



### Quality Policy

Satisfy our customers by providing them with quality products and services at all times that completely meet their requirements with continuous quality improvement.

Your one source for power

**Experience**  
**Expertise**  
**Excellence**



**SPEL**

**SUPREME POWER  
EQUIPMENT PRIVATE LIMITED**

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## Company Profile

**S**upreme Power Equipment Private Limited (SPEL) is a company dedicated to quality and service, engaged in manufacture and supply of oil filled Power and Distribution Transformers of ratings up to 25 MVA 132 kV Class. Supreme is involved in Design, Manufacturing, Testing, Erection and Commissioning of Transformers.

Supreme is located in SIDCO Industrial Estate, Thirumazhisai, Chennai with complete infrastructure and facilities to manufacture Transformers up to 25 MVA. Total commitment to customer satisfaction is the driving force behind all of the actions carried out in Supreme.

Supreme Power Equipment is an ISO 9001:2008 Certified company.



### Salient Features

- ▶ Optimum and elegant design of Transformers
- ▶ High Quality product
- ▶ Young and energetic team of engineers with vast experience in Design and development of product
- ▶ Good workmanship
- ▶ Competitive price
- ▶ Separate team of Experienced Engineers for providing immediate attention to Service calls of the customer
- ▶ Assistance to customer in Commissioning of the product and Troubleshooting of technical problems during commissioning

### Infrastructure

Supreme has required infrastructure to produce quality products and is also equipped to meet its future demands. It has the existing capacity to produce Transformers in excess of 500 MVA per annum.

Supreme has installed 4 EOT cranes of various capacities for easy handling of materials. Oven, Vacuum Plant, Winding machines, Oil filtration machine, insulation cutting machines and other tool sand machinery required for manufacturing Transformers are available in-house for reducing the delivery period to our customers.

Supreme has Testing facilities equipped to test transformers upto 50 MVA 132 kV Class. All Routine Tests are carried out inside the factory as per IEC or IS Standards, as required by the customer.



## Product

### Power Transformer

- ▶ Used in Substations (110 kV, 66kV, 33kV, 22kV, 11kV) to transmit power at high voltages.
- ▶ Supplied 16 MVA 110 / 33 kV, 16 MVA 33 / 11 kV and 8 MVA 33 / 11 kV
- ▶ Transformers to Electricity Boards and Utilities.
- ▶ Type tested Transformers up to 16 MVA 110 KV at CPRI Bangalore.



### Generator Transformer

- ▶ Step up Generator voltage (3.3 / 6.6 / 11 kV) to grid voltages (33/66/110 kV) for transmission.
- ▶ Supplied Generator Transformers for Hydro Electric Power Projects across India.

### Windmill Transformer

- ▶ Steps up voltage from Wind Turbine Generator (690V / 620V / 433V) to substation High voltage (11kV / 22kV / 33kV).
- ▶ Supplied more than 700 Numbers of Windmill generators of various capacities from 315 kVA to 2.5 MVA across India.
- ▶ Subject to frequent switching and surge voltages.

### Distribution Transformer

- ▶ Steps down to distribution voltage (433 V) for end user consumption.
- ▶ Supplied more than 4500 Numbers of Distribution Transformers.

### Isolation Transformer

- ▶ Provides Isolation between primary and secondary voltages.



## Technical Specifications

S.No.	PARTICULARS	VALUES
1.	Rated Capacity	100 kVA to 25MVA
2.	Rated Voltages - Primary	0.433 V to 132 kV
3.	Rated Voltages - Secondary	0.433 V to 132 kV
4.	Transformer Type	Outdoor Conventional / Hermetically sealed
5.	Rated Frequency	50 Hz / 60 Hz
6.	Vector Group	Dyn11 / Ynd1 / Ynyn0
7.	No of Phases	3
8.	Type of Cooling	ONAN / ONAF / OFAF
9.	Governing Standard	IS 2026 / IEC 60076
10.	Impedance	As per Rating (5% to 12.5%)
11.	Temperature Rise A) Oil B) Winding	50° C 55° C
12.	No Load Loss	As required
13.	Full Load Loss	As required
14.	Tap Details A) Position of Taps B) Type C) Tapping Range D) Step Voltage	On HV / Middle of winding / Neutral end Off Load / On Load As required (say +10% to -10%) 1.25% / 2.5%
15.	Basic Insulation Level	11kV 70 kVp, 22kV 140 kVp, 33kV 170 kVp, 132 kV 650 kVp
16.	Terminations	Bare Bushing / Cable Box / Bus Duct
17.	Conservator Type	Atmoseal / Conventional
18.	Transformer Oil	Mineral Oil As per IS 335
19.	Core Grades	M5 / M4 / M3 / MOH / ZDKH
20.	Copper Covering	DPC / TPC / ENAMEL
21.	Oil Temperature Indicator	Dial Type 0 to 150 Degrees / Stem Type
22.	Winding Temperature Indicator	Dial Type 0 to 150 Degrees, 2/ 4 Contacts, 5 A
23.	Temperature Sensor	PT 100
24.	Bushing	Porcelain / Polycrate / Condenser Bushing
25.	Current Transformer	Neutral CT / Bushing CT
26.	Pressure Relief Valve	0.42 / 0.49 kg/sq cm
27.	Mounting	Plinth mounting with Roller / pole mounted



## Process

### Design

Design is central to operations at Supreme Power. Qualified designers evaluate the requirements and generate Transformer designs to meet individual needs of the customer. Design department also does review, verification and validation of its designs periodically

### Core

Core lies at the heart of transformer design in terms of electrical, mechanical and thermal point of view. Supreme uses a wide range of high quality CRGO steel laminations. The core critically determines factors such as iron losses, vibration, sound levels and firm of stability. Hence much care is taken during stacking of laminations.

### Winding

The windings must be electrically and mechanically strong to withstand over voltages under transient surges and

mechanical stress during short circuit. Different type of windings manufactured in Supreme are Distributed Cross over winding, Spiral Winding, Helical Winding, Continuous Disc winding and Interleaved Disc Winding. Choice of winding is largely determined by rating of the winding.

Work is carried out in environment where necessary precaution is taken to avoid contamination. Electrical Grade copper with high conductivity is used for windings. Specially imported kraft paper with high dielectric strength is used for winding.

### Assembly

The presence of moisture in insulation materials like paper and press boards brings about a reduction in the dielectric strength of the material. Drying process is carried out to remove all moisture absorbed in paper and press boards. Drying is carried out in two stages before assembly and before tanking to ensure complete removal of moisture.



### Tanks & Accessories

Transformers are designed to be housed inside metallic tanks which are structurally robust enough to withstand full vacuum during processing of transformers, oil pressure and concentrated point loads of lifting, hauling, jacking etc. Transformer tank is fabricated to accommodate inclusion of accessories such as Radiators, Bushings, Tap changers, Valves, Thermometer pockets, Marshalling box, Pressure release valves, Explosion vent, Oil gauges, Rollers, Cable box etc.

### Quality Assurance

Supreme is an ISO 9001:2008 compliant organization. Supreme has its quality management system certified by DNV. Supreme has implemented various quality improvement programs within the organization. The process capability studies done in supreme revealed that the processes are at 4 sigma level. Supreme is on its way to attain six sigma levels.

Incoming material inspection, in-process inspection procedures, job cards for every individual transformer, together with continuous

improvement initiatives ensure that product of high quality is delivered from our organization. Testing is also done at every stage of manufacturing process.

### Following Tests are conducted at Supreme's premises

- ▶ No Load Loss & No load current measurement
- ▶ Full Load Loss & Impedance measurement
- ▶ Resistance measurement
- ▶ Ratio test
- ▶ Insulation Resistance value measurement
- ▶ Dielectric Tests
- ▶ Pressure Test
- ▶ Vector Group Test
- ▶ Noise Level Measurement
- ▶ Temperature Rise Test
- ▶ Capacitance & Tan Delta Test
- ▶ Harmonics Measurements