

Medium Distribution Transformers

(> 250 kVA, ≤ 2000 kVA)



Construction features

Description

MDT transformers are used to step down three-phase high voltage to low voltage for power distribution, mainly in metropolitan areas and for industrial applications. The transformers in standard versions are designed for use in moderate climates and can be installed both outdoors and indoors. The loading is in accordance with IEC 354. MDT transformers are hermetically sealed (the tank is completely filled with oil) or equipped with oil conservator. Both types are equipped with flexible corrugated tank walls enabling sufficient cooling of the transformer. They also compensate for the changes in the oil volume during operation. An advantage of the hermetically sealed transformers is that the oil is never in contact with the atmosphere thus avoiding periodic oil analysis.

Standard features

Hermetically sealed. (Rated power < 1000 kVA)

- Oil filling plug on the cover
- Oil-level indicator
- The two lifting lugs on the cover are made for lifting the transformer or its removable part
- Corrugated tank
- Undercarriage with bi-directional rollers
- Oil drain valve
- Off-circuit tap changer handle
- Earthing terminals
- Sparking gaps for voltages 15 kV and above
- Rating plate

Additionally, for transformers with conservator (Rated power 1000 kVA)

- Max thermometer
- Magnetic oil-level indicator
- Oil filling plug on the conservator
- Buchholz relay
- Dehydrating breather
- Conservator

Core

The cores of the transformers are made of grain oriented magnetic, cold-rolled silicon steel laminations with low losses.

Windings

The windings of the transformers are made of high grade electrolytic copper or aluminium. The High Voltage windings are wound either with round, enamel insulated, or shaped, paper insulated wire. The Low Voltage windings are wound with shaped, paper insulated wire or foil. The winding construction is characterised by high dielectric strength with high resistance to atmospheric surges and to the effects of short-circuits. Neutral points of the Low Voltage windings are brought to the tank cover.

Off-circuit tap changer

The off-circuit tap changer is of a 5-position type connected on the High Voltage side with a handle located on the cover. The tap changer should be operated only when the transformer is deactivated.

Insulating oil

The mineral oil with its electrical and chemical characteristics is in compliance with the IEC Standards and is P.C.B. and P.C.T. free.

Tank and cover

The cover is bolted to the tank frame. The transformer undercarriage is provided with bi-directional rollers turnable by $\pm 1/2$ rad (90°) to allow longitudinal and transverse movement on flat surfaces.

Painting and surface treatment

All metal parts are carefully sandblasted. The painting is made with a single coat of one-pack epoxy paint. The finishing paint is made with two or three coats. If requested a hot-dip galvanized corrugated steel tank can be provided.

Options and accessories

- *Plug-in bushings*
- *Dial type thermometer with two contacts*
- *DGPT2 control device*
- *Pressure relief valve with or without contacts*
- *Tap changer with more than five positions*
- *Cable boxes*
- *Spark gap meter*
- *Air insulated housings*
- *Galvanized tank*
- *Additional thermometer pocket*
- *Dual voltage transformer*

Specifications

- *Standards: IEC, DIN, BS, UNE, PN etc.*
- *301–2000 kVA, three-phase, 65°C maximum windings temperature rise*
- *50 Hz standard, 60 Hz optional*
- *High Voltages 3000–35000 V*
- *Low Voltages 100–15750 V*
- *Vector group: Dy, Yz, Yy, Dd, Yd*
- *Impedance voltage: 4–7%*
- *Voltage regulation: $\pm 2 \times 2.5\%$; $\pm 2 \times 5\%$; $+2.5\%$, $-3 \times 2.5\%$*