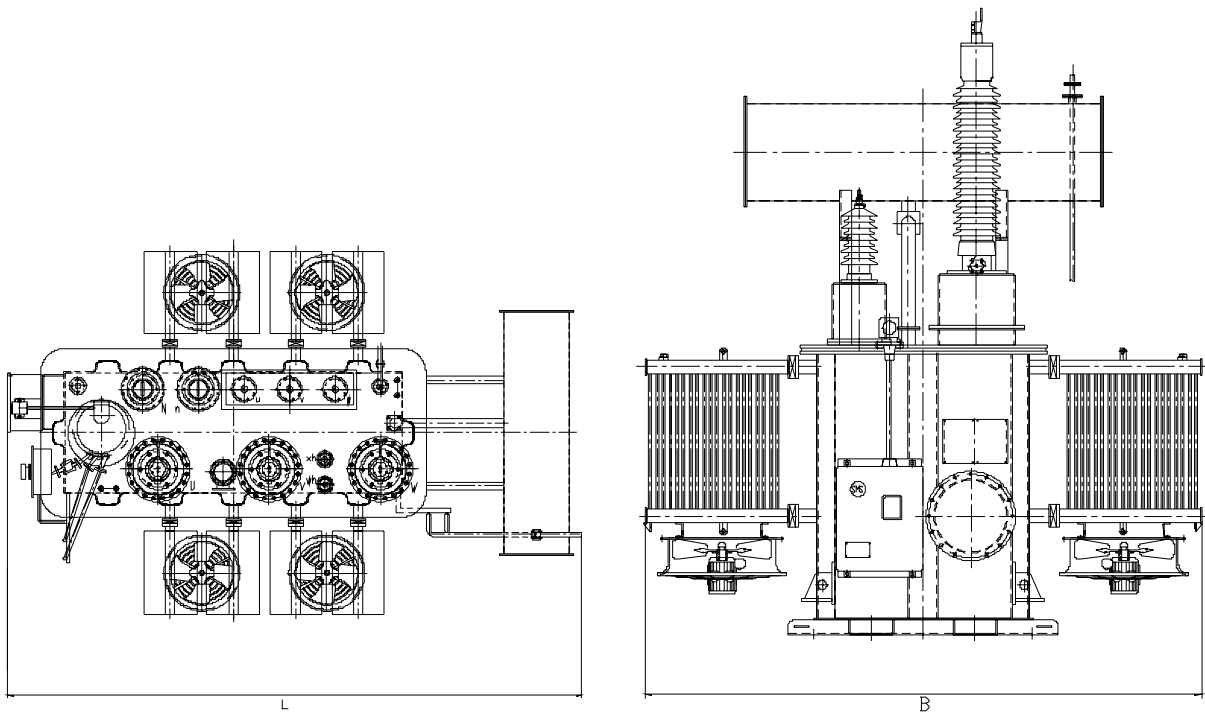
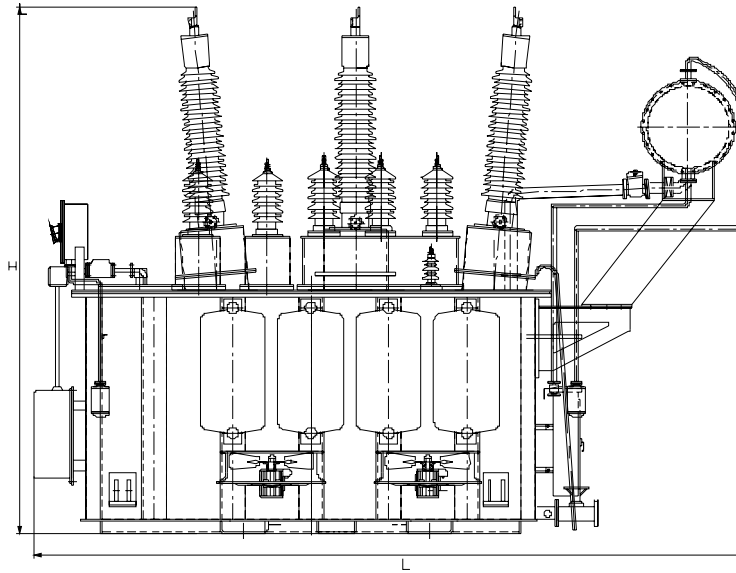
66kV Three-phase Power Transformer with On-load Tap Changer

Rated power (kVA)	HV (kV)	Tap (kV)	LV (kV)	Vector group	Short-circuit impedance (%)	No-load Loss (W)			On-load Loss (W)			No-load current (%)
						The 9 type of loss	The 10 type of loss	The 11 type of loss	The 9 type of loss	The 10 type of loss	The 11 type of loss	
6300	63 66 69	±8× 1.25%	6.3 6.6 10.5 11 13.2 15	YNd11	9	10.5	9.4	8.25	36	34	34	0.63
8000						12.5	11.2	9.83	42.8	40.4	40.4	0.63
10000						14.7	13.1	11.6	50.4	47.6	47.6	0.75
12500						17.2	15.4	13.6	59.9	56.5	56.5	0.53
16000						20.6	18.5	16.3	73.53	69.5	69.5	0.49
20000						24.3	21.8	19.2	89.1	84.2	84.2	0.49
25000						28.6	25.6	22.6	105.3	99.5	99.5	0.42
31500						33.9	30.4	26.8	126.9	120	120	0.42
40000						40.4	36.2	31.9	148.5	140.3	140.3	0.39
50000						47.8	42.6	38.6	184.5	174.3	174.3	0.39
63000						56.3	50.4	44.4	222.3	210	210	0.39

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

110/66 kV POWER TRANSFORMER

Transformer



35kV POWER TRANSFORMER



SUMMARY

The 35kV transformer, the use of company- specific calculation and verification procedures, the transformer core, coils, active part, leading tanks and other components for a full range of optimized design and verification, to ensure product performance. Superior technology equipment, careful selection of materials, and efficient manufacturing make the transformer small, light weight, low loss, low PD, low noise and other characteristics of superior product quality, energy saving and environmental protection, reliable operation and effectively reduce the Product operating costs.

Environmental Conditions

1. Type: outdoor
2. Ambient temperature: max. Temperature: +40°C; min. temperature: -30°C
3. Altitude: $\leq 1000\text{m}$ (temperature rise shall be corrected when 1000m)
4. Relative humidity: $\leq 90\%$ (25°C)
5. Installation place: without corrosive gas and apparent fouling.

35kV POWER TRANSFORMER

35kV Three-phase Double Windings NLTC Power Transformer

Rated capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (kW)	Load loss (kW)	No-load current (%)	Short circuit impedance (%)	
	HV	range of tapping	LV						
630	35	±2×2.5%	3.15	Yd11	0.83	7.86	0.65	6.5	
800					0.98	9.40	0.65		
1000					1.15	11.5	0.65		
1250					1.40	13.9	0.55		
1600					1.69	16.6	0.45		
2000					2.17	18.3	0.45		
2500					2.56	19.6	0.45		
3150			6.3	10.5	Yd11	3.04	23.0	0.45	7.0
4000						3.61	27.3	0.45	
5000						4.32	31.3	0.45	
6300			YDd11	10.5	YDd11	5.24	35.0	0.45	8.0
8000						7.20	38.4	0.35	
10000						8.70	45.3	0.35	
12500						10.0	53.8	0.30	
16000						12.1	65.8	0.30	
20000						14.4	79.5	0.30	
25000						17.0	94.0	0.25	

35kV Three-phase Double Windings OLTC Power Transformer

Rated capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (kW)	Load loss (kW)	No-load current (%)	Short circuit impedance (%)		
	HV	range of tapping	LV							
2000	35	±3×2.5%	3.15	Yd11	2.30	19.2	0.50	6.5		
2500					2.72	20.6	0.50			
3150					3.23	24.7	0.50			
4000					3.87	29.1	0.50			
5000					4.64	34.2	0.50			
6300			6.3	10.5	YDd11	5.63	36.7	0.40	8.0	
8000						7.87	40.6	0.40		
10000						9.28	48.0	0.35		
12500						10.9	56.8	0.35		
16000			10.5	10.5	YDd11	13.1	70.3	0.35	10.0	
20000						15.5	82.7	0.30		
25000						18.3	97.8	0.30		
31500							21.8	116	0.30	

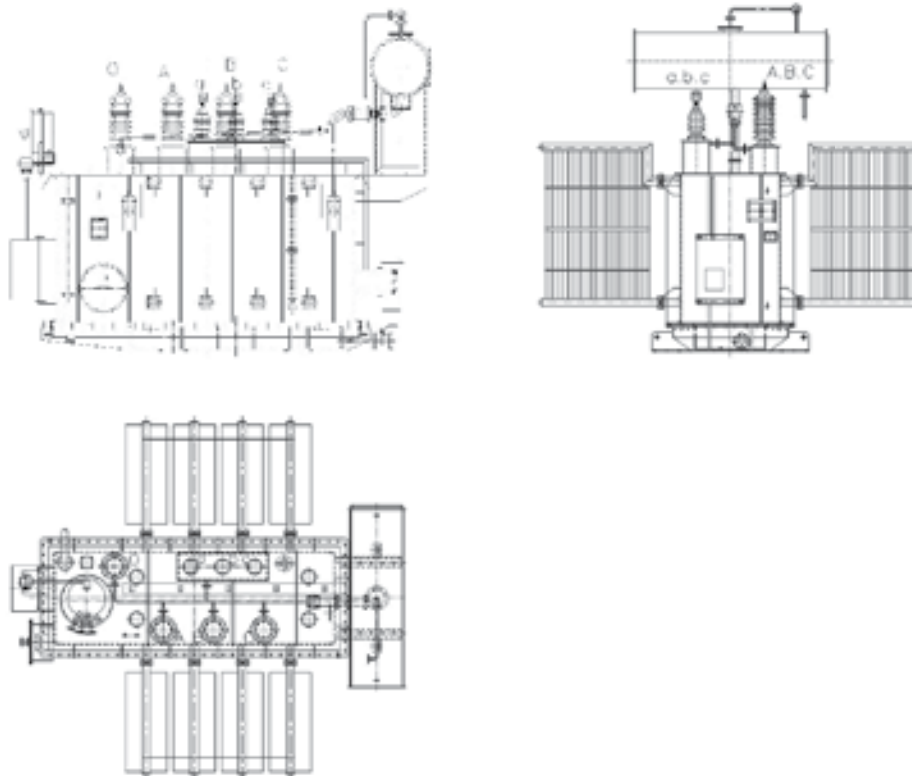
Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

35kV POWER TRANSFORMER

35kV Three-phase Double Windings NLTC Distribution Transformer

Rated capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (kW)	Load loss (kW)	No-load current (%)	Short circuit impedance (%)
	HV	range of tapping	LV					
50	33/35	$\pm 2 \times 2.5\%$	0.4	Dyn11	0.16	1.20	1.3	6.5
100					0.23	2.01	1.1	
125					0.27	2.37	1.1	
160					0.28	2.82	1.0	
200					0.34	3.32	1.0	
250					0.40	3.95	0.95	
315					0.48	4.75	0.95	
400					0.58	5.74	0.85	
500					0.68	6.91	0.85	
630					0.83	7.86	0.65	
800					0.98	9.40	0.65	
1000					1.15	11.5	0.65	
1250					1.40	13.9	0.60	
1600					1.69	16.6	0.60	
2000					1.99	19.7	0.55	
2500					2.36	23.2	0.55	

Transformer



20kV DISTRIBUTION TRANSFORMER



SUMMARY

The 20kV transformer adopts advanced design and meets IEC60076 standards. Without such device like conservator air breather, so it ensures that transformer oil is not in contact with air improving the anti-oxidation capacity of the transformer oil. The tank is corrugated type, the corrugated fins can swell and shrink with the change of transformer oil, so that the pressure can be maintained inside the tank, increase its reliability and anti-corrosion capability. With sealing material parts made of high quality acrylic rubber, it can effectively prevent against light-aging and heat aging.

Environmental Conditions

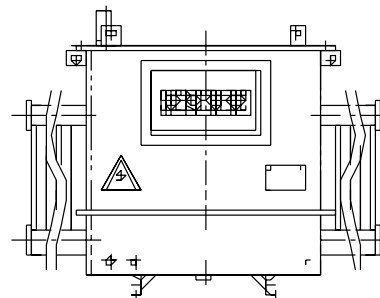
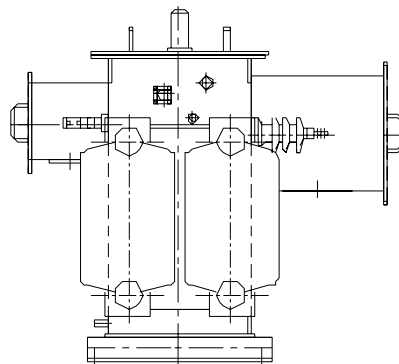
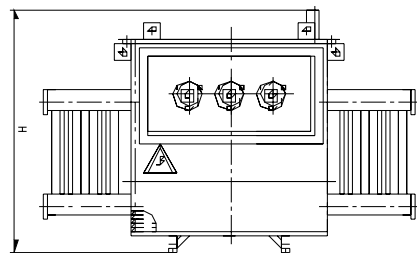
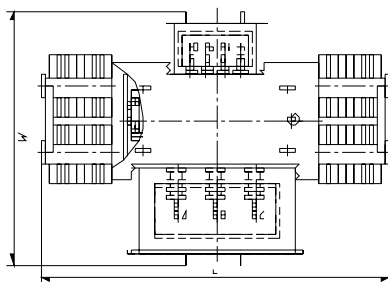
1. Type: outdoor
2. Ambient temperature: max. Temperature: +40°C; min. temperature: -30°C
3. Altitude: $\leq 1000\text{m}$ (temperature rise shall be corrected when 1000m)
4. Relative humidity: $\leq 90\%$ (25°C)
5. Installation place: without corrosive gas and apparent fouling.

20kV DISTRIBUTION TRANSFORMER

20kV Three-phase Double Windings NLTC Distribution Transformer

Rated capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (W)	Load loss (W)	No-load current (%)	Short circuit impedance (%)
	HV	range of tapping	LV					
30	20	±2×2.5%	0.4	Dyn11	100	690	2.1	5.0
50					130	1010	2.0	
63					150	1200	1.9	
80					180	1440	1.8	
100					200	1730	1.6	
125					240	2080	1.5	
160					290	2540	1.4	
200					340	3000	1.3	
250					400	3520	1.2	
315					480	4210	1.1	6
400					570	4970	1.0	
500					680	5940	1.0	
630					810	6820	0.9	
800					980	8250	0.8	
1000					1150	11330	0.7	
1250					1380	13200	0.7	
1600					1660	15950	0.6	

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.



10kV DISTRIBUTION TRANSFORMER



SUMMARY

The 10kV transformer is independently designed on the basis of learning from latest technologies in china and overseas The product is characteristic of low loss, reduced noise, and exemption of sweeping core. It is innovative in terms of safety. Reliability, and economy. advanced iron core piling and tilting workbench and rigorous techniques of piling and iron yoking without pre-piling ensure sufficient orientation of the grains in cold rolled silicon steel sheet and reduce no-load loss of transformer effectively.

Environmental Conditions

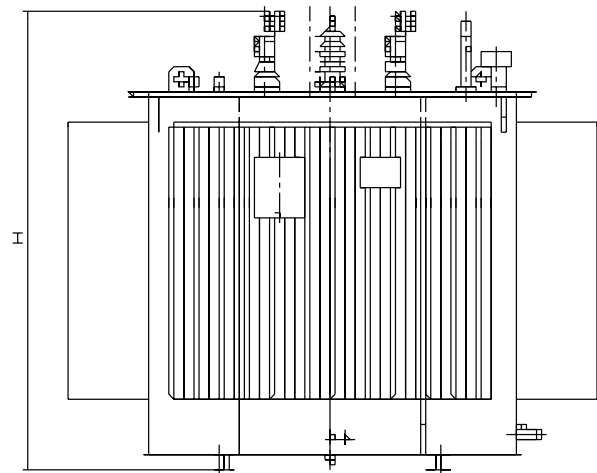
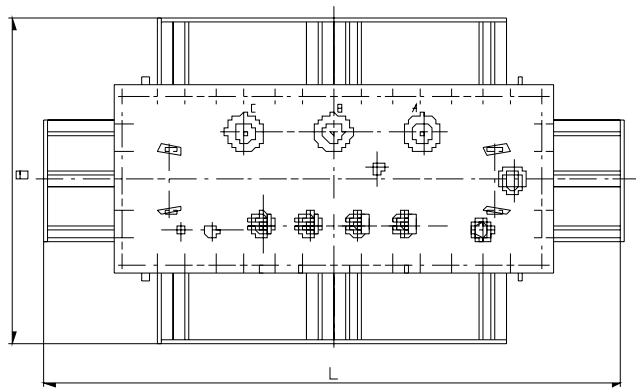
1. Type: outdoor
2. Ambient temperature: max. Temperature: +40°C; min. temperature: -30°C
3. Altitude: $\leq 1000\text{m}$ (temperature rise shall be corrected when 1000m)
4. Relative humidity: $\leq 90\%$ (25°C)
5. Installation place: without corrosive gas and apparent fouling.

10kV DISTRIBUTION TRANSFORMER

10kV Three-phase Double Windings NLTC Distribution Transformer

Rated capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (W)	Load loss (W)	No-load current (%)	Short circuit impedance (%)
	HV	range of tapping	LV					
30	6 6.3 10 11	$\pm 2 \times 2.5\%$	0.4	Dyn11	100	600	2.1	4.0
50					130	870	2.0	
63					150	1040	1.9	
80					180	1250	1.8	
100					200	1500	1.6	
125					240	1800	1.5	
160					270	2200	1.4	
200					330	2600	1.3	
250					400	3050	1.2	
315					480	3650	1.1	
400					570	4300	1.0	
500					680	5100	1.0	
630					810	6200	0.9	
800					980	7500	0.8	
1000					1150	10300	0.7	
1250					1360	12000	0.6	
1600					1640	14500	0.6	
2000					1960	18000	0.5	

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.



AMORPHOUS ALLOY CORE DISTRIBUTION



SUMMARY

The core of amorphous core distribution transformer is amorphous alloy with soft magnetic material characteristic can further reduce the distribution system for loss and reduce air pollution. This new Transformer compared with the conventional silicon steel, cut 50% of the no-load is efficient and energy - saving effect. Superscript reached the words advanced level.

Amorphous alloy core distribution transformer products adopt single or three-phase five-volume box core. Core moulding frame clamping plates, foil around for the type of low voltage windings so low loss, the short circuit capacity.

Advanced structural reasonable overall performance indicators have reached the words advanced level.

Environmental Conditions

1. Type: outdoor
2. Ambient temperature: max. Temperature: +40°C; min. temperature: -30°C
3. Altitude: $\leq 1000\text{m}$ (temperature rise shall be corrected when 1000m)
4. Relative humidity: $\leq 90\%$ (25°C)
5. Installation place: without corrosive gas and apparent fouling.

AMORPHOUS ALLOY CORE DISTRIBUTION

10kV Three-phase Double Windings NLTC Distribution Transformer

Rated capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (W)	Load loss (W)	No-load current (%)	Short circuit impedance (%)
	HV	range of tapping	LV					
30	6 6.3 10 11	±2×2.5%	0.4	Dyn11	33	600	1.5	4.0
50					43	870	1.4	
63					50	1040	1.3	
80					60	1250	1.2	
100					75	1500	1.1	
125					85	1800	1.0	
160					100	2200	0.9	
200					120	2600	0.9	
250					140	3050	0.8	
315					170	3650	0.8	
400					200	4300	0.7	
500					240	5100	0.7	
630					320	6200	0.6	4.5
800					380	7500	0.6	
1000					450	10300	0.5	
1250					530	12000	0.4	
1600					630	14500	0.4	5.0
2000					750	17400	0.4	

Transformer

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.



DRY TYPE TRANSFORMER

Transformer



SUMMARY

The product of this latest series are resin cast transformers reinforced by glass fiber grid. Resin is fed by flow control pump and static control in order to prevent coils from alligator crack. The advanced cast technique ensures the resin mixture fully immerses into the space between turns and segments in order to ensure the dielectric strength and minimum partial discharge($\leq 5\text{PC}$).

Environmental Conditions

1. Altitude: <1000m indoor
2. Max .ambient: temperature +40°C
- 3.Max. daily: average temperature +30°C
- 4.Max .annual: average temperature +20°C
- 5.Min. temperature -5 °C
- 6.Supply transformer operate under special conditions according to customer requirements.

DRY TYPE TRANSFORMER

35kV Dry Type Power Transformer With Off-circuit Tap Changer

Nominal Capacity (kVA)	Voltage unit combination		LV	Vector group	No-load loss (W)	Load loss(W)		No-load Current (%)	Short-circuit impedance
	HV	High Voltage Tap range				F (120 °C)	H (120 °C)		
800	35 36 37 38.5	$\pm 2 \times 2.5\%$ $\text{or } \pm 5\%$	3.15 6 6.3 10 10.5 11	Yyn0 Yd11 Dyn11	2250	9400	10000	0.95	6.0
1000					2670	10900	11600	0.95	
1250					3130	12900	13800	0.85	
1600					3690	15400	16500	0.85	
2000					4230	18200	19500	0.75	
2500					4860	21800	23300	0.75	
3150					6030	24500	26200	0.70	
4000					7020	29400	31500	0.70	
5000					8370	34900	37400	0.60	
6300					9900	40800	43700	0.60	
8000			11300	46000	49300	0.50			
10000			12900	55500	59400	0.50			
12500			15700	64600	69100	0.40			
16000			19300	76000	81300	0.40			
20000			22900	85500	91500	0.35			
25000			27100	101000	108000	0.35			
			6 6.3 10 10.5	Ynd11 Yd11 Dyn11					9.0 10.0

35kV Dry Type Power Transformer With On Load Tap Changer

Nominal Capacity (kVA)	Voltage unit combination		lv	Vector group	No-load loss (W)	Load loss(W)		No-load Current (%)	Short-circuit impedance				
	HV	High Voltage Tap range				F(120 °C)	H (120 °C)						
2000	35 36 37 38.5	$\pm 4 \times 2.5\%$	6 6.3 10 10.5 11	Yd11 Dyn11	4500	19000	20300	0.75	7.0				
2500					5220	22600	24200	0.75					
3150					6300	25400	27200	0.70					
4000					7380	30400	32600	0.70					
5000					8730	36100	38600	0.60	8.0				
6300					10300	41800	44700	0.60					
8000					11800	47500	50800	0.50					
10000					13500	57100	61200	0.50					
12500					16400	66500	71100	0.40	9.0				
16000					20200	78200	83700	0.40					
20000					23800	88000	94200	0.35					
25000					28100	104000	111000	0.35					
													10.0

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

Transformer

DRY TYPE TRANSFORMER

Transformer



·35kV Single-phase



·35kV Three-phase

DRY TYPE TRANSFORMER

35kV 50kVA~2500kVA NLTC Distribution Transformer

Nominal Capacity (kVA)	Voltage unit combination		LV	Vector group	No-load loss (W)	Load loss (W)		No-load Current (%)	Short-circuit impedance
	HV	High Voltage Tap range				F (120 °C)	H (120 °C)		
315	6 6.3 6.6 10 10.5 11	±4 × 2.5%	0.4	Yyn0 Dyn11	990	3610	3860	1.1	4.0
400					1120	4270	4570	1.1	
500					1290	5220	5580	1.1	
630					1490	6170	6600	1.0	
630					1440	6360	6800	1.0	
800					1710	7500	8020	1.0	6.0
1000					1980	8780	9390	0.85	
1250					2340	10400	11100	0.85	
1600					2720	12400	13300	0.85	
2000					3420	15200	16200	0.70	
2500					3960	18100	19400	0.70	

10kV main 30kVA~2500kVA NLTC Distribution Transformer

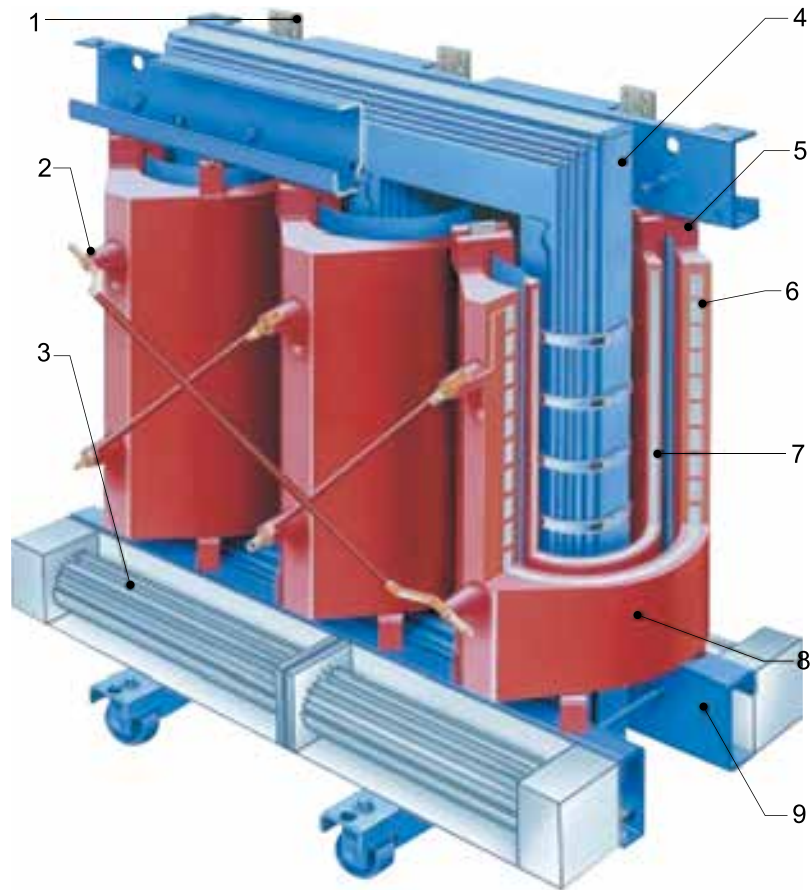
Nominal Capacity (kVA)	Voltage unit combination		LV	Vector group	No-load loss (W)	Load loss (W)		No-load Current (%)	Short-circuit impedance	
	HV	High Voltage Tap range				F (120 °C)	H (120 °C)			
30	6 6.3 6.6 10 10.5 11	±2 × 2.5% or ± 5%	0.4	Yyn0 Or Dyn11	190	710	760	2.0	4.0	
50					270	1000	1070	2.0		
80					370	1380	1480	1.5		
100					400	1570	1690	1.5		
125					470	1850	1980	1.3		
160					540	2130	2280	1.3		
200					620	2530	2710	1.1		
250					720	2760	2960	1.1		
315					880	3470	3730	1.0		
400					980	3990	4280	1.0		
500					1160	4880	5230	1.0	6.0	
630					1340	5880	6290	0.85		
630					1300	5960	6400	0.85		
800					1520	6960	7460	0.85		
1000					1770	8130	8760	0.85		
1250					2090	9690	10300	0.85		
1600					2450	11700	12500	0.85		
2000					3050	14400	15500	0.7		
2500					3600	17100	18400	0.7		
1600					2450	12900	13900	0.85		8.0
2000					3050	15900	17100	0.7		
2500					3600	18800	20200	0.7		

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.

Transformer

DRY TYPE TRANSFORMER

Transformer



1. LV terminals
2. HV terminals
3. Cross-flow fans
4. Three-leg core
5. Resilient spacers
6. HV winding
7. LV winding
8. Insulation: Mixture of epoxy resin and quartz powder
9. Clamping frame and truck.

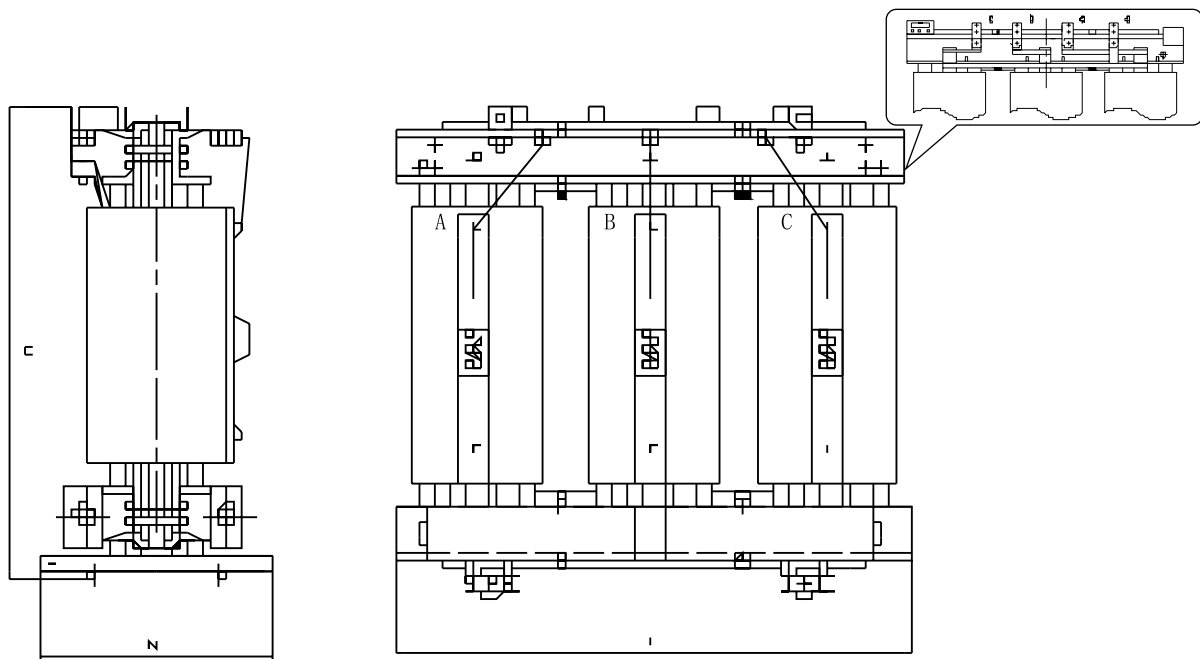
DRY TYPE TRANSFORMER

10kV main 315kVA~2500kVA OLTC Distribution Transformer

Nominal Capacity (kVA)	Voltage unit combination		LV	Vector group	No-load loss (W)	Load loss(W)		No-load Current (%)	Short-circuit impedance			
	HV	High Voltage Tap range				F (120 °C)	H (120 °C)					
315	6	±4× 2.5%	0.4	Yyn0 Dyn11	990	3610	3860	1.1	4.0			
400					1120	4270	4570	1.1				
500					1290	5220	5580	1.1				
630					1490	6170	6600	1.0				
630					6.3			1440	6360	6800	1.0	6.0
800					6.6			1710	7500	8020	1.0	
1000					10			1980	8780	9390	0.85	
1250					10.5			2340	10400	11100	0.85	
1600					11			2720	12400	13300	0.85	
2000								3420	15200	16200	0.70	
2500								3960	18100	19400	0.70	

Transformer

Above mentioned parameter are only for reference, WESTINGHOUSE is able to design products according to specific requirements from end users.



SINGLE PHASE POLE MOUNTED TRANSFORMER



SUMMARY

Single phase pole mounted distribution transformers are designed and manufactured in compliance with all applicable ANSI and IEC standards. All transformers are oil filled, 65°C rise, and designed for usual service conditions per ANSI C57.12.00. External welds are 100% coverage for added strength and corrosion withstand. Lift ears allow sling lifting while the unit is still banded to the pallet. The tank bottom weld is recessed for added protection.

Environmental Conditions

1. Altitude: <1000m indoor
2. Max .ambient: temperature +40°C
- 3.Max. daily: average temperature +30°C
- 4.Max .annual: average temperature +20°C
- 5.Min. temperature -5 °C
- 6.Supply transformer operate under special conditions according to customer requirements.

SINGLE PHASE POLE MOUNTED TRANSFORMER

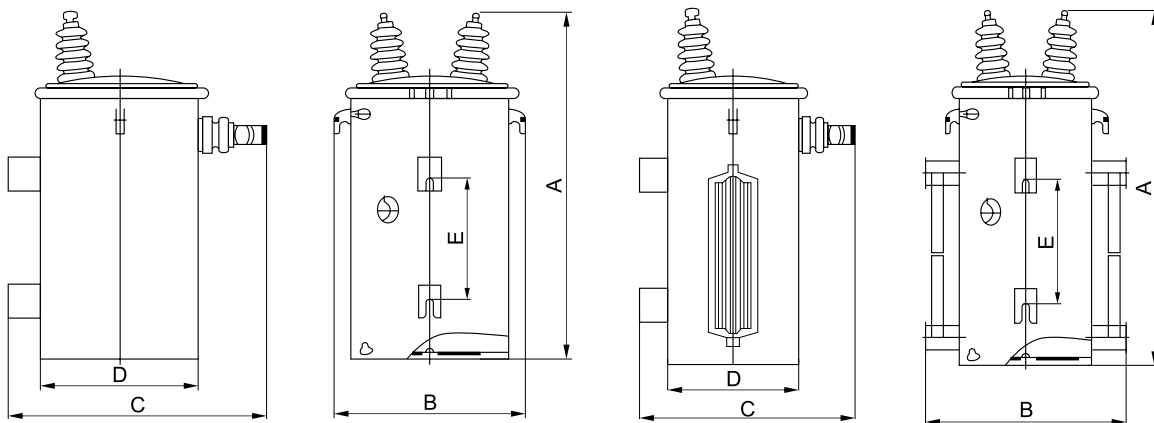
Single Phase Pole Mounted Distribution Transformer

Rated capacity (kVA)	Voltage combination and range of tapping			Vector group	No-load loss (W)	Load loss (W)	No-load current (%)	Short circuit impedance (%)
	HV	range of tapping	LV					
D15-M-30	6.35	$\pm 2 \times 2.5\%$	0.22~0.24	li0 li6	30	560	1.6	3.5
D15-M-50					40	855	1.2	
D15-M-63					50	1020	1	
D15-M-80					60	1260	0.9	
D15-M-100					70	1485	0.8	
D11-M-30					80	560	2.8	
D11-M50					120	855	2.3	
D11-M63					145	1020	2.1	
D11-M80					160	1260	1.2	
D11-M100					190	1485	1.9	
D15-M-30	6.35	or $\pm 5\%$	0.22~0.24	li0 li6	35	620	1.6	
D15-M-50					45	950	1.2	
D15-M-63					60	1135	1	
D15-M-80					70	1400	0.9	
D15-M-100					80	1650	0.8	
D11-M-30					80	515	1.7	
D11-M50					120	690	1.5	
D11-M63					145	830	1.4	
D11-M80					160	975	1.4	
D11-M100					190	1155	1.3	

Remarks: Normal Type No protection accessories.

CP Type with HV Load switch, HV fuse and LV over-current CB SP Type: With HV load switch, HV fuse and surge arrestor

CSP Type: With HV load switch, HV fuse, surge arrestor and LV over-current CB



Transformer

COMPLETELY SELF PROTECTED TRANSFORMERS

Transformer



SUMMARY

SCP series fully automatic protection pole mounted transformer, the transformer refers to pole-mounted transformer high side and low-side configuration with some protection components, so as to protect the transformer and network security. Fully automatic single-phase transformer on lightning protection, short-circuit and overload protection can play its own role, to protect the transmission and distribution lines not because of their own transformer failure caused by power outages.

Environmental Conditions

- (1) Below an altitude of 2000m
- (2) Ambient temperature: Max. temperature is $+40^{\circ}\text{C}$ and the min. temperature is -25°C
- (3) Outdoor wind speed shall not exceed 35m/s
- (4) Pollution grade: Class II
- (5) Earthquake horizontal acceleration is not greater than 3m/s^2 , the vertical acceleration is not greater than 1.5m/s^2 , and the safety factor is more than 1.67.

CSP Technology

WESTINGHOUSE equipped several components, in order to create the CSP transformer. These components when applied to the transformer during its manufacturing process, provide multiple layers of protection

Outline drawing High Voltage Fuse

Acts as over current protection by isolating the faulty transformer from the network. It is mounted inside of the transformer and it is connected between the incoming high voltage lead from the bushing and the high voltage line lead from the transformer primary winding.



Overload Indicator

Provides visual indication of abnormal loading conditions. The signal light is mounted on the exterior wall of the transformer tank near the operating handle of the circuit breaker. The signal light is electrically connected to the signal light sensing circuit within the transformer.



Low Voltage (Secondary) Circuit Breaker

Provides secondary fault and overload protection. The circuit breaker is mounted inside of the transformer and it is connected between the secondary winding and secondary bushing, such that the current flows through the circuit breaker.



Three phase Low Voltage Circuit Breaker



Single phase Low Voltage Circuit Breaker

RECTIFIER TRANSFORMER

Transformer



SUMMARY

Rectifier Transformers is the power of the rectifier equipment, most DC power source and the DC power supply of electronic system are supplied by AC network and the equipment which is composed by the rectifier transformers and rectifier. So the rectifier transformer are widely used in electrochemical electrolysis , electronic traction , DC power transmission, frequency conversion and industry rectifier power etc. All of these transformers are low loss and energy-saving products and could be special designed according to the customer's requirement.

Environmental Conditions

1. Ambient Temperature: Max temp, +40°C, Min temp , -30°(revise if it is beyond the range)
2. Altitude : <1000m (temperature rise and external insulation distance to be modified if > 1000m)
3. Relative humidity : <90% (25°C)
4. External Pollution Class : 4

RECTIFIER TRANSFORMER

Type	Rated power(kV)	Rated voltage (V)		Vector group
		Line side	Valve side	
WHRS - 800/10	800	10000	400	Dyn11
WHRS - 900/6	900	6000	400	Dd0y11
WHRS - 1000/10	1000	10000	575	Dy11
WHRS - 1200/6.3	1200	6300	420	Dd 0y11
WHRS - 1250/10	1250	10000	660	Dy11
WHRS - 1250/10	1250	10000	575	Dy0y11
WHRS - 1500/10	1500	10000	660	Dy0y11
WHRS - 1500/10	1500	10000	420	Dd0
WHRS - 1560/10	1560	10000	600 - 380	Dy11y11
WHRS - 1600/10	1600	10000	650	Dd0y11
WHRS - 1800/10	1800	10000	420	Dd0
WHRS - 1800/10	1800	10000	575	Dd0yn11
WHRS - 2000/6.3	2000	6300	630	Dd0y11
WHRS - 2000/6	2000	6000	720	Dd0
WHRS - 2000/10	2000	10000	710	Dd0y11
WHRS - 2250/10	2250	10000	420	Dy11
WHRS - 2400/10	2400	10000	660	Dd0y11
WHRS - 2500/35	2500	35000	660 - 400	Dylly11
WHRS - 2500/6	2500	6000	660	Dd0y11
WHRS - 2500/10	2500	10000	660	Dyn11
WHRS - 2800/10	2800	10000	575×3	Dyn11
WHRS - 3000/6	3000	6000	575×3	Dyn11
WHRS - 3000/6	3000	6000	690	Dd0y11
WHRS - 3150/10	3150	10000	575	Dd0y11
WHRS - 3300/10	3300	10000	640	Dd0y11
WHRS - 3500/6.3	3500	6300	850	Dyn11
WHRS - 3900/10	3900	10000	700	Dd0y11
WHRS - 4000/35	4000	35000	1250	Dd0y11
WHRS - 4500/6	4500	6000	660	Dd0y11
WHRS - 4800/6	4800	6000	710	Dd0y11
WHRS - 5500/11	5500	11000	850	Dd0y11
WHRS - 7000/10	7000	10000	950	Dd0y11
WHRS - 7000/10.5	7000	10500	850	Dd0y11
WHRS - 7500/35	7500	35000	700	Dd0y11
WHRS - 8000/66	8000	66000	1550	Dd0y11
WHRS - 9000/10	9000	10000	1000	Dd0y11
WHRS. 10000/35	10000	35000	1650	Dd0y11
WHRS. 10000/35	10000	35000	630	Dd0y11
WHRS. 10000/35	10000	35000	1000	Dd0y11
WHRS. 10000/10	10000	10000	1850	Dd0y11
WHRS. 12500/10	12500	10000	1650	Dd0y11
WHRS. 12500/10	12500	10000	1550	Dd0y11
WHRS. 16000/35	16000	35000	1500	Dd0y11

FURNACE TRANSFORMER

Transformer



SUMMARY

Due to a series of innovations over material, technology, and structure, the furnace transformer features small size, light weight, high efficiency, low loss, low noise, reliable operation and large overloading capacity, etc. The transformer generates good economic returns for it could reduce significantly the power grid loss and bring down substantially the long term operational charges. The transformer is designed to apply mostly in metallurgy industry for smelting quality alloy steel and iron alloy and in chemical industry for processing yellow phosphorous, calcium carbide and synthetic resin, etc.

The model of the electric furnace transformer is expressed as follows:

Meaning: H-steel smelting arc furnace, HJ-ladle refining furnace, HZ-electroslag furnace, HC-calcium carbide furnace, HK-blast furnace, HG-industrial furnace

Number of phase: D-single phases, S-three phases

Type of cooling devices: oil immersed self-cooling- air cooling F, water cooling S Way of oil circulation: natural circulation, forced oil circulation P

Way of voltage regulation: non-excitation voltage regulation, load ratio voltage regulation

Built-in accessories: flux leakage changing group-,built in reactor K Rated capacity: kVA

Voltage class: KV

FURNACE TRANSFORMER

Non-excitation-tap-changing Arc Furnace Transformer Technical Data

Rated power (kVA)	With series reactor														
	Primary Voltage (kV)	secondary Voltage (kV)	Rated secondary current (A)	Type of taping	Vector group	Short Circuit Impedance (%)	Series reactor		No-load loss (kW)	On-load Loss (kW)	No-load Current (%)				
							Rated power (kvar)	Reactance Voltage Drop(%)							
630 800 1000	6 6.3 10 10.5 11	200	1819	no-load Tap changing	Dd0 Dy11	8-9	120	19	2.4	8.6	3.0				
		170	2609												
		116	2887												
210		3437	200				16	3.6	17.5	2.6					
180		4399													
121		5499													
220		6561	280			11.2	5.2	32.0	2.3						
190		8267													
127		8267	340			8.5	7.6	46.0	2.1						
110		9623													
240		12028													
4000 5000		7-8	260			13900			430	5.7	11.8	63.0	1.9		
	240		17765												
	139		17765												
6300 8000	260		430	13900						460	5.7	15.0	74.0	1.8	
			240												17765
			139												17765

Transformer

Main Technical Data For Arc Furnace Transformer With On-load-tap-changing

Rated power (kVA)	Primary Voltage (kV)	Secondary Voltage (V)		Secondary Step voltage (V)	Rated secondary Current(A)	Regulation Voltage step	Vector group	Short-circuit Impedance(%)	Cooling method						
		Invariableness power	Invariableness current												
10000	35	280-240	240-100	10	24056	5 steps Power 14 steps Invariableness current	Dd0 Yd11 Ynd11	7-8	OFWF Or OFAF						
12500		314-270	270-116	11	26729										
16000		353-305	305-137	12	30287										
20000	35	392-340	340-158	13	33962			5 steps Power 14 steps Invariableness current		Dd0 Yd11 Ynd11	6-7 (35kV) 7.5-8.5 (66、110kV)	OFWF Or OFAF			
25000		436-380	380-184	14	37984										
31500		489-425	425-201	16	42792										
40000	66	547-475	475-223	18	48619						5 steps Power 14 steps Invariableness current		Dd0 Yd11 Ynd11	6-7 (35kV) 7.5-8.5 (66、110kV)	OFWF Or OFAF
50000		610-530	530-250	20	54467										
63000		673-585	585-277	22	62176										
80000	110	760-660	660-310	25	69982	5 steps Power 14 steps Invariableness current	Dd0 Yd11 Ynd11		6-7 (35kV) 7.5-8.5 (66、110kV)					OFWF Or OFAF	

FURNACE TRANSFORMER

Main Technical Data Of 10kV Arc Furnace Transformer For Steel Mills

Transformer

Type	Rated power (kVA)	Vector group	Primary Voltage (kV)	Secondary Voltage (V)	Regulation voltage (V)	Type of taping	Short-circuit Impedance (%)	No-load Loss (W)	On-load Loss (W)
WHFT -650/ 10	650	D-y,d0-11	10	130-75	5	No load	20	1.9	10
WHFT -1250/ 10	1250	D-y,d0-11	10	210-160	5	No load	21	2.9	15.7
WHFT -1600/ 10	1600	Yd11	10	85-65	5	No load	6.0	5.1	17.4
WHFT -2000/ 10	2000	Yd11	10	300-140	15	On load	4/6	5.3	33.7
WHFT-2500/ 10	2500	D-y,d0-11	10	220-110	6	No load	21/9	5.4	32.7
WHFT -3000/ 10	3000	D-y,d0-11	10	220-110	5	No load	19/9	5.2	26.2
WHFT-3200/ 10	3200	Dd0	10	240-104	5	No load	18/7	7.7	40.9
WHFT-4200/ 10	4200	D-y,d0-11	10	240-160	5	No load	18.5	7.3	33.2
WHFT-5500/ 6	5500	Dd0	6	212-150	5	No load	8	10.1	47
WHFT -5500/ 6	5500	Dd0	6	260-139	8	No load	9	7.5	60
WHFT-6300/ 6	6300	Yd11	6	207-158	5	No load	7.5	8.5	58.2
WHFT-7500/ 10	7500	D-y,d0-11	10	240-140	6	No load	6.4	10.7	78.2
WHFT -8000/ 10. 5	8000	Yd11	10.5	300-140	17	On load	7	11.8	99.8
WHFT-8000/ 10	8000	Dd0	10	240-149	9	On load	7.5	9.8	76.8
WHFT -9000/ 6	9000	Yd11	6	240-85	17	On load	7	13.7	121.6
WHFT-12500/ 10	12500	Dd0	10	325-166	11	No load	8	12.4	145.7
WHFT-14000/ 10	14000	Dd0	10	325-205	13	On load	6.5	13.2	134.6

Main Technical Data Of 35kV Arc Furnace Transformer For Steel Mills

Type	Rated power (kVA)	Vector group	Primary Voltage (kV)	Secondary Voltage (V)	Regulation voltage (V)	Type of taping	Short-circuit Impedance (%)	No-load Loss (W)	On-load Loss (W)
WHFT- 1500/ 35	1500	Yd11	35	290-157	10	On load	5.5	2.6	23
WHFT - 3200/ 35	3200	D-Y, d0-11	35	240-138	4	No load	7	5.3	41.1
WHFT-3200/ 35	3200	D-Y, d0-11	35	240-138	5	No load	18.65	5.3	91.1
WHFT- 5000/ 35	5000	Yd11	35	212-155	5	No load	7.5	9.3	55
WHFT- 5500/ 35	5500	Yd11	35	240-130	6	No load	7.5	9.1	52.5
WHFT - 7000/ 35	7000	Yd11	35	240-140	8	No load	7	9.4	77
WHFT - 9000/ 35	9000	Yd11	35	239-163	9	On load	6.5	11.6	97
WHFT - 9000/ 35	9000	Yd11	35	320-180	8	No load	8.5	11	116
WHFT- 10000/ 35	10000	Yd11	35	260-188	9	On load	6	17.2	187
WHFT - 10000/ 35	10000	Yd11	35	300-160	13	On load	8.5	12	97
WHFT - 12500/ 35	12500	Yd11	35	250-150	9	On load	6.5	19.7	134
WHFT - 12500/ 35	12500	Yd11	35	340-195	11	No load	9	13.9	154
WHFT - 15000/ 35	15000	D-Y, d0-11	35	353-160	8	No load	8	20	107
WHFT - 16000/ 35	16000	Yd11	35	375-200	15	On load	8	16.4	161
WHFT - 16000/ 35	16000	Yd11	35	310-190	13	On load	7	19.2	195.6
WHFT - 20000/ 35	20000	Yd11	35	400-270	13	On load	7	20.7	207.7
WHFT - 20000/ 35	20000	Dd0	35	320-170	11	On load	6.5	30.4	313.6
WHFT - 25000/ 35	25000	Yd11	35	509-302	13	On load	7.5	28.5	272.6

STEP VOLTAGE REGULATOR

Transformer



SUMMARY

The WHVR - 1 type feeder automatic voltage regulator is actually a single phase oil immersed auto-transformer with WHVR controller and gathering sampling of voltage & current signal, on load tap charger controlling device to achieve grid more efficient from adjust the load character by increase and decrease the voltage. So This WHVR is a transformer equipped with on load tap charger with WHVR controller sampling voltage and current data and on load tap charger steps from current transformer and voltage transformer and limit switches.

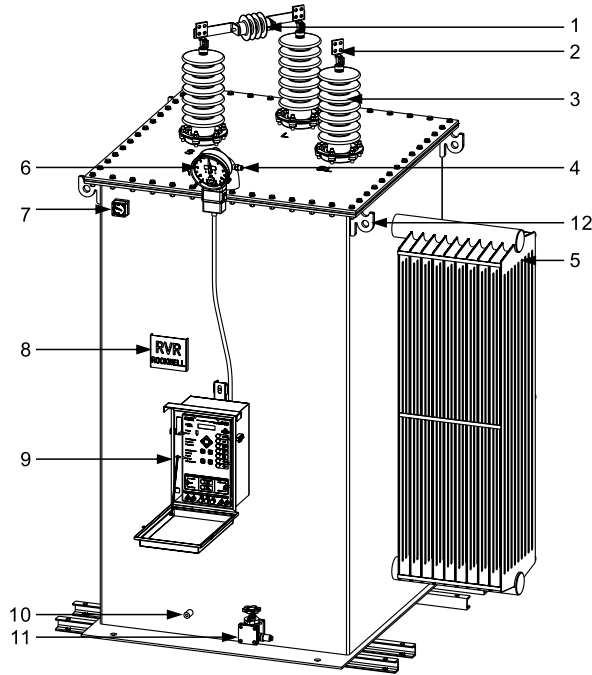
Normal Operation Condition

1. Ambient temperature: highest temperature: $+40^{\circ}\text{C}$, lowest temperature: -30°C ;
2. Altitude above sea level: no more than 1000m;
3. Wind speed: 34m/s(no more than 700Pa);
4. Humidity: daily average of relative humidity no more than 95%, Monthly average of relative humidity no more than 95%;
5. Shock resistance: horizontal acceleration no more than 0.4m/s^2 , vertical acceleration no more than 0.15m/s^2 ;
6. Slope of installation site: no more than 30° ;
7. Installation conditions: free of explosive and corrosive gas, no severe vibration and shock.

Load Current And KVA Ratings, 50/60 Hz

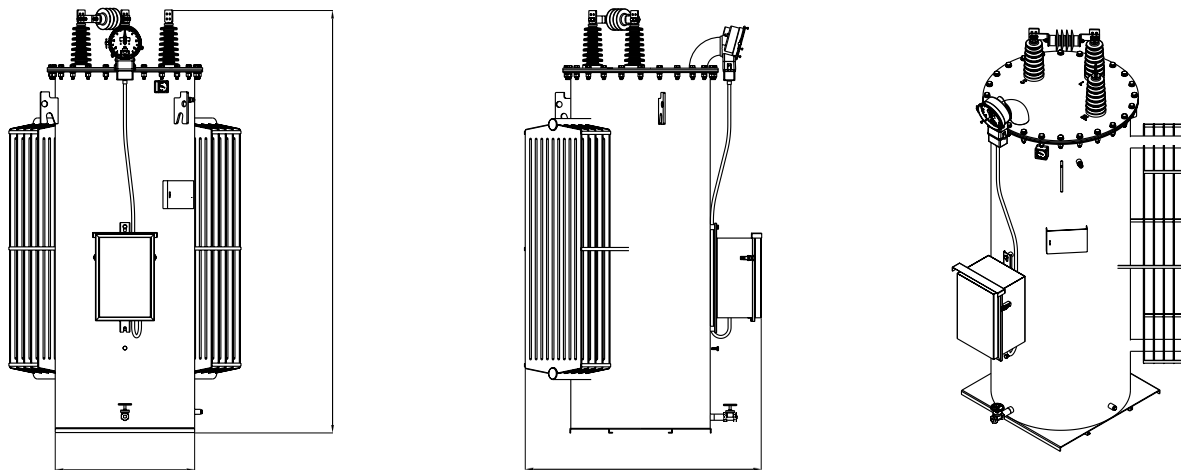
Voltage (kV)	Load Current (Amperes)	kVA
2.5 kV 60 kV BIL	200	50
	300	75
	400	100
	500	125
	668	167
	1000	250
	1332	333
	1665	416
5.0 kV 75 kV BIL	100	50
	150	75
	200	100
	250	125
	334	167
	500	250
	668	333
	833	416
7.62 kV 95 kV BIL	100	76
	150	114
	219	167
	328	250
	438	333
	546	416
	656	500
	875	667
	1093	833
13.8 kV 95 kVBIL	100	138
	150	207
	200	276
	300	414
	400	552
	483	667
	604	833
19.92 kV 150 kV BIL	50	100
	100	200
	167	333
	200	400
	335	667
	418	833
	502	1000

Rectangle Tank Type Outline Schematic Diagram



1. MOV-type external series arresters
2. Terminals block
3. High-creep porcelain bushings
4. Pressure relief device
5. Radiator group
6. Oil level gauge
7. The tap position indicator
8. Name palte
9. Control box
10. Ground stud
11. Oil drain valve with sampling device
12. Lifting lugs

Round Tank Type Outline Schematic Diagram



THREE PHASE STEP VOLTAGE REGULATOR



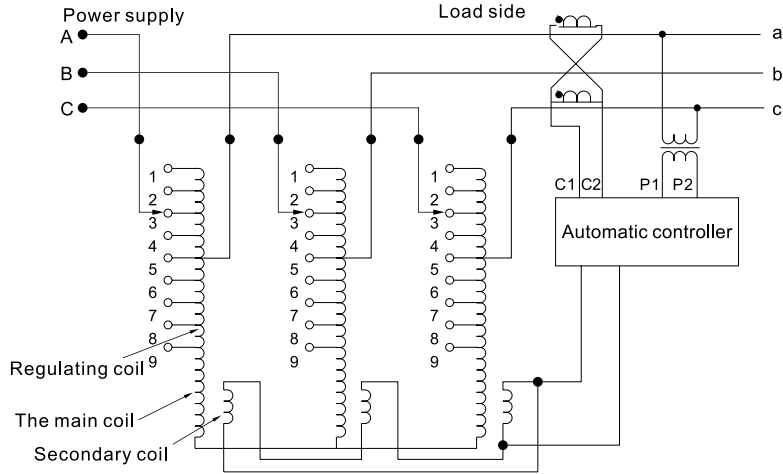
SUMMARY

The WHVR-3 type feeder automatic step voltage regulator is actually a three phase oil immersed auto- transformer with SVR controller and gathering sampling of voltage & current signal, on load tap charger controlling device to achieve grid more efficient from adjust the load character by increase and decrease the voltage. So This WHVR is equivalent to a transformer equipped with on load tap charger with SVR controller sampling voltage and current data and on load tap charger steps from current transformer and voltage transformer and limit switches.

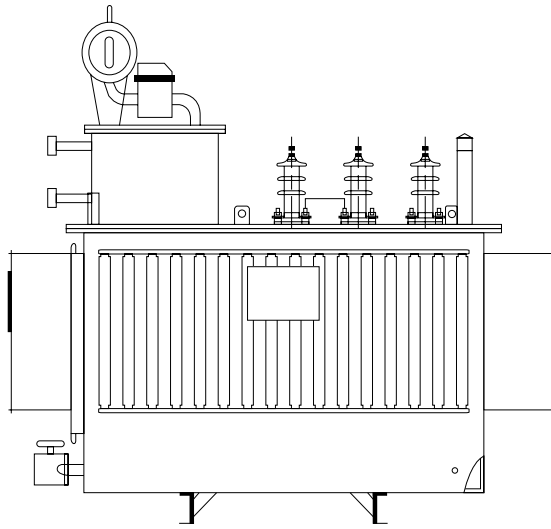
Environmental Conditions

1. Below an altitude of 2000m
2. Ambient temperature: Max. temperature is $+40^{\circ}\text{C}$ and the min. temperature is -25°C
3. Outdoor wind speed shall not exceed 35m/s
4. Pollution grade: Class II
5. Earthquake horizontal acceleration is not greater than 3m/s^2 , the vertical acceleration is not greater than 1.5m/s^2 , and the safety factor is more than 1.67.

Electrical Schematic



Electrical Schematic



Technical Parameter

	Parameter		
	Under 6.9kV	10kV up to 22kV	Under 35kV
	Less than 4000kVA	Less than 12500kVA	Less than 24000kVA
	Three phase		
	ONAN		
	Yao		
or group	7/9/16* steps		
Steps	1000,000 times		
Mechanical life	50,000times		
Electrical life	20%, 30%, 40%		
Voltage scope			

PAD-MOUNTED TRANSFORMER



SUMMARY

Pad-mounted transformer has outstanding features including reliable compact structure, fast and flexible installation, convenient operation, small size, etc. it can be widely used in industrial areas, residential communities, commercial centres, urban roads, high-rise buildings and other premises. The difference between this kind of product and prefabricated transformer is : Pad-mounted transformer is designed with integration of transformer part, high-voltage load switch, protective fuse and other devices, and placed in an oil tank for relatively comparably smaller size. It is suitable for both looped and radial network and can be changed conveniently for an enhanced reliability of power supply.

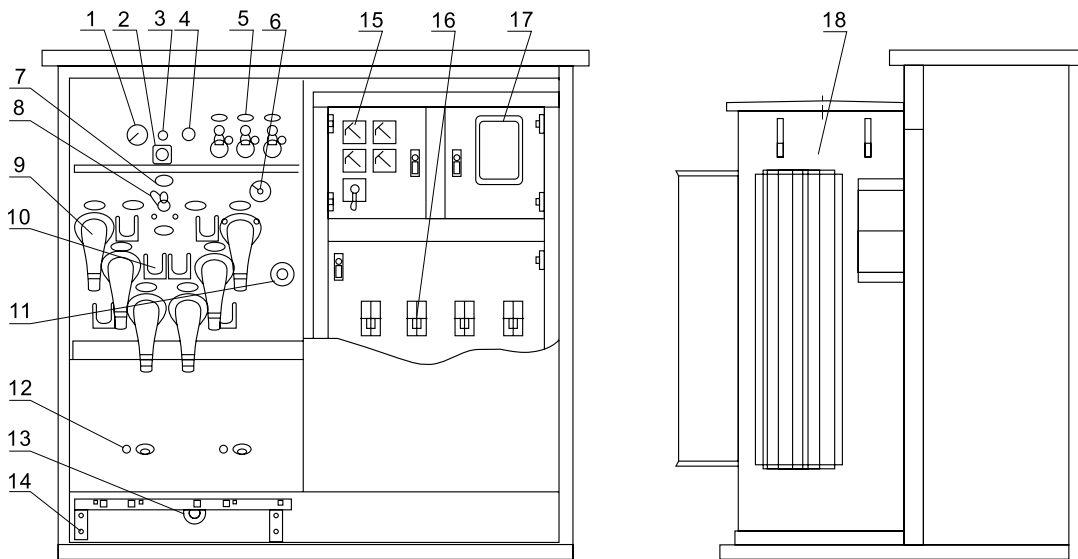
Operation Condition

1. Ambient temperature: highest temperature: +40°C lowest temperature: -30°C
2. Altitude above sea level: no more than 1000m
3. Wind speed: 34m/s (no more than 700Pa)
4. Humidity: daily average of relative humidity no more than 95%
5. Monthly average of relative humidity no more than 95%
6. Shock resistance: horizontal acceleration no more than 0.4m/s², vertical acceleration no more than 0.15/s²
7. Slope of installation site: no more than 30°
8. Installation conditions: free of explosive and corrosive gas, no severe vibration and shock.

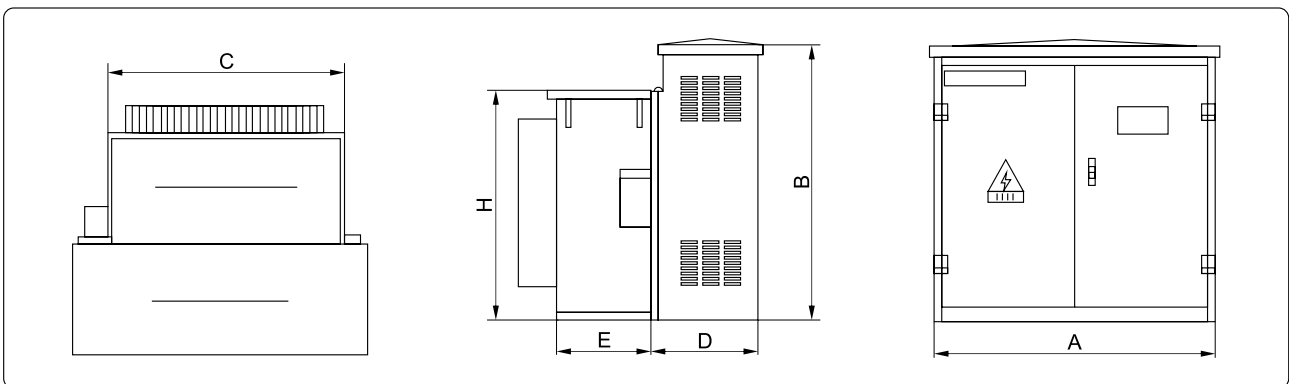
Structure View

HV: 1. Manometer; 2. Oil level gauge; 3. Air value; 4. Oiling plug; 5. Plug-in fuse; 6. Thermometer; 7. Load switch operation indicator plate 8. Load switch; 9. HV cable contactor; 10. Hanging; 11. Tap changer; 12. Earthing & earthing label; 13. Dual-purpose valve; 14. HV cable bracket.

LV: 15. Measuring equipment; 16. LV branch; 17. Measurement lead sealing; 18. Transformer oil tank.



External Dimensions of Product



Outline dimensional drawing of standard type					
Capacity	100~250	315~400	500~630	800~1000	1250
A	1840	1840	1840	2000	2200
B	1780	1780	1780	1780	1780
C	1250	1450	1550	1700	1780
D	800	800	800	800	800
E	555	555	625	725	855
H	1400	1500	1500	1500	1550

PREFABRICATED TRANSFORMER



SUMMARY

Prefabricated transformer is a kind of compact power distribution device that integrates high voltage electrical devices, transformer, low voltage electrical devices together. It can be used in high-rise buildings, buildings in urban and rural areas, residential communities, high-tech development areas, small & medium size factories, mining areas, oil fields, temporary construction sites, and other premises, and can also be used for acceptance and distribution of power in power distribution system.

Operation Condition

Altitude above sea level: no more than 1,000m

Ambient temperature: highest temperature $+40^{\circ}\text{C}$, lowest temperature -25°C , average temperature in 24 hours no more than $+35^{\circ}\text{C}$

Outdoor wind speed no more than 35m/s

Air relative humidity no more than 90%($+25^{\circ}\text{C}$)

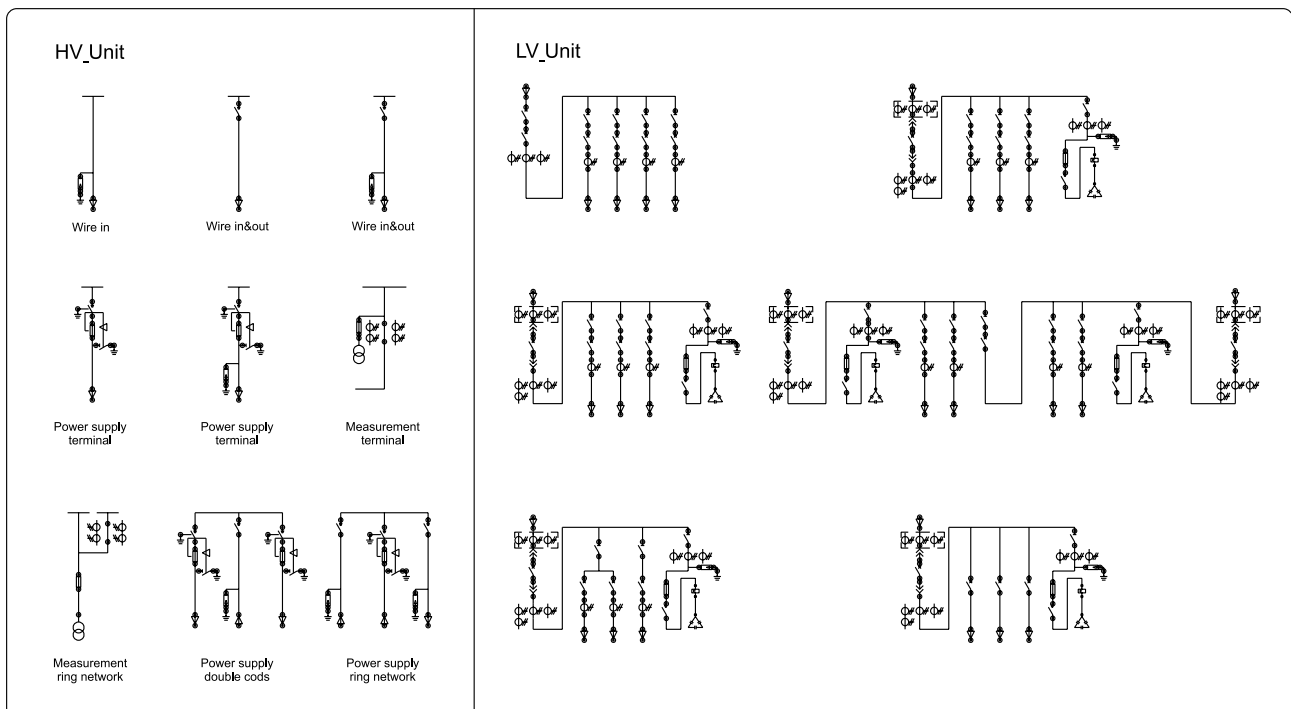
Shock resistance: horizontal acceleration no more than 0.4m/s^2 , vertical acceleration no more than 0.2m/s^2

Installation conditions: no risk of fire and explosion, free of serious contamination, chemical corrosion and severe vibration and shock.

Structural Features of Product

This product consists of high voltage power distribution device, transformer and low voltage power distribution device, it is divided into three function compartments, high voltage compartment, transformer compartment and low voltage compartment. Both high voltage and low voltage compartments are provided with all functions, the primary power supply system on high voltage side can be configured in various power supply methods, such as ring net power supply, terminal power supply, power supply with double supply. High voltage metering instrument can also be installed on high voltage side to satisfy the requirements for high voltage measurement. For transformer compartment, low loss oil immersed transformer and dry transformer are available, and the transformer compartment is equipped with self-start forced air cooling system and lighting system. The low voltage compartment can be equipped with panel or cabinet type structure based on customer's requirements, and has various functions including distribution for drive power, power distribution for lighting, compensation of reactive power, metering of electricity energy, and measurement of electricity consumption to meet various demands of customers and provide customers with convenient management and high quality in terms of power supply. High voltage compartment is designed with compact structure and interlock function of "five preventions" to completely protect from mis-operation. Upon customer request, the transformer can be equipped with guide rail for convenient access HV through the gates on both sides.

Circuit Schematic Diagram



Typical Appearance



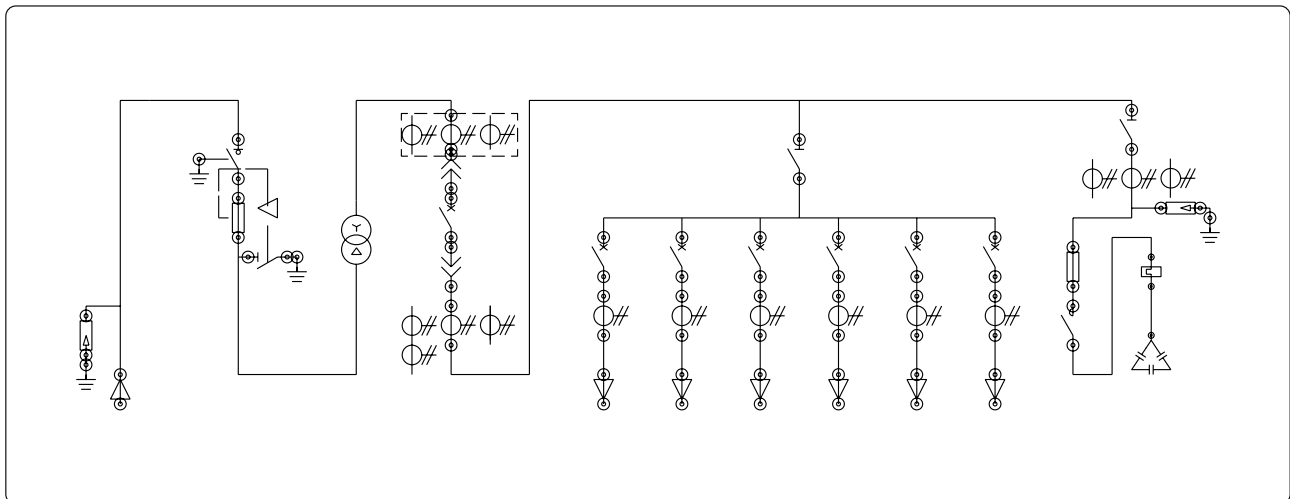
Steel cabinet



Aluminium alloy cabinet

Transformer

Arrangement Schematic Diagram

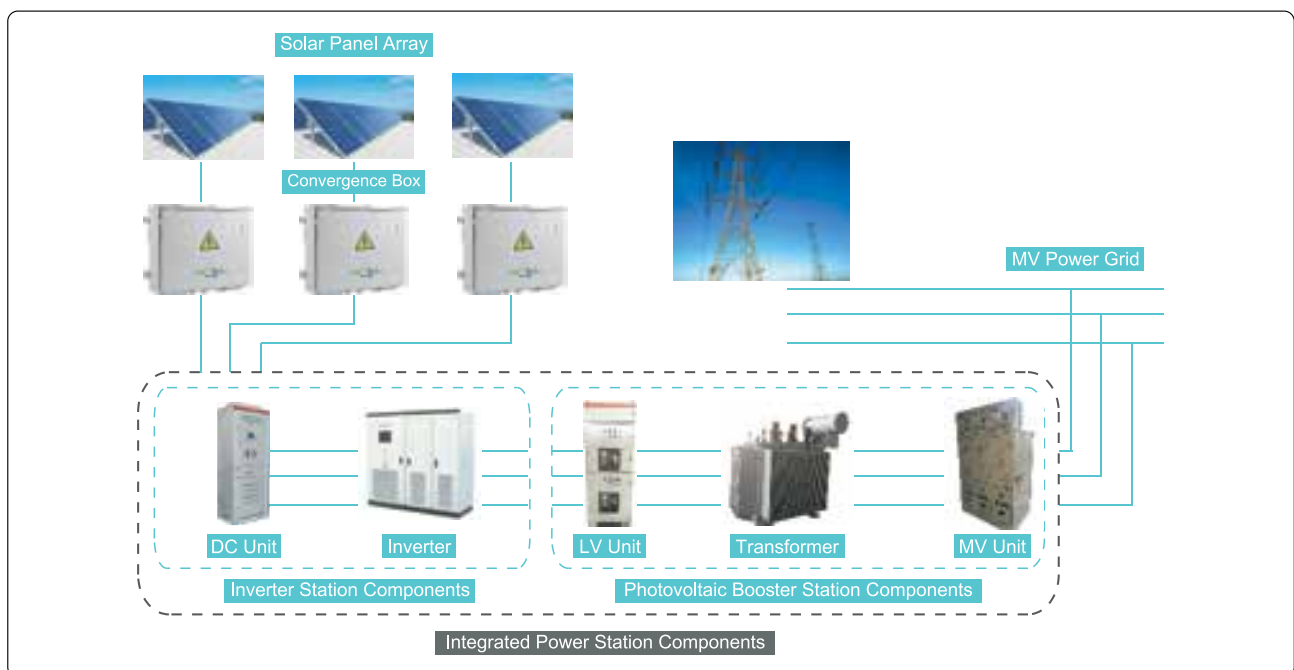




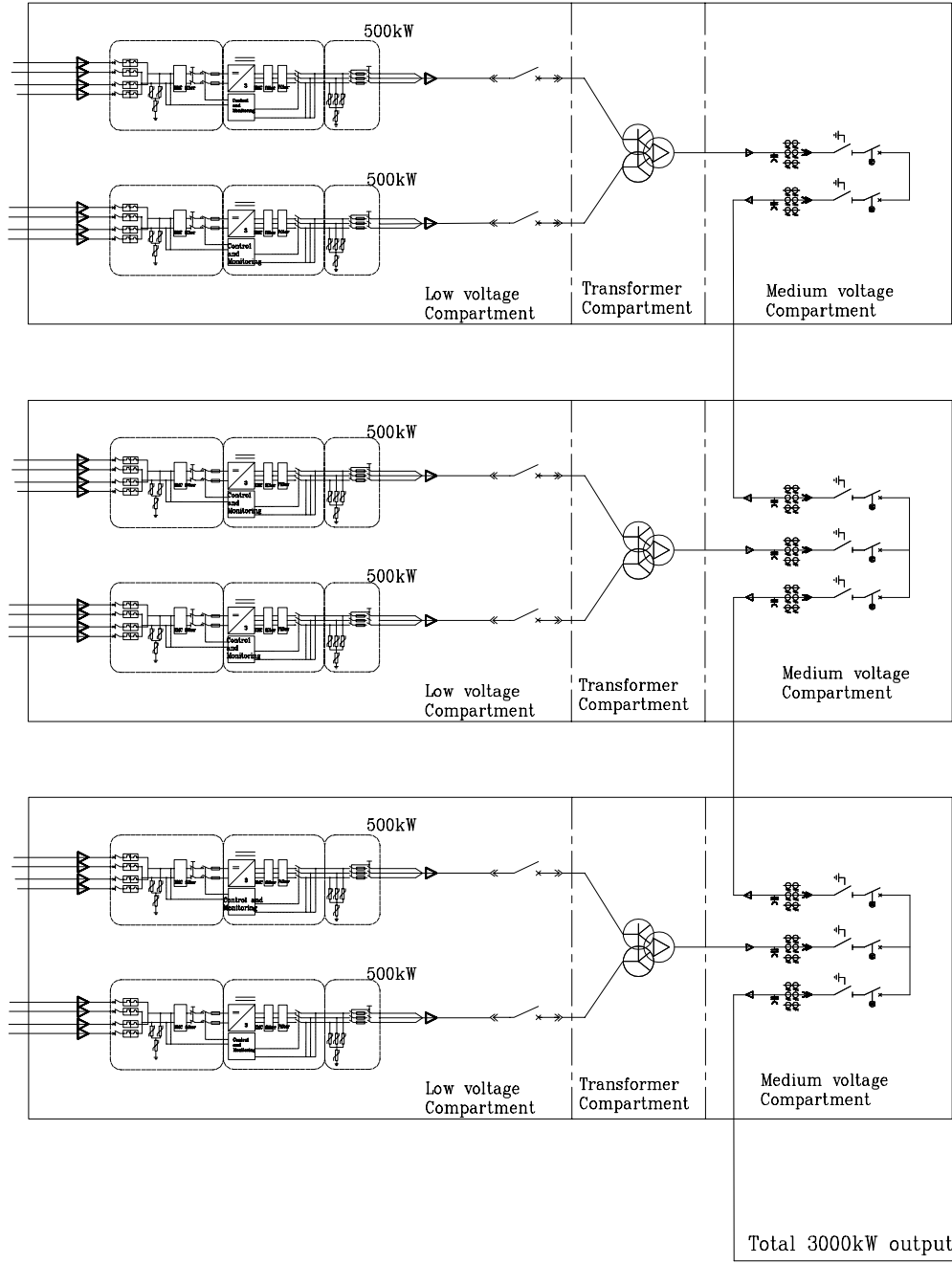
SUMMARY

Photovoltaic step-up transformer is a compact substation running in power grid; it could make the voltage of three-phase DC power from Photovoltaic panels, boost to 11KV or 33KV three-phase AC power. It can also be a box type inverter station and a step up station integrated into one integrated photovoltaic power generation station.

Station Configuration



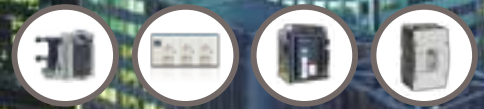
For connecting to the 33kV Grid



Note: we offer special customized products according to client's different requirement and according to the local grid voltage degree.



Worldwide



OUR PROMISE

Westinghouse is built upon a tradition of dependability and innovation.

Today, we strive to make everyday life a little better by offering a wide range of quality products and services you can trust.



WHY WESTINGHOUSE ?

Since 1886, Westinghouse has brought the best to life. Today, Westinghouse Electric Corporation remains a trusted name globally in consumer and industrial products. Built on a heritage of innovation and entrepreneurial spirit. Today, Westinghouse continues to grow its diverse portfolio, which includes a wide range of product categories, including home appliances, consumer electronics, lighting and power generation.





USA: Westinghouse
20 Stanwix Street | Pittsburgh | PA | 15222

Poland : Westinghouse LV MV Product sp. z o.o.
Warsaw, Rondo ONZ 1, 12 floor, 00-124 Warsaw, Poland

Malaysia : Westinghouse Lv Mv Product Sdn. Bhd.
Seberang Perai Selatan 14110 Simpang Ampat
Pulau Penang, Malaysia

WWW.westinghouselvmv.com

Email: info@westinghouselvmv.com