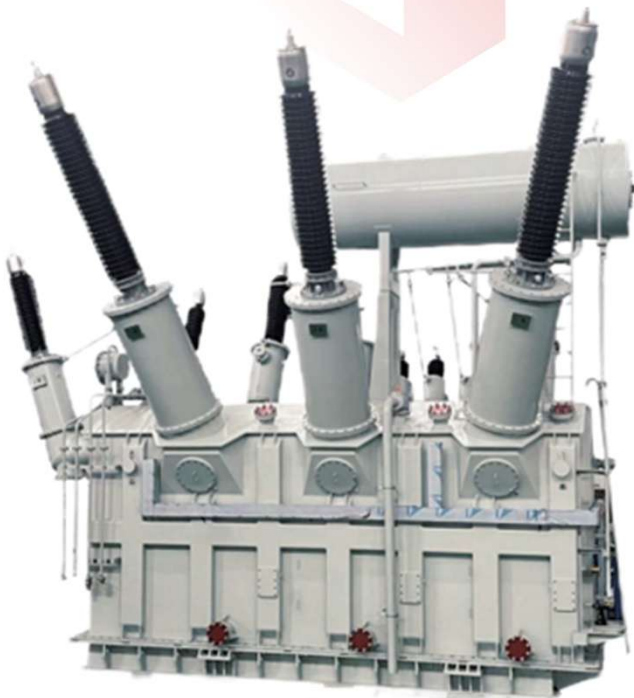


Transformer Dimensions and Ratings

KVA Ratings	110KV to 500KV
No. of Phases	Three-Phase
Frequency	50 Hz – 60 Hz
Primary Voltage	110±2x 2.5%,121 ±2x2.5%
Secondary Voltage	6.3,6.6,10.5, 11
Tapping Range	35,38.5
Winding Material	Copper, Aluminum
Cooling Type	ONAN, ONAF
Fluid Type	Non-PCB Mineral Oil or FR3 Fluid
Connection Type	Delta-Wye
Mounting	Stationary Substation Installation

Substation Transformers



Power Transformers

Two Winding Power Transformer

Rated Capacity (kVA)	High Voltage (kV)	Tapping Range	Low Voltage (kV)	Vector Group	No-load Loss (%)	Impedance Voltage (%)	No-load Losses (kW)	On-load Losses (kW)
6300	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.77	630	9.3	36
8000	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.77	910	11.2	45
10000	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.72	1310	13.2	53
12500	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.72	1580	15.6	63
16000	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.67	1890	18.8	77
20000	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.67	2310	22.0	93
25000	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.62	2730	26.0	110
31500	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.60	3200	30.8	133
40000	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.56	3830	36.8	156
50000	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.52	4540	44.0	194
63000	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.48	5410	52.0	234
75000	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.42	6200	59.0	278
90000	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.38	7500	68.0	320
120000	110, 112	±2×2.5%	6.3, 6.6, 10.5, 11	YNd11	0.34	10300	84.8	397



Power Transformers

Three Winding Power Transformer

Rated Capacity (kVA)	High Voltage (kV)	Tapping Range	Low Voltage (kV)	Vector Group	No-load Current (%)	Impedance Voltage - Step Up (%)	Impedance Voltage - Step Down (%)	No-load Losses (kW)	On-load Losses (kW)
6300	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.82	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	11.2	47
8000	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.78	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	13.2	56
10000	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.74	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	15.8	66
12500	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.7	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	18.4	78
16000	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.68	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	22.4	94
20000	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.65	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	26.4	112
25000	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.6	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	30.8	133
31500	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.58	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	36.8	157
40000	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.56	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	43.6	189
50000	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.55	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	52	225
63000	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.55	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	61.6	270
75000	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.5	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	70.2	307.7
80000	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.5	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	73.7	323
120000	110±2x2.5%, 121±2x2.5%	35, 38.5	6.3, 6.6 / 10.5, 11	Yyn0d11	0.5	HV-MV: 17.5-18.5HV-LV: 17.5-18.5MV-LV: 6.5	HV-MV: 10.5HV-LV: 17.5-18.5MV-LV: 6.5	87.1	381.8

Transformer Testing (ANSI C57.12.90)

All substation transformers undergo the following standard commercial tests:

No-Load Losses	Evaluated at rated voltage
Load Losses	Measured under rated conditions
Percent Impedance	Calculated at rated current
Excitation Current Test	Conducted at 100% voltage
Ratio Tests	Ensured across all tap settings
Polarity and Phase Relation Tests	Verifies orientation
Induced Potential Tests	Simulates electrical stress scenarios
Impulse Tests	Full wave and reduced wave performance tested

Tank and Material Specifications

Tank Material	Mild Steel or Stainless Steel with advanced coating systems
Tank Coating System	Complies with IEEE Std C57.12.28 for durability
Enclosure Type	Weather-resistant construction suitable for outdoor substation environments

Standards and Certifications

Sound Level	Designed to meet NEMA Noise Standards
IEEE Compliance	Conforms to IEEE C57.12.10 Standards
UL Certification	UL Listed and Compliant
Efficiency	Meets DOE 2016 Efficiency Standards or higher
Temperature Rise Options	55°C, 65°C, 65/75°C

Primary Protection Devices

Internal Fuses	Current-limiting types for overcurrent protection
External Surge Arresters	Available for high-voltage applications

Quality Control and Warranty

Quality System	ISO 9001 Certified
Routine Tests	Conducted per ANSIÂ® and IEEEÂ® standards
Warranty	Industry-standard coverage for defects and performance

Power & Auto Transformers (69–765 kV | up to 1500 MVA)

Category	Recommended Technical Fields
Electrical Ratings	HV/MV/LV ratings, phases (1Φ/3Φ), vector group (YNd11, Yy0, etc.), frequency (50/60 Hz)
Thermal Performance	Cooling method (ONAN, ONAF, OFAF), winding temperature rise (65/75 °C), hot-spot limit
Tap-Changer	OLTC/NLTC type, voltage range (±2×2.5%, ±4×1.25%), number of steps, rated current
Losses & Efficiency	No-load losses (kW), load losses (kW), guaranteed efficiency at 25%, 50%, 100% load
Impedance	%Z @ rated MVA, short-circuit withstand level, positive/zero sequence impedance
Insulation & BIL	Lightning impulse (LI), switching impulse (SI), power frequency withstand levels (kV)
Sound & Vibration	Guaranteed sound level (dBA), vibration isolators
Mechanical Data	Core material, core configuration (3-limb/5-limb), total weight, transport weight, tank size
Testing & Compliance	IEC 60076, ANSI C57, routine/type/special test checklist
Accessories	Bushing type (OIP/RIP), PRD, Buchholz relay, oil level indicators, digital temp monitors

Shunt Reactors (35–1000 kV | up to 320 MVar)

Category	Recommended Technical Fields
Voltage Ratings	Nominal voltage, phase (1Φ/3Φ), insulation class
MVar Capacity	Rated reactive power, core/reactor type (gapped core, air-core, iron-core)
Impedance & Inductance	Nominal inductance, total loss (core + stray), Q factor
Losses	No-load loss < 0.5%, stray losses, load factor impact
Cooling	Natural air (dry), ONAN, ONAF
Noise Level	≤ 65–75 dBA
Impulse Ratings	LIWL, PF withstands
Mounting	Skid type or platform-based
Testing	Magnetic balance, induced voltage, high voltage withstand

HVDC Converter Transformers (±50 kV to ±800 kV)

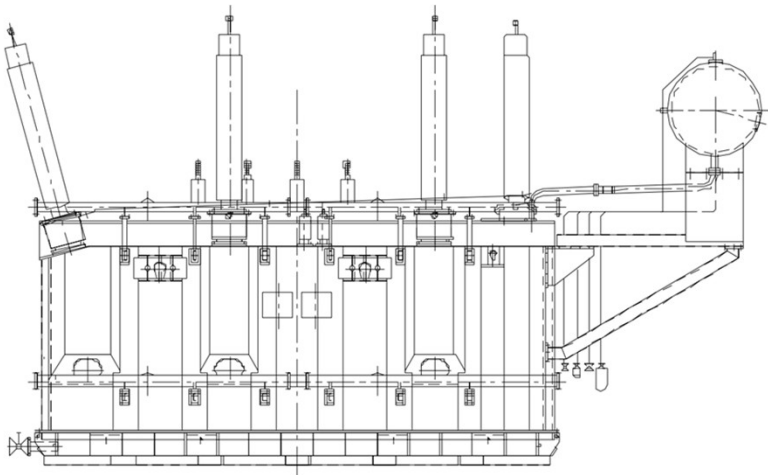
Category	Recommended Technical Fields
Electrical Ratings	Valve/line side voltages, MVA rating, bipolar/monopolar configuration
DC Specific Design	DC bias withstand, harmonic withstand (% THD), dielectric clearances for DC and impulse
Tap-Changer	OLTC with extended range (up to ±25%), adaptive voltage control
Impedance	% impedance (e.g., 15–18%), leakage reactance
Losses & Heating	Losses under harmonic-rich conditions, hotspot rise under composite loads
Cooling System	OFAF or ODAF with oil flow management system
Testing	Dual-frequency tests, polarity reversal, lightning impulse, switching impulse, chopped wave
Accessories	Valve bushings, smoothing reactor terminals, shielding devices, external tap boxes

Rectifier & Arc Furnace Transformers (35–220 kV | up to 140 MVA)

Category	Recommended Technical Fields
Electrical Ratings	HV/rectifier side voltage, MVA rating, phase configuration, connection group
DC Output Spec	Secondary voltage, max DC current (e.g., 44,000 A), number of pulse (6/12-pulse)
Short Circuit Design	Dynamic forces, bracing, %Z (typ. 7–9%), short-circuit duration withstand
Cooling	ONAN/ODAF with overload profile, forced oil flow control
Losses & Overload	Total losses, overload curves (15 min, 30 min), transient thermal limits
Tap-Changer	Off-load or on-load tapper, especially for arc voltage regulation
Testing	Impulse withstand, thermal cycle, core hot spot monitoring
Accessories	Current transformers, temperature alarms, explosion vent



Dimensions & Features



Cast Coil Dry-Type Transformers (10–35 kV | up to 20 MVA)

Category	Recommended Technical Fields
Electrical Ratings	Rated voltage, class, number of windings, insulation class
Insulation System	Vacuum cast epoxy resin, class F/H, PD-free at 1.1x rated voltage
Cooling	AN, AF; natural/forced air cooling, with vented enclosure
Losses	Core loss, load loss, thermal rise (max 100 °C)
Impedance	4–8% depending on kVA class
Protection Class	IP00, IP23, or up to IP44 for special installations
Testing	Induced voltage, heat run, lightning impulse, PD measurement
Accessories	Temperature sensors, protection relays, enclosure panels

Railway Traction Transformers (≤35 kV | ≤20 MVA)

Category	Recommended Technical Fields
Electrical Ratings	Input/output voltage, Vv/Scott-T wiring scheme, kVA rating
Tap-Changer	Off-load or on-load ±2x2.5%, automatic tap position logic
Load Balancing	Phase load equalization curve, impedance per leg
Thermal & Overload	Thermal withstand under cyclic loading, ambient temperature profile
Short Circuit Strength	Fault withstand, electromagnetic design, bracing details
Protection & Monitoring	Bushing sensors, Buchholz relay, pressure relief, oil temp gauge
Testing	Railway-specific: vibration endurance, high surge withstand, harmonics



101 College Rd E,
Princeton, NJ 08540 USA

+1-640-250-3847

info@premier-transformer.com

© 2025 Premier Transformer
All rights reserved.