



# Transformers

Oil-immersed rated up to 220kV

Catalogue | Substation Portfolio

2025



Presentation 2



Product 4



Introduction	3
Standard compliance	3

General introduction

Complete portfolio and wide application

Our oil-immersed power transformers are rated up to 220kV and are type tested to IEC standards in KEMA (DNV) and ASTA. The transformers include various types, such as hermetically-sealed, dry-type, amorphous alloy, pad-mounted, and other special transformers used in electrical furnaces, rectifiers, mines, lightning protection, arcs, as well as for current and voltage transducers. Brunstock has a wide range of over 60 series, 800 types and 2000 specified transformers.



220kV Power transformer



Intelligent stereo warehouse with material



Test hall



CE certificates

Standard compliance

IEC standard	Description
IEC 60076-1: 2011	Power transformers - Part 1: General
IEC 60076-2: 2011	Power transformers - Part 2: Temperature rise for liquid-immersed transformers
IEC 60076-3: 2013+AMD1: 2018	Power transformers - Part 3: Insulation levels, dielectric tests and external clearances in air
IEC 60076-5: 2006	Power transformers - Part 5: Ability to withstand short circuit
IEC 60076-10: 2016	Power transformers - Part 10: Determination of sound levels

220kV transformer and technical data	5
110kV transformer and technical data	9
66kV transformer and technical data	12
35kV transformer and technical data	13



220kV Transformer

### 220kv transformer introduction

Brunstock's 220kV transformer features advanced electric, magnetic, thermal and mechanical computing software to calculate electro-magnetic field and magnetic flux leakage distributions, to analyse wave processes, and to select a reliable insulation margin, thus to guarantee product reliability.

The transformer has a multilevel stepped lap helical structure to reduce no-load losses and noise. Its core is supported by inside rods and its winding includes cardboard tubes to enhance its short-circuit withstand capacity. It also uses baffle plates to direct the oil flow for reduction of winding temperature rise. Heterotypic radiators are applied to improve the cooling centres and reduce oil temperature rises. All internal insulating parts and metal structural parts have rounded processing for the reduction of partial discharge.

The Brunstock 220kV transformer's core is automatically cut with high precision and few burrs. It works without folding the upper yoke, with surface coated double H curing adhesive and fastening. Our factory has vertical winding machines with digital control tension devices. The active part of the transformer adopts phase-assembly technology, and the lead is wholly pre-fabricated. Kerosene vapor-phase drying is controlled automatically.

Brunstock's manufacturing partners strictly control the quality of our products according to ISO 9001 standards.

Our 220kV transformer has passed a complete set of third party type tests, including a short-circuit withstand test.

To meet the needs of our product's end users, Brunstock can provide products of other voltage ratios, vector groups and rated capacities, as listed in the upcoming tables.

### 220kV transformer features

- Innovative structure layout
- Advanced technological measures
- Excellent quality assurance system

220kV Double-winding power transformer with off-circuit tap changer

220kV Double-winding power transformer with off-circuit tap changer									
Rated capacity (kVA)	Voltage ratio and tap range (kV)		Connection symbol	No-load loss (kW)	Full-load loss (kW)	Impedance (%)	No-load current (%)		
	HV	LV							
31500	220 242±2×2.5%	6.3 6.6 10.5 11	YNd11	35	135	12-14	0.70		
40000				41	157		0.70		
50000				49	189		0.65		
63000				58	220		0.65		
75000		10.5 11 13.8		11; 13.8; 15.75; 20	67		250	0.60	
90000					77		288	0.55	
120000					94		345	0.55	
150000		11; 13.8; 15.75; 20		15.75; 18; 20	112		405	0.50	
180000					128		459	0.46	
240000					160		567	0.42	
300000					189		675	0.38	
360000					217		774	0.38	

220kV Double-winding power transformer with off-circuit tap changer with 66kV of low voltage

220kV Double-winding power transformer with off-circuit tap changer with 66kV of low voltage							
Rated capacity (kVA)	Voltage ratio and tap range (kV)		Connection symbol	No-load loss (kW)	Full-load loss (kW)	Impedance (%)	No-load current (%)
	HV	LV					
31500	220±2×2.5%	63 66 69	YNd11	38	151	12-14	0.89
40000				45	176		0.89
50000				53	211		0.82
63000				63	247		0.82
90000				83	323		0.75
120000				102	387		0.75
150000				122	453		0.68
180000				138	513		0.68
240000				171	635		0.61

220kV Double-winding power transformer with on-load tap changer

220kV Double-winding power transformer with on-load tap changer									
Rated capacity (kVA)	Voltage ratio and tap range (kV)		Connection symbol	No-load loss (kW)	Full-load loss (kW)	Impedance (%)	No-load current (%)		
	HV	LV							
31500	220±8×1.25%	66.3; 6.6 10.5; 11 35; 37; 38.5	YNd11	38	135	12-14	0.70		
40000				45	157		0.63		
50000				54	189		0.56		
63000				63	220		0.56		
90000				80	288		0.49		
120000				99	346		0.49		
150000		10.5; 11 35; 37; 38.5		66 69	116		405	0.42	
180000					135		468	0.42	
120000					102		355	0.49	
150000					120		415	0.42	
180000					140		475	0.42	

220kV Three-winding auto-transformer with off-circuit tap changer

220kV Three-winding auto-transformer with off-circuit tap changer											
Rated capacity (kVA)	Voltage ratio and tap range (kV)			Connection symbol	No-load loss (kW)		Full-load loss (kW)		Impedance (%)		No-load current (%)
	HV	MV	LV		Step-up	Step-down	Step-up	Step-down	Step-up	Step-down	
31500	220 242±2×2.5%	115 121	6.6 10.5 11 35 37 38.5	YNyn0d11	25	22	117	99	H-M 12-14 H-L 8-12 M-L 14-18	H-M 8-10 H-L 28-34 M-L 18-24	0.50
40000					29	26	144	121			0.50
50000					34	30	170	144			0.43
63000					40	36	201	171			0.43
90000					50	46	276	234			0.36
120000					62	56	340	288			0.36
150000			70		60	405	342	0.33			
180000			80		72	464	387	0.33			
240000			95		86	595	504	0.25			

220kV Three-winding power transformer with off-circuit tap changer

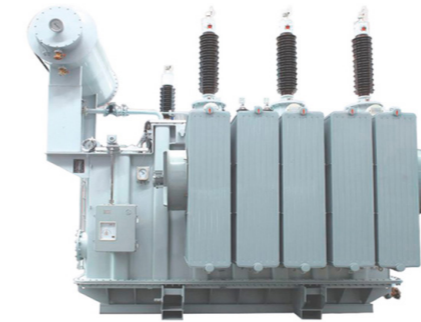
220kV Three-winding power transformer with off-circuit tap changer											
Rated capacity (kVA)	Voltage ratio and tap range (kV)			Connection symbol	No-load loss (kW)	Full-load loss (kW)	Impedance (%)		No-load current (%)		
	HV	MV	LV				Step-up	Step-down			
31500	220 242±2×2.5%	69 115 121	6.3 6.6; 10.5 11 35; 37 38.5	YNyn0d11	40	162	H-M	H-L	0.70		
40000					48	189			0.63		
50000					56	225			0.56		
63000					66	261			0.56		
90000			10.5; 11 13.8; 35 37; 38.5		86	351	H-L	H-M	0.49		
120000							106	432	12-14	12-14	0.49
150000							125	513	M-L	M-L	0.42
180000			11; 13.8 15.75 35; 37 38.5		142	585	7-9	7-9	0.42		
240000							176	720	0.35		
300000							208	750	0.30		

220kV Three-winding power transformer with on-load tap changer

220kV Three-winding power transformer with on-load tap changer											
Rated capacity (kVA)	Voltage ratio and tap range (kV)			Connection symbol	No-load loss (kW)	Full-load loss (kW)	Impedance (%)	No-load current (%)			
	HV	MV	LV								
31500	220±8×1.25%	69 115 121	6.3; 6.6 10.5; 11 35 37 38.5	YNyn0d11	44	162	H-L	0.77			
40000					52	189		0.70			
50000					60	225		0.63			
63000					70	261		0.63			
90000			10.5 11 35 37 38.5		92	351	H-M	H-M	0.56		
120000							115	432	12-14	12-14	0.56
150000							135	513	M-L	M-L	0.49
180000			159		630	7-9	7-9	7-9	0.49		
240000							193	780	0.45		

220kV Three-winding auto-transformer with on-load tap changer

220kV Three-winding auto-transformer with on-load tap changer											
Rated capacity (kVA)	Voltage ratio and tap range (kV)			Connection symbol	No-load loss (kW)	Full-load loss (kW)	Impedance (%)	No-load current (%)			
	HV	MV	LV								
31500	220±8×1.25%	115 121	6.3; 6.6; 10.5 11 35 37 38.5	YNyn0d11	25	108	H-L	0.56			
40000					30	132		0.56			
50000					36	157		0.49			
63000					42	189		0.49			
90000			10.5 11 35 37 38.5		51	247	H-M	H-M	0.42		
120000							64	308	8-10	8-10	0.42
150000							76	365	M-L	M-L	0.35
180000			85		419	18-24	18-24	18-24	0.35		
240000							104	540	0.30		



110kV transformer

110kV transformer introduction

The core of our 110kV power transformers is made of high-quality silicon-steel sheets that are laminated in steps. It is advantageous in low loss, low noise, and high short-circuit withstand capacity, etc. It is widely used in power stations and power plants where it is highly praised.

Brunstock's 110kV transformers have passed a complete set of tests including the short-circuit withstand capacity test. This transformer passed the type test in KEMA in Holland, the world's leading electrical laboratory.

110kV transformer features

- The core is made of high-quality CRGO (cold rolled grain oriented) silicon steel.
- Low loss and noise, and strong anti short-circuit capability.
- Widely used in various substations and power plants.

110kV Double-winding power transformers with off-circuit tap changer

110kV Double-winding power transformer with off-circuit tap changer							
Rated capacity (kVA)	Voltage ratio and tap range (kV)		Connection symbol	No-load loss (kW)	No-load current (%)	Full-load loss (kW)	Impedance (%)
	HV	LV					
6300	110 121±2×2.5%	6.3 6.6 10.5 11	YNd11	9.3	0.6	36	10.5
8000				11.2	0.6	45	
10000				13.2	0.55	53	
12500				15.6	0.55	63	
16000				18.8	0.5	77	
20000				22	0.5	93	
25000				26	0.45	110	
31500				30.8	0.45	133	
40000				36.8	0.4	156	
50000				44	0.4	194	
63000				52	0.35	234	
75000				59	0.35	278	
90000				68	0.3	320	
120000				84.8	0.3	397	
150000	100.2	0.3	472				
180000	112.5	0.25	532				

110kV Double-winding power transformers with on-load tap changer

110kV Double-winding power transformer with on-load tap changer							
Rated capacity (kVA)	Voltage ratio and tap range (kV)		Connection symbol	No-load loss (kW)	No-load current (%)	Full-load loss (kW)	Impedance (%)
	HV	LV					
6300	110 121±8×1.25%	6.3 6.6 10.5 11	YNd11	10	0.6	36	10.5
8000				12	0.6	45	
10000				14.2	0.55	53	
12500				16.8	0.55	63	
16000				20.2	0.5	77	
20000				24	0.5	93	
25000				28.4	0.45	110	
31500				33.8	0.45	133	
40000				40.4	0.4	156	
50000				47.8	0.4	194	
63000				56.8	0.35	234	
75000				63.4	0.35	278	
90000				73.1	0.3	320	
120000				91.2	0.3	397	

110kV Three-winding power transformers with off-circuit tap changer

110kV Three-winding power transformer with off-circuit tap changer									
Rated capacity (kVA)	Voltage ratio and tap range (kV)			Connection symbol	No-load loss (kW)	No-load current (%)	Full-load loss (kW)	Impedance (%)	
	HV	MV	LV					Step-up	Step-down
6300	110 121±2×2.5%	35 37 38.5±2×2.5% Or ±5%	6.3 6.6 10.5 11	YNyn0d11	11.2	0.6	47	H-M 10.5 H-L 17-18 M-L 6.5	H-M 17-18 H-L 10.5 M-L 6.5
8000					13.3	0.6	56		
10000					15.8	0.55	66		
12500					18.4	0.55	78		
16000					22.4	0.5	95		
20000					26.4	0.5	112		
25000					30.8	0.45	133		
31500					36.8	0.45	157		
40000					43.6	0.4	189		
50000					52	0.4	225		
63000					61.6	0.35	270		

110kV Three-winding power transformers with on-load tap changer

110kV Three-winding power transformer with on-load tap changer									
Rated capacity (kVA)	Voltage ratio and tap range (kV)			Connection symbol	No-load loss (kW)	No-load current (%)	Full-load loss (kW)	Impedance (%)	
	HV	MV	LV					Step-up	Step-down
6300	110±8×1.25%	35 37 38.5±2×2.5% Or ±5%	6.3 6.6 10.5 11	YNyn0d11	12	0.6	47	H-M 10.5 H-L 17-18 M-L 6.5	H-M 17-18 H-L 10.5 M-L 6.5
8000					14.4	0.6	56		
10000					17.1	0.55	66		
12500					20.2	0.55	78		
16000					24.2	0.5	95		
20000					28.6	0.5	112		
25000					33.8	0.45	133		
31500					40.2	0.45	157		
40000					48.2	0.4	189		
50000					56.9	0.4	225		
63000					67.7	0.35	270		



66kV Transformer

**66kV product introduction**

The bell type tank and the corrugated shell increases the strength of the tank and gives it a pleasing appearance. The core has a D-shaped yoke with a 45° mitre joint. The core and tank are securely fixed and well protected during transportation. The winding layout method is supported by interior and exterior strips. High-tension cardboard cylinders between coils increase the short-circuit withstand capacity. Advanced workmanship is used, such as crimp welding technology, phase-assembly technology for winding, and the cardboard process. To meet the client's needs, we can provide products of other voltage ratios, vector groups, and rated capacities, as listed in the tables.

**66kV Double-winding power transformer with off-circuit tap changer**

66kV Double-winding power transformer with off-circuit tap changer							
Rated capacity (kVA)	Voltage ratio and tap range (kV)		Connection symbol	No-load loss (kW)	No-load current (%)	Full-load loss (kW)	Impedance (%)
	HV	LV					
6300	63 66 69±2×2.5%	6.3 6.6 10.5 11	YNd11	9.2	0.6	36	9
8000				11.2	0.6	42.7	
10000				13.2	0.55	50.4	
12500				15.6	0.55	59.8	
16000				18.8	0.5	73.5	
20000				22	0.5	89.1	
25000				26	0.45	105.3	
31500				30.8	0.45	126.9	
40000				36.8	0.4	148.9	
50000				44	0.4	184.5	
63000				52	0.35	222.3	

**66kV Double-winding power transformer with on-load tap changer**

66kV Double-winding power transformer with on-load tap changer							
Rated capacity (kVA)	Voltage ratio and tap range (kV)		Connection symbol	No-load loss (kW)	No-load current (%)	Full-load loss (kW)	Impedance (%)
	HV	LV					
6300	63 66 69±8×1.25%	6.3 6.6 10.5 11	YNd11	10	0.6	36	9
8000				12	0.6	42.7	
10000				14.2	0.55	50.4	
12500				16.8	0.55	69.8	
16000				20.2	0.5	73.5	
20000				24	0.5	89.1	
25000				28.4	0.45	105.3	
31500				33.7	0.45	126.9	
40000				40.3	0.4	148.9	
50000				47.6	0.4	184.9	
63000				56.2	0.35	222.3	



35kV Transformer

**35kV transformer introduction**

Brunstock's series of 35kV transformers have the following characteristics: low loss, low noise, protection against thunder and lightning with a high short-circuit withstand capacity. They are made in advanced assembly lines with carefully qualified and refined methods and equipment. These transformers have four remote functions:

1. remote communication
2. remote test
3. remote adjustment
4. remote control

Using remote control, from a computer, the power station does not require on-site supervision.

Our 35kV series of energy-saving transformers have passed the identification test by the third party KEMA and ASTA (DNV) laboratory. The 35kV series of transformers are mainly used in urban and rural power grids and other industries, mining, power transmission and distribution, new energy solar, wind farms and also agriculture projects.

**35kV transformer features**

- The core is processed by the advanced method of vertical cut, horizontal cut, and stacking with stepped lap core and grade 3 seams. It disperses the air distribution and improves flux trend, thus decreasing the no-load loss, no-load current and noise;
- The core uses particular adhesives for the plate, press ring and silicon steel surfaces. The overall structure is designed with a range of measures that increase its mechanical strength;
- A new structure of HV and LV windings combine with a reasonable layout of oil duct and connecting areas to increase the mechanical strength and short-circuit withstand capacity;
- The tank is a bell type or core-lifting type, and the tank side is corrugated, with flowing lines, simplicity and a nice appearance.



50-1600/35 Three-phase double-winding distribution transformer with off-circuit tap changer

50-1600/35 Three-phase double-winding distribution transformer with off-circuit tap changer																	
Rated capacity (kVA)	Voltage ratio and tap range (kV)		Connection symbol	Loss value for S9 serial		Loss value for S10 serial		Loss value for S11 serial		No-load current (%)	Impedance (%)	Weight		Outline dimension			Gauge mm
	HV	LV		No-load	Full load	No-load	Full load	No-load	Full load			Oil	Total	L	W	H	
50	35 38.5 ±5 Or ±2 ×2.5%	0.4	Yyn0 Dyn11	0.21	1.21	0.19	1.15	0.17	1.15	2	6.5	275	740	1100	1000	1700	660
100				0.29	2.02	0.26	1.92	0.23	1.92	1.8		350	995	1100	1150	1750	660
125				0.34	2.38	0.31	2.26	0.27	2.26	1.7		430	1250	1100	1150	1800	660
160				0.36	2.83	0.32	2.69	0.29	2.69	1.6		450	1405	1160	1150	1860	660
200				0.43	3.33	0.39	3.16	0.34	3.16	1.5		495	1460	1230	1300	1950	660
250				0.51	3.96	0.46	3.76	0.41	3.76	1.4		520	1625	1250	1300	2000	660
315				0.61	4.77	0.55	4.53	0.49	4.53	1.4		590	1915	1400	1320	2070	820
400				0.73	5.76	0.66	5.47	0.58	5.47	1.3		680	2175	1510	1350	2150	820
500				0.86	6.93	0.77	6.58	0.69	6.58	1.2		760	2485	1620	1370	2240	820
630				1.04	8.28	0.94	7.87	0.83	7.87	1.1		830	2950	1750	1390	2330	820
800				1.23	9.9	1.11	9.41	0.98	9.41	1		880	3370	1900	1420	2400	820
1000				1.44	12.15	1.3	11.54	1.51	11.54	1		1005	4140	2165	1450	2485	820
1250				1.76	14.67	1.58	13.94	1.41	13.94	0.9		1160	4700	2230	1500	2600	1070
1600				2.12	17.55	1.91	16.67	1.7	16.67	0.8		1250	5570	2250	1650	2650	1070

630-2500/35 Three-phase double-winding distribution transformer with off-circuit tap changer

630-2500/35 Three-phase double-winding distribution transformer with off-circuit tap changer																	
Rated capacity (kVA)	Voltage ratio and tap range (kV)		Connection symbol	Loss value for S9 serial		Loss value for S10 serial		Loss value for S11 serial		No-load current (%)	Impedance (%)	Weight		Outline dimension			Gauge mm
	HV	LV		No-load	Full load	No-load	Full load	No-load	Full load			Oil	Total	L	W	H	
630	35 38.5 ±5 Or ±2 ×2.5%	6.3 6.6 10 10.5 11	Yd11	1.04	8.28	0.94	7.87	0.83	7.87	1.1	6.5	0.65	2.9	2100	1300	2300	820
800				1.23	9.9	1.11	9.4	0.98	9.4	1		0.7	3.2	2200	1350	2350	820
1000				1.44	12.15	1.3	11.54	1.15	11.54	1		0.85	3.5	2350	1450	2400	820
1250				1.76	14.67	1.58	13.94	1.41	13.94	0.9		1.01	3.84	2500	1600	2450	1070
1600				2.12	17.55	1.91	16.67	1.7	16.67	0.8		1.2	5	2600	1700	2500	1070
2000				2.72	19.35	2.45	18.38	2.18	18.38	0.7		1.28	6	2730	1800	2600	1070
2500				3.2	20.7	2.88	19.67	2.56	19.67	0.6		1.4	7	2870	1900	2700	1070

35kV Double-winding distribution transformer with off-circuit tap changer

35kV Double-winding power transformer with off-circuit tap changer							
Rated capacity (kVA)	Voltage ratio and tap range (kV)		Connection symbol	No-load loss (kW)	No-load current (%)	Full-load loss (kW)	Impedance (%)
	HV	LV					
3150	35 38.5±2×2.5%	3.15 3.3 6.3 6.6 10.5 11	Yd11	3.8	0.56	24.3	7.0
4000				4.52	0.56	28.8	
5000				5.4	0.48	33.03	
6300			6.56	0.48	36.9	7.5	
8000			9	0.42	40.5		
10000			10.88	0.42	47.7		
12500			12.6	0.40	56.7	8.0	
16000			15.2	0.40	69.3		
20000			18	0.40	83.7		
25000			21.28	0.32	99		
31500			25.28	0.32	118.8		

35kV Double-winding distribution transformer with on-load tap changer

35kV Double-winding power transformer with on-load tap changer							
Rated capacity (kVA)	Voltage ratio and tap range (kV)		Connection symbol	No-load loss (kW)	No-load current (%)	Full-load loss (kW)	Impedance (%)
	HV	LV					
3150	35 38.5±3×2.5%	6.3 6.6 10.5 11	Yd11	4.04	0.72	26.01	7.0
4000				4.84	0.72	30.69	
5000				5.8	0.68	36	
6300			7.04	0.68	38.7	7.5	
8000			9.84	0.6	42.75		
10000			11.6	0.6	50.58		
12500			13.68	0.56	59.85	8.0	
16000			16.46	0.54	74.02		
20000			19.46	0.54	87.14		

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