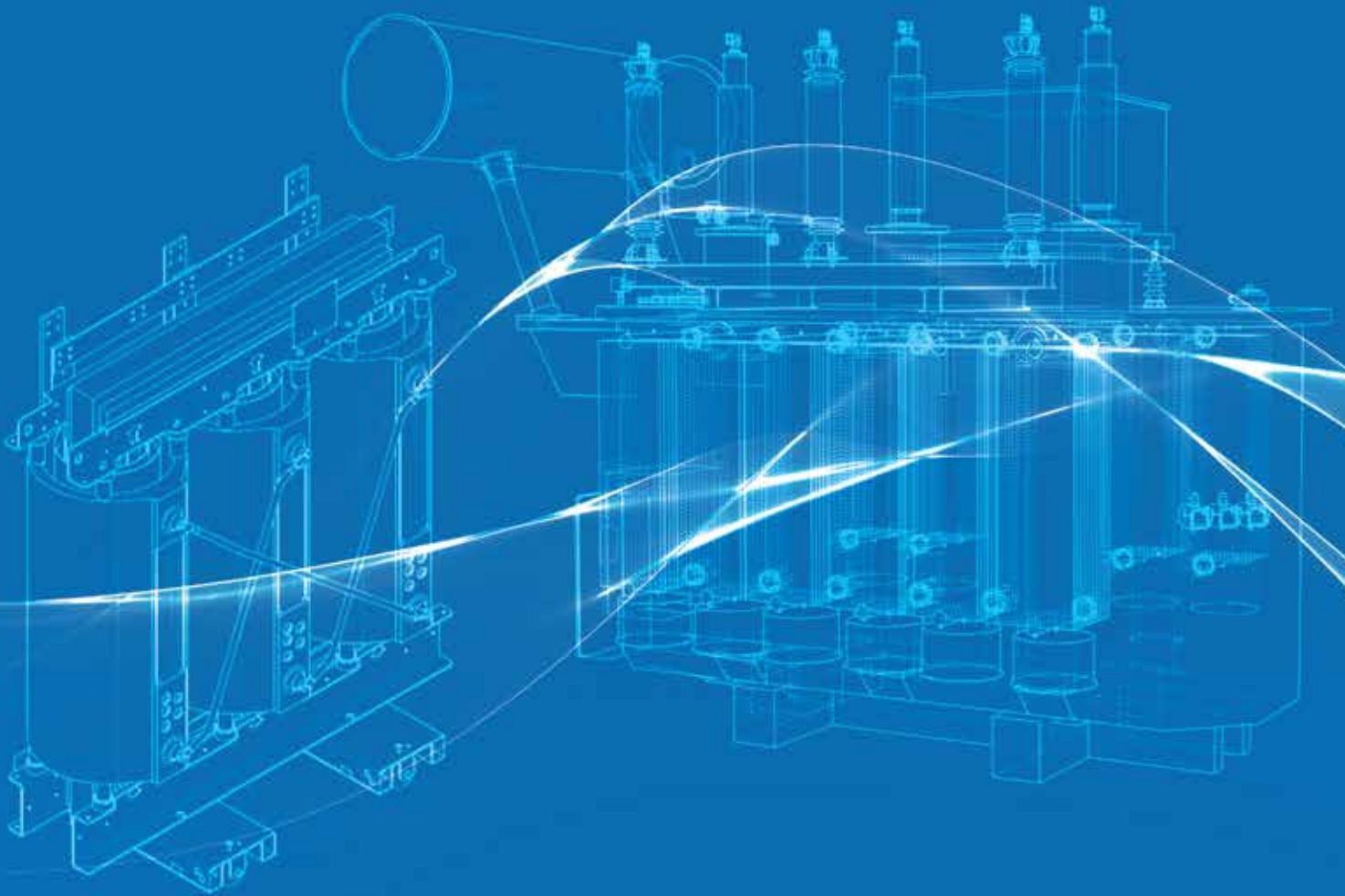


# POWERING THE FUTURE

With high-impact transformer solutions  
that empower you



**RISHABH**  
TECHNOLOGIES PVT. LTD.



## ***Virtues of Excellence***

Evolution, Dynamism, Transparency, Fortitude, Passion....

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# ENABLING A WORLD WITH ZERO INTERRUPTIONS



Rishabh Technologies Pvt. Ltd. (Ritech) is a company that offers a diverse range of transformer solutions for a various industrial markets.

Our journey stems from the entrepreneurial minds of our parent company Vardhman Group - one of the foremost names for over 32 years in a consortium of sectors like:

- **Transformer Components, Electrical Steel CRGO Laminations, Radiators, Wound Cores & Toroidal Cores, CRGO Slit Coils, Yoke Shunts & Shunt Reactors**
- **Pharmaceuticals Products**
- **Herbal Products**
- **Nutraceutical Products**
- **Packaging**
- **Metal Trading**

Through its Group Companies viz.

- **Vardhman Stampings Pvt. Ltd.**
- **Navkar Transcore Pvt. Ltd.**
- **SPI Containers Pvt. Ltd.**
- **Rishabh Lifesciences Pvt. Ltd.**

The Vardhman Group has over the years garnered a plethora of expertise in various sectors and created a strong base within the country and across the world.

Drawing from the vast experience and expertise of the Vardhman Group, we are fast emerging as one of the leading names in designing, manufacturing and service of transformers that offer superior quality, robust performance and the most competitive cost of ownership in the market.

From engineering and design of custom products, service, maintenance, in-house repair, to specialty OEM services, we strive to be a company that is all-inclusive on all fronts for our clients. We take this responsibility with utmost dedication, complying with all relevant regulations and promoting the safety of our employees and everyone who uses our products.

# EMPOWERING BIG AMBITIONS WITH TOMORROW'S TECHNOLOGIES

The concept of **'Technology'** is both in our name and in our being, because we believe that it is the only key to provide reliable & efficient product. As a premier company in the market, we have harnessed the power of technology in all our processes, right from discovery of advancement to delivery of our products and services.

The backbone of our manufacturing processes is our state-of-the-tech ISO-9001 : 2015 OHSAS-45001 : 2018 certified infrastructure, which is outfitted with the latest equipment that allows us to fulfill requirements of our valuable customers. From engineering, assembly, operations to distribution space, our manufacturing facility is a testament to the concept of best-practices and gives us the edge to translate our innovations into cutting-edge products.

**In addition, we are amongst the very few manufactures in the entire country to have acquired and integrated the latest German Technology in our manufacturing processes.**

## MANUFACTURING FACILITIES

We have a full-fledged testing facility with data collection software and is calibrated by NABL certified agencies allowing us to perform all kinds of routine tests, type tests and special tests to ensure that our products operate seamlessly even in the most demanding of conditions.

With our performance and expertise, we offer a depth of engineering and design solutions for custom product development, to a wide range of clients with consistency and quality at its helm.

### Manufacturing Facilities

- Fully automated Vacuum Casting plant imported by HEDRICH, GERMANY being used for Casting purpose
- HV Winding Machine - 02 Nos.
- LV Winding Machine - 02 Nos.
- Cross over Winding Machine - 01 No.
- Foil Winding Machine - 01 No.
- Air Drying Oven - 01 No.
- Vacuum Oven - 01 No.
- EOT Cranes - 04 Nos.
- Oil Filter Machine - 01 No.
- Oil Storage Tanks - 02 Nos.
- Fully equipped Testing Lab



**Winding Shop**



**Oil Filter Machine**





**Vacuum Oven**



**Coil Casting Plant**

Advance thin-film degassing mixing by Hedrich technology, Germany



**Casting Panel**



**Testing Area with Transformer**



## Testing Facilities

- Test Lab is fully automated with data acquisition software
- All equipments are calibrated by NABL certified agencies

**All the testing of the transformers is done strictly under the applicable standard guidelines of IS or IEC.**

1. Routine Tests
2. Type Tests
3. Special Tests

## Routine Tests (To be carried out on all transformers)

1. Measurement of Voltage Ratio
2. Vector Group Verification
3. Measurement of Winding Resistance
4. Measurement of Insulation Resistance (Megger)
5. Power Frequency Withstand Voltage Test (SSVT)
6. Induced Over Voltage Withstand Test (IOVT)
7. Measurement of No-load loss & no-load current
8. Measurement of Load loss & Impedance test

## Type Tests

These tests are carried out only on one transformer of the rating for design verification or as per customer requirement

1. Lightning Impulse withstands voltage test. (ERDA/CPRI or Third-Party Test Lab)
2. Temperature Rise Test / Heat Run Test.
3. Dynamic Short circuit withstand test (ERDA/CPRI)

## Special Tests

These tests are carried out only on one transformer of the rating.

1. Measurement of Zero Phase sequence Impedance test
2. Measurement of Acoustic noise level
3. Measurement of Harmonics of the no-load current
4. Measurement of Capacitance & Tan delta
5. Magnetic Balance Test
6. Partial Discharge Test



Testing Panel

# DEFINED BY VALUES, DRIVEN BY INTELLECT

We believe in the power of innovation with integrity.

This means that for us, the quality of our products is just as important as its need for our clients. In keeping up with the new advancements in the market, we strive to maintain the highest standards of quality that our clients have come to expect from us. We define our standards as CAP:

- **CONSISTENCY** in every aspect of our business
- **AUTHENTICITY** in all our dealings right from procurement, manufacturing to delivery
- **PROFICIENCY** in all our endeavors right from scientific pursuits, to product development & installation

Our values give us purpose. They define our corporate ethos and that's why, the entire hierarchy associated with the company adheres to it.

## PRODUCT RANGE

### OIL-FILLED TRANSFORMER

- Distribution Transformers: 100KVA to 10000KVA, 33KV Class
- Converter/Inverter Duty Transformers: up to 10000KVA, 33KV Class
- Induction Furnace Transformers: up to 10000KVA, 33KV Class
- Earthing Transformers: for the system - up to 33KV Class

### CAST RESIN DRY-TYPE TRANSFORMERS (CRT)

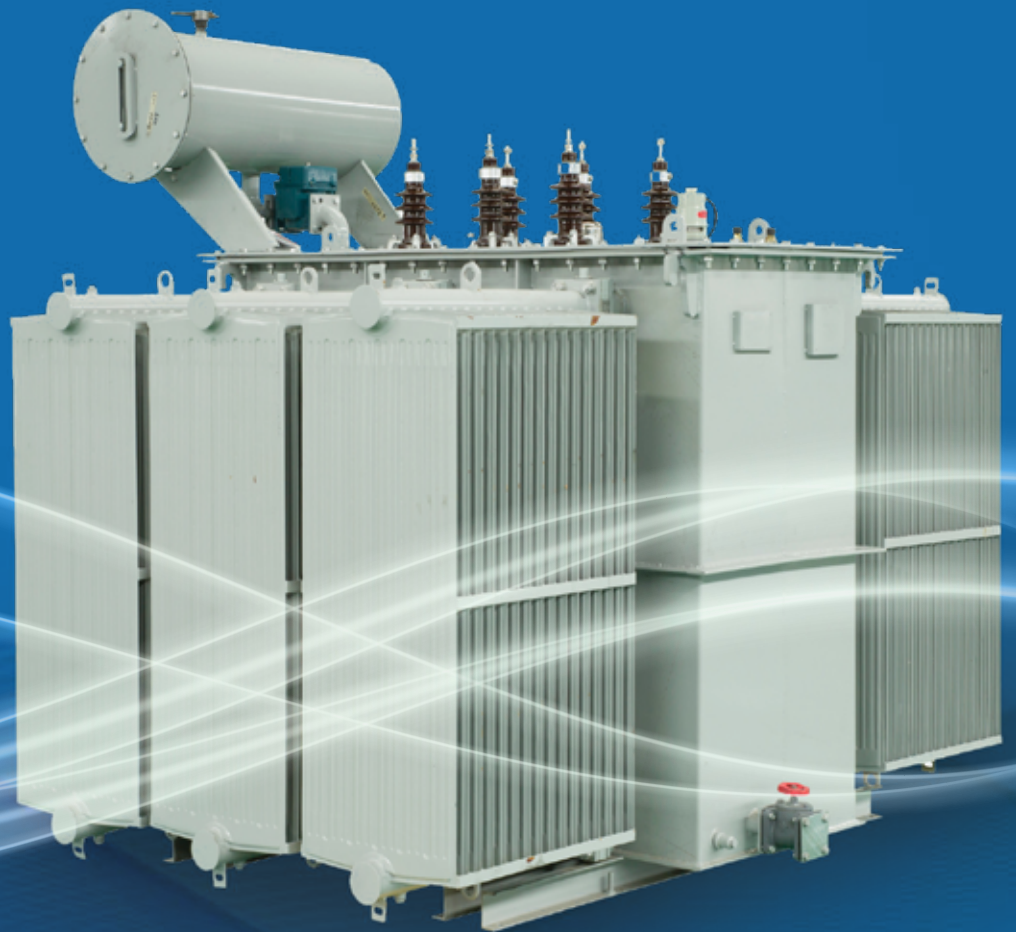
- Distribution Transformers: 100KVA to 5000KVA, 33KV Class
- Converter Transformers: up to 5000KVA, 33KV Class
- Lighting Application: 100 to 630KVA with both Primary & Secondary LV Voltages

### UNITISED SUBSTATIONS - OIL & DRY TYPE

Range: 315KVA to 2500KVA, Voltage Class: Up to 33KV Class



# OIL FILLED TRANSFORMER



# OIL FILLED TRANSFORMER

Rishabh Technologies manufactures various types of oil-filled Transformers up to 10000 KVA, 33KV Class range to meet the customer requirements which can be provided with the following type of Tanks:

- Conventional type
- Hermetically Sealed with Corrugated Tank type
- Hermetically Sealed with Radiators type

## DISTRIBUTION TRANSFORMER

### Technical Specifications:

Range	:	100KVA to 10000KVA
Voltage Class	:	Up to 33KV Class
Winding Material	:	Copper or Aluminium
Cooling	:	ONAN/ONAF
Type (Duty)	:	Outdoor / Indoor
Vector Group	:	Dyn1/ Dyn5 / Dyn11 or as per specific requirement
No. of Phase	:	3 Phase
Tap Changer	:	Off Circuit or On Load Tap Changer
Insulating Oil/Fluid	:	Mineral Oil / Silicon Oil / Ester Oil
Applicable Standards	:	IS 2026, IS 1180, IEC 60076

### Key Highlights / Features

- Shall be provided with Mineral Oil, Silicon Oil or Ester oil depending on the customers requirement
- Highest Dielectric insulation properties to with Lightning Impulse Surges
- Meeting the requirement as per National and International Standards
- Optimum oven heating under vacuum to achieve desired compression height & maximum insulation resistance to winding

### Uses and Applications

Cement Industries | Steel Industries | Chemical Industries | Solar Applications (Renewable Energy)  
Refineries | Electricity Boards | Infrastructure | Utilities | Railways & Metro | Power Plants

## CONVERTER/INVERTER DUTY TRANSFORMERS (OFT)

### Technical Specifications

Range	: 100KVA to 10000KVA
Voltage Class	: Up to 33KV Class
Winding Material	: Copper or Aluminium
Cooling	: ONAN/ONAF
Type (Duty)	: Outdoor / Indoor
Vector Group	: Dd0yn11 / Dyn11-yn11 or as per specific requirement
No. of Phase	: 3 Phase
Tap Changer	: Off Circuit or On Load Tap Changer
Insulating Oil/Fluid	: Mineral Oil / Silicon Oil / Ester Oil
Applicable Standards	: IS 2026, IS 1180, IEC 60076

### Key Highlights and Features

- Specially designed for reduced Harmonics
- Uses Earthing shield between HV & LV Windings for avoiding transfer of high-frequency transients to HV & LV Side

### Uses and Applications

Cement Industries | Steel Industries | Chemical Industries | Solar Applications (Renewable Energy) Refineries | Electricity Boards | Infrastructure | Utilities | Railways & Metro | Power Plants

## INDUCTION FURNACE TRANSFORMERS

Induction Furnace has a coil constructed from heavy copper tubing. It is designed and tuned to the inverter circuit which applies a medium frequency (generally 500 Hz or 1000 Hz) voltage to the Induction coil. The magnetic field produced by the induction coil induces eddy currents in the charge and heats it. Medium frequency is necessary to enhance the rate of heat generation.

### Technical Specifications

Range	: 100KVA to 10000KVA
Voltage Class	: Up to 33KV Class
Winding Material	: Copper
Cooling	: ONAN/OFWF
Type (Duty)	: Outdoor / Indoor
No. of Phase	: 3 Phase
Tap Changer	: Off Circuit or On Load Tap Changer
Insulating Oil/Fluid	: Mineral Oil / Silicon Oil / Ester Oil
Applicable Standards	: IS 2026, IS 12977

### Key Highlights/Features

- Induction Furnace applications
- Provision with OFWF cooling with 100% stand by capacity.
- Very high current transformers as compared to normal Distribution transformers

### Uses and Applications

Rolling Mills | Steel Plants | Metal Industries



## EARTHING TRANSFORMERS

### Technical Specifications

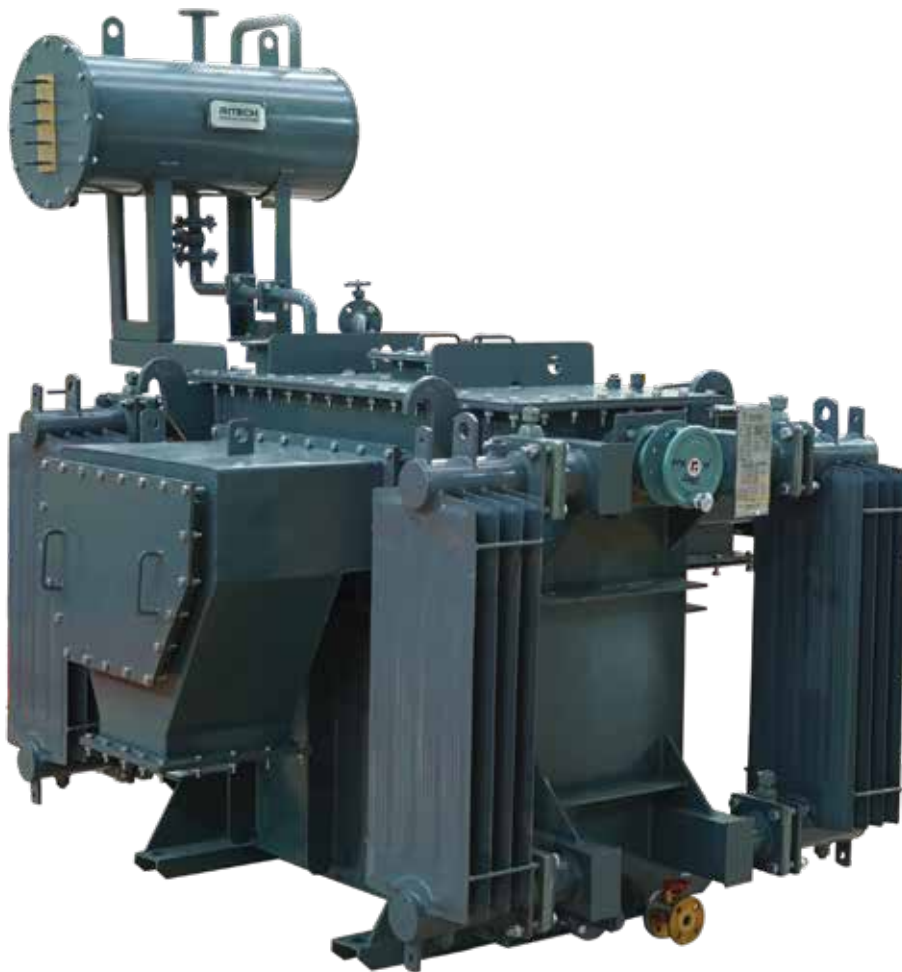
Range	: For system Up to 33KV Class
Winding Material	: Copper
Vector Group	: ZN0/ZNYN1/ZNYN11
Tap Changer	: Off Circuit
Applicable Standards	: IS 2026, IS 1180, IEC 60076

### Key Highlights and Features

- Specially designed transformer with Zigzag Winding.

### Uses and Applications

Industrial Sectors | EHV Substations



Oil Filled Transformer

# CAST RESIN DRY-TYPE TRANSFORMERS (CRT)



# CAST RESIN DRY-TYPE TRANSFORMERS (CRT)

Cast Resin Dry-type Transformers are the most suitable transformers for the distribution of electricity with high safety features. They do not propagate fire. They are self-extinguishing and in the event of a breakdown, there is no risk of leakage of inflammable or contaminating substances like oil.

Cast Resin Transformers are maintenance-free, no checking of oil is required. Moreover, due to the partial discharge feature, they have a longer service life.

All the above-mentioned features make it the market's safest and most reliable transformer.

## DISTRIBUTION TRANSFORMER

### Technical Specifications:

Range	: 100KVA to 5000KVA
Voltage Class	: Up to 33KV Class
Winding Material	: Copper or Aluminium
Cooling	: AN/AF
Type (Duty)	: Outdoor / Indoor
Vector Group	: Dyn11 or as per specific requirement
No. of Phase	: 3 Phase
Tap Changer	: Off Circuit Tap Link (OCTL) /Off Circuit Tap Changer (OCTC)/ On Load Tap Changer (OLTC)
IP Protection	: IP-23, IP-33, IP-43, IP-55
Applicable Standards	: IS 11171, IEC60076

### Key Highlights / Features

- No Fire Hazard
- High Impulse & Dynamic Short Circuit Strength
- Non-Hygroscopic
- Environment Friendly
- High Surge Voltage withstand Capability
- Non-Toxic
- Smaller Size & weight
- Low Noise Level & weight
- Easy Installation & Commissioning
- High short Circuit Strength
- Lower Maintenance Cost

### Uses and Applications

Cement Industries | Steel Industries | IT Industries | Infrastructure Utilities | Railways & Metro | Malls Telecom  
Auto Industries | Airports | Power Plants | Ships & Offshore Platforms | Commercial Buildings



## CONVERTER /INVERTER TRANSFORMER

### Technical Specifications

Range	: 100KVA to 5000KVA
Voltage Class	: Up to 33KV Class
Winding Material	: Copper or Aluminium
Cooling	: AN/AF
Type (Duty)	: Outdoor / Indoor
Vector Group	: Dd0yn11 or as per specific requirement
No. of Phase	: 3 Phase
Tap Changer	: Off Circuit Tap Link (OCTL) /Off Circuit Tap Changer (OCTC)/ On Load Tap Changer (OLTC)
Applicable Standards	: IS 11171, IEC60076

### Key Highlights/Features

- No Fire Hazard
- High Impulse & Dynamic Short Circuit Strength
- Non-Hygroscopic
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### Uses and Applications

Cement Industries | Steel Industries  
IT Industries | Infrastructure Utilities  
Railways & Metro | Malls Telecom  
Auto Industries | Airports | Power Plants  
Ships & Offshore Platforms  
Commercial Buildings

## LIGHTING APPLICATION TRANSFORMERS

A lighting transformer is nothing but a 1:1 transformer or step down transformer with step reduction of approximate 0 to 10 %, which means the transformer comes with adjustable tappings to reduce the output voltage of the transformer.

### Technical Specifications

Range : 100 to 630 KVA with both Primary & Secondary LV Voltages



Cast Resin Transformer

# UNITISED SUBSTATIONS (OIL & DRY TYPE)



# UNITISED SUBSTATIONS (OIL & DRY TYPE)

In accordance with IEC 62271 Standard, the prefabricated steel enclosure housed - HT Switchgear, Transformer and LT Switchgear are associated equipment to form a composite compartmentalized UNITISED SUB-STATION with concern to safety and meet the Urban and Industrial needs. The Substation is designed to take care of moisture, dirt, condensation in coastal areas and is completely lockable to protect against unauthorized access.

## Technical Specifications:

Range	:	315KVA to 2500KVA
Voltage Class	:	Up to 33KV Class
Insulation Medium	:	Vacuum or SF6 Gas
Cooling	:	AN/AF
Type	:	Oil Immersed / Dry Type
No. of Phase	:	3 Phase
Applicable Standards	:	IS 62271

## Key Highlights / Features

- Ready for installation and commissioning
- Superior aesthetics
- Easy for transportation
- In accordance with IEC 62271
- Operating ease
- Minimal moving parts and maintenance
- Wide range of factory-designed options
- Meets IP23D degree of protection as per IEC 62271
- Suitable for adverse temperatures and weather
- Factory build and ready for network connection
- All compartments are provided with illumination
- Can be installed on rooftop or basement with cross ventilation

## Uses and Applications

Commercial Buildings | Housing Colonies | Shopping malls | IT Industries | Mobile Substations  
Wind Energy Plants | Utilities | Gas Stations



Unitised Substations



## OIL FILLED TRANSFORMERS

### LOSSES AS PER IS-1180: Maximum Total Losses up to 11KV Voltage Class Transformers

Sl No.	Rating (kVA)	Impedance (Percent)	Maximum Total Loss (W)									
			Level 1		Level 2		Level 3		Level 4		Level 5	
			50	100	50	100	50	100	50	100	50	100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
i)	250	4.50	980	2930	920	2700	864	2488	811	2293	764	2113
ii)	315	4.50	1025	3100	955	2750	890	2440	829	2164	772	1920
iii)	400	4.50	1225	3450	1150	3330	1080	3214	1013	3102	951	2994
iv)	500	4.50	1510	4300	1430	4100	1354	3909	1282	3727	1215	3554
v)	630	4.50	1860	5300	1745	4850	1637	4438	1536	4061	1441	3717
vi)	800	5.00	2287	6403	2147	5838	2015	5323	1892	4853	1776	4425
vii)	1000	5.00	2790	7700	2620	7000	2460	6364	2310	5785	2170	5259
viii)	1250	5.00	3300	9200	3220	8400	3142	7670	3066	7003	2991	6394
ix)	1600	6.25	4200	11800	3970	11300	3753	10821	3547	10363	3353	9924
x)	2000	6.25	5050	15000	4790	14100	4343	13254	4309	12459	4088	11711
xi)	2500	6.25	6150	18500	5900	17500	5660	16554	5430	15659	5209	14813

**Note:**

- For transformers having Voltage class above 11 KV and up to and including 22KV: Total loss values shall not exceed by 5% of the maximum total loss values mentioned in above Table.
- For transformers having Voltage class above 22 KV and up to and including 33KV: Total loss values shall not exceed by 7½ % of the maximum total loss values mentioned in above Table.



## Group's Global Footprints

