

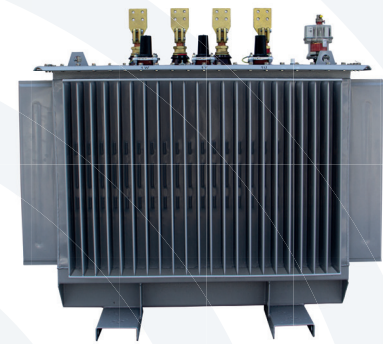
## OIL TYPE TRANSFORMERS

## HERMETIC TRANSFORMERS

## TRANSFORMER WITH EXPANSION TANK

## MEDIUM POWER AND POWER TRANSFORMER

Oil type transformers are produced in accordance with international standards, based on standards or specially according to the technical specifications of the customers, as Hermetic, Expansion Tank, Gas Cushion with distribution, medium and high powers.



Oil Type Hermetic Transformers are manufactured with powers between 25-5000 kVA up to 36 kV maximum system voltage. Standard type 3-phase oil naturally cooled (ONAN) transformers can be used internally (plug-in type insulator) and external (porcelain type isolator). Special productions are also made for the no-load running tap changer and other cooling systems according to the special requests of the customers. (ONAF-ODAF etc.)

Hermetic Transformers do not have an expansion tank and the boiler is completely filled with oil. In addition, it is trapped in the atmosphere by making hermetic pressure adjustment in the factory environment. The expansion of the oil due to thermal effects is controlled by the elastic and wave-walled boiler structure. Wave walls serve both to transmit heat to the outside and to absorb the additional oil that expands by expanding and contracting movements.

Hermetic Transformer oil does not come into contact with air, so it does not have oxygen and does not absorb moisture. Hermetic Installation of Type Transformers is more advantageous in small areas and compact transformer stations.

Hermetic Transformers do not require maintenance other than cleaning bushings and control of protection devices.

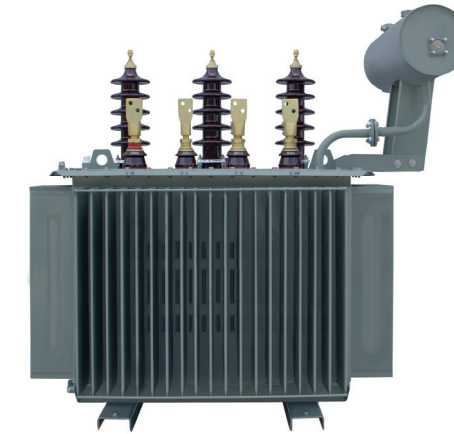
### Areas of Usage

- Distribution Centers
- MV / LV Transformer Centers
- Factories
- Construction Sites
- Urban Distribution Centers (Above pole or transformer box)
- Irrigation Projects
- Organized Industrial Zones
- Power Plants

### Transformer Types

- Distribution Transformers
- Solar Power Plant Transformers
- Wind Power Plant Transformers
- Grounding Transformers
- Auto Transformers
- Double Voltage Transformers
- Rectifier Transformers
- Shunt Reactor Transformers
- Traction Transformers

## HERMETIC TRANSFORMERS



Transformers with Oil Type Expansion Tank are manufactured with powers between 25-5000 kVA up to 36 kV system voltage. Standard type 3-phase oil naturally cooled (ONAN) transformers can be used internally (Plug-in type insulator) and external (Porcelain type isolator). According to the special requests of the customers, special productions are also made for the no-load running tap changer and other cooling systems. (ONAF-ODAF etc.)

Since the oil of the transformers with expansion tank (Oil) is constantly in contact with the atmosphere, periodic maintenance is important.

### Areas of Usage

- Factories
- Construction Sites
- Urban Distribution Centers (Above pole or transformer box)
- Irrigation Projects
- Organized Industrial Zones
- Power Plants



Oil Type Medium and High Power Transformers are transformers designed and manufactured in accordance with customer technical specifications, national and international standards (IEC, IEEE etc.) with a power range of 5 MVA-400 MVA and system voltages above 72.5 kV.

According to the technical specifications of the customers, special productions are made in accordance with the ONAN-ONAF-ODAF cooling systems with three and single phase, no-load and load running tap changers.

### Areas of Usage

- Electricity Transmission Lines
- Industrial Facilities
- Electricity Production Centers
- Internal Electricity Needs



## OIL TYPE TRANSFORMERS



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## TESTS

The following national and international tests are conducted in the accredited laboratory for Oil Type Transformers.

### Routine Tests

- Measurement of winding resistance
- Measurement of voltage conversion ratio and voltage vector
- Isolation resistance
- Measurement of short circuit impedance and loss in load
- Measurement of disengaged loss and current
- Applied voltage test
- Induced voltage test

### Type Tests

- Temperature rise test
- Lightning impact test
- Sound level measurement

### Special Tests

- Determination of capacitance between windings and ground and windings
- Measurement of zero sequence impedance of three phase transformers
- Short circuit resistance test
- Measuring the harmonics of the disengaged current
- Measuring the isolation resistance of the windings against ground
- Measuring power factor (Tangent delta)
- Boiler life test

## OUR QUALITY STANDARDS AND CERTIFICATES

Transformer Electromechanical Oil Type Transformers are produced according to the following standards.



• IEC 60076-1: Power Transformers - Part 1: General

• IEC 60076 - 2: Power Transformers - Part 2: Temperature Rise

• IEC 60076 - 3: Power Transformers - Part 3: Insulation Levels and Dielectric Tests

• IEC 60076 - 5: Power Transformers - Part 5: Short Circuit Resistance Capability

• TS EN 50588-1: Medium Power Transformers - Part 1: General Features

## OIL TYPE TRANSFORMERS



OUR QUALITY STANDARDS AND CERTIFICATES



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