

# Power Transformer

## High-Voltage (HV) Transformer

Logo & Packaging Customization

Parameter & Drawing Design Customization



OPTIMIZED  
PERFORMANCE



HIGH  
EFFICIENCY



SUPERIOR  
SAFETY



ECO  
FRIENDLY



MAINTENANCE  
FREE



### Overview

**Strategic Grid Infrastructure:** Engineered as the essential backbone for modern electrical grids, our high-voltage transformers deliver stable and efficient power transmission for diverse infrastructure and industrial applications.

**High-Performance Engineering:** Utilizing high-permeability silicon steel and advanced insulation systems, our designs minimize energy loss and ensure a maintenance-free service life exceeding 20 years in harsh outdoor environments.

**Standardized Global Quality:** Every unit is strictly manufactured and tested to exceed IEC, IEEE, and ANSI standards, undergoing a comprehensive suite of performance tests to guarantee absolute operational safety.

**Tailored Engineering & Customization:** Tailored Engineering & Customization: We offer full design flexibility, providing customized voltage ratios, specialized cooling configurations, and reinforced tank designs to meet the most exacting regional grid specifications.

### Application



#### Utility & Grid Substations

Long-distance power transmission and regional grid voltage regulation.

#### Heavy Industry & Mining

English: High-capacity power for industry, petrochemicals, and mining.

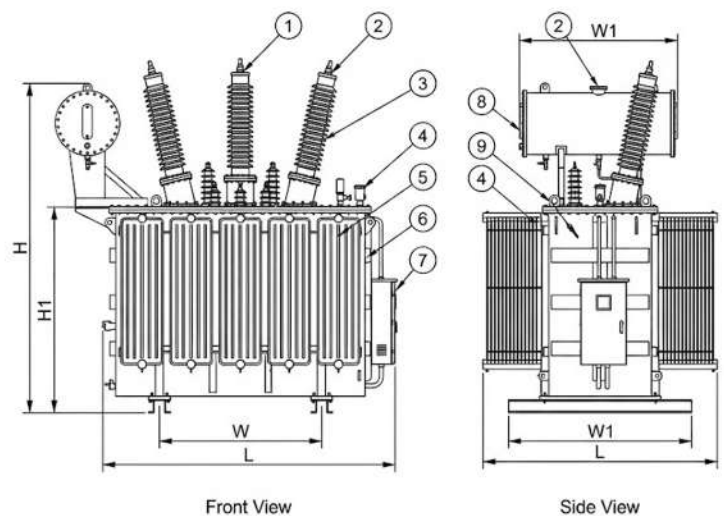


#### Renewables & Infrastructure

Grid integration for solar/wind farms and power for major transportation hubs.



### Outline Drawing



1. High Voltage Bushing (110kV)
2. Low Voltage Bushing
3. Conservator Tank
4. Radiator Bank
5. Control Cabinet (OLTC)
6. Main Tank
7. Lifting Lug
8. Oil Level Indicator
9. Pressure Relief Device

### Accessories / Components



## Technical Parameters

**Table 1: Technical Parameters for HV Power Transformers (Capacity in kVA)**  
Typically used for 35kV ~ 110kV sub-transmission and industrial primary substations.

| HV Rating<br>(kV) | Rated Capacity<br>(kVA) | Tapping Range<br>(%) | LV Rating<br>(kV) | Vector Group | No-load Current (i0)<br>(%) | Impedance (uk)<br>(%) | No-load Loss (P0)<br>(kW) | Load Loss (Pk)<br>(kW) |
|-------------------|-------------------------|----------------------|-------------------|--------------|-----------------------------|-----------------------|---------------------------|------------------------|
| 35 kV             | 3,150                   | ±3×2.5%              | 6.3/10.5          | Dyn11        | 0.6                         | 7                     | 3.2                       | 24.5                   |
|                   | 6,300                   | ±3×2.5%              | 10.5              | Ynd11        | 0.5                         | 8                     | 5.4                       | 38                     |
|                   | 10,000                  | ±3×2.5%              | 10.5              | Ynd11        | 0.45                        | 8                     | 7.8                       | 54                     |
| 66 kV             | 12,500                  | ±8×1.25%             | 10.5              | Ynd11        | 0.42                        | 9                     | 9.5                       | 65                     |
|                   | 20,000                  | ±8×1.25%             | 10.5              | Ynd11        | 0.38                        | 10                    | 13.2                      | 92                     |
| 110 kV            | 6,300                   | ±8×1.25%             | 10.5/38.5         | YNyn0d11     | 0.53                        | 10.5                  | 4.9                       | 32.0~40.0              |
|                   | 10,000                  | ±8×1.25%             | 10.5/38.5         | YNyn0d11     | 0.47                        | 10.5                  | 6.9                       | 56                     |
|                   | 25,000                  | ±8×1.25%             | 10.5/38.5         | YNyn0d11     | 0.38                        | 10.5                  | 13.5                      | 113                    |
|                   | 50,000                  | ±8×1.25%             | 10.5/38.5         | YNyn0d11     | 0.34                        | 10.5                  | 22.9                      | 187                    |

**Table 2: Technical Parameters for EHV/Large Power Transformers (Capacity in MVA)**  
Focused on 110kV ~ 500 kV main grid transmission and generation step-up units.

| HV Rating<br>(kV) | Rated Capacity<br>(MVA) | Tapping Range<br>(%) | LV Rating<br>(kV) | Vector Group | No-load Current (i0)<br>(%) | Impedance (uk)<br>(%) | No-load Loss (P0)<br>(kW) | Load Loss (Pk)<br>(kW) |
|-------------------|-------------------------|----------------------|-------------------|--------------|-----------------------------|-----------------------|---------------------------|------------------------|
| 110 kV            | 63                      | ±8×1.25%             | 10.5/38.5         | YNyn0d11     | 0.3                         | 12.0~14.0             | 26                        | 212                    |
|                   | 90                      | ±8×1.25%             | 10.5/38.5         | YNyn0d11     | 0.26                        | 12.0~14.0             | 32                        | 275                    |
| 220 kV            | 120                     | ±8×1.25%             | 38.5/11           | YNyn0d11     | 0.22                        | 14                    | 44.1                      | 359                    |
|                   | 180                     | ±8×1.25%             | 38.5/11           | YNyn0d11     | 0.16                        | 14                    | 49.5                      | 411                    |
| 330 kV            | 240                     | ±8×1.25%             | 110/35            | YNyn0d11     | 0.12                        | 15                    | 65                        | 560                    |
|                   | 360                     | ±8×1.25%             | 110/35            | YNyn0d11     | 0.1                         | 16                    | 88                        | 780                    |
| 500 kV            | 400                     | ±10×1.21             | 230/35            | Auto-transf. | 0.08                        | 18                    | 115                       | 920                    |
|                   | 750                     | ±10×1.21             | 230/35            | Auto-transf. | 0.06                        | 18.0~20.0             | 145                       | 1250                   |

### 1. Product Structure & Layout Analysis

#### Transformer Body

· The core adopts a three-phase three-column structure, made of high-quality cold-rolled grain-oriented silicon steel sheets to minimize losses and noise.

· Windings are manufactured with oxygen-free copper wires and use new insulation structures to enhance short-circuit withstand capability.

#### High-Voltage (HV) Interval

· Includes high-voltage inlet wires, On-Load Tap Changers (OLTC), pressure relief devices, and oil temperature monitors.

· Equipped with professional-grade bushings to ensure reliable insulation and external connection.

#### Oil Tank & Cooling System:

· The tank uses corrugated sheets or high-efficiency radiators to maximize heat dissipation area.

· Surface treatment follows strict anti-corrosion standards (C4/C5-M) for long-term outdoor operation.

### 2. Installation & Site Preparation Guidelines

#### Foundation Requirements

· The installation pad must be level and capable of supporting the Total Weight specified in the datasheet.

· Ensure adequate oil drainage pits (Oil Sump) are prepared according to local environmental regulations.

#### Vacuum Oil Filling

· For transformers 110kV and above, vacuum oil filling must be performed to remove moisture and air bubbles from the insulation system.

#### Safe Clearances

· Maintain minimum phase-to-phase and phase-to-ground clearances as per IEC/IEEE standards based on the voltage level (e.g., 110 kV 220 kV).

· Surface treatment follows strict anti-corrosion standards (C4/C5-M) for long-term outdoor operation.

#### Commissioning Tests

· Mandatory tests include: Insulation resistance (Megger), Turns Ratio (TTR), Oil Dielectric Strength (BDV), and Sweep Frequency Response Analysis (SFRA).

### 3. Smart Monitoring & Protection Suite

#### Active Gas Protection

· Utilizes a Buchholz Relay to detect internal incipient faults through gas accumulation and abnormal oil flow..

#### Instantaneous Pressure Relief

· Heavy-duty Pressure Relief Devices (PRD) with mechanical indicators ensure the tank remains intact during severe internal faults.

#### Remote Temperature Monitoring

· Integrated winding and oil temperature indicators provide real-time data to the control room via 4 - 20 mA or RS485/ Modbus\$ signals.

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