



WE TRANSFORM
ENERGY INTO
SUSTAINABLE GROWTH



TECHNICAL SHEET

OVERHEAD TYPE TRANSFORMERS



F-MKT-01.E.1



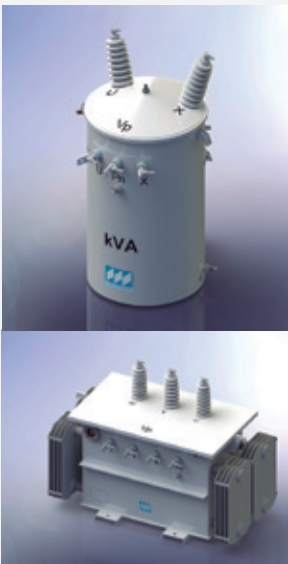
TECHNICAL SHEET: OVERHEAD TYPE TRANSFORMERS

Application:

Overhead type distribution transformers are used on medium-voltage distribution systems. They are designed to convert medium voltage to low voltage or the other way around. They are typically used for residential service loads and occasionally for light commercial or industrial loads.

These transformers are usually designed for pole mounting, although in some cases three phase units are built for installation on certain types of substations.

These transformers do not include any protection accessories; therefore, any surge arresters or other overvoltage or overload protection must be provided by the customer.



Scope of the offer:

Manufactured in compliance with applicable NTC, IEC and ANSI standards and/or individual customer standards

Single-phase transformers may be manufactured with one or two high-voltage bushings to be connected in E1GrdY/E or E/E1GrdY configurations, where E is the phase-to-neutral voltage and E1 is the phase-to-phase voltage. Low voltage configurations are typically 2E/E or E/2E being typically used to build three-phase banks. Dual voltage single-phase transformers are specially designed to operate at two different input voltages.

Three-phase transformer connection setup is made in accordance with the connection required by the standard or by the customer; the most common types are Dy, Yd, Dd, Yy, Dz, Yz.

Ratings (kVA):

Single Phase: 5 kVA to 500 kVA.

Three-phase: 15 kVA to 500 kVA.

Basic Insulation Level:

Single phase: Up to BIL 150 kV

Three-phase: Up to BIL 200 kV*

* At transformer's size below 75kVA and BIL 200kV, failure in the surge arrester, the cable or in the transformer itself may occur as a result of ferroresonance. Ferroresonance is a phenomenon usually characterized by overvoltages and irregular wave shapes and associated with the excitation of one or more saturable inductors through a capacitance in series with the inductor [ANSI/IEEE Std. 100-1984].

Typical construction type:

Transformers typically consist of an active part composed of the core (magnetic circuit), the coil (electric circuit) and the yoke clamp, which is determined in accordance with the type of transformer, placed in a tank that provides the equipment with specific features, depending on its intended application.

Coils:

Rectangular cross section and concentric copper or aluminum windings.

Insulation: High-quality epoxy resin coated paper.

Cores:

Shell Type or Core Type, wound with a back-to-back interleaving arrangement, step-lapped for easy assembly and disassembly without losing dimensional characteristics, thus ensuring very low levels of losses and excitation currents.

Materials: Cold-rolled grain-oriented silicon electrical steel sheet with insulating coating on both sides, low core loss and high permeability.

Yoke clamps:

Made of cold-rolled and hot-rolled ASTM A36 steel, they clamp the core, with individual bolted caps that can be easily removed and disassembled for maintenance purposes.

They ensure high resistance to short circuit mechanical stresses, with low noise levels.

Tanks:

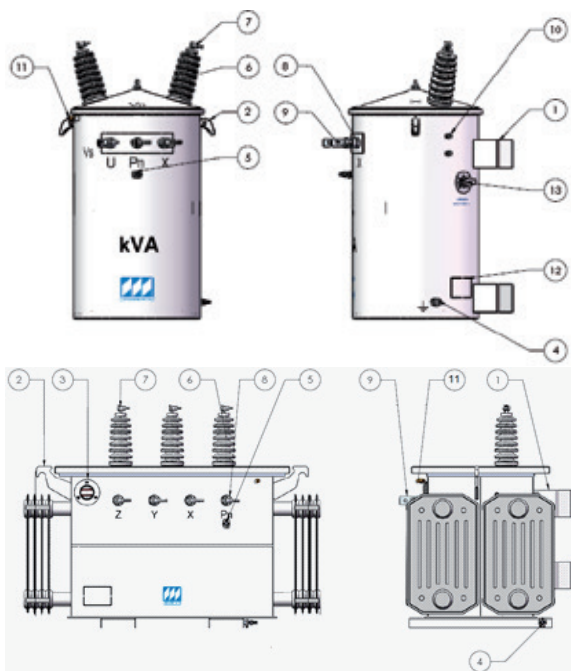
Single-phase transformers: Cylindrical, made from ASTM A36 steel (AISI 304 Stainless steel as optional).

Three-phase transformers: Rectangular in shape, made of ASTM A36 steel (AISI 304 Stainless steel as optional), with reinforcements capable of withstanding internal pressures resulting from temperature rise and mechanical stresses due to equipment installation and handling.

ASTM A36 steel (AISI 304 Stainless steel as optional) radiators are attached to the tank.

Accessories and protection devices:

MAGNETRON S.A.S. offers a variety of high voltage and low voltage protection accessories, as well as control and alarm devices to control the basic functions of the transformers, such as pressure relief valves, temperature indicators, oil level indicators, internal gas generation and moisture control devices, in accordance with the customer's requirements.



DESCRIPCIÓN

1	Hanger brackets for pole mounting
2	Lifting lugs
3	Internal oil level marking
4	Tank grounding
5	Low voltage neutral grounding
6	High-voltage bushings
7	High-voltage terminals
8	Low-voltage bushings
9	Low-voltage terminals
10	Pressure relief device
11	Nameplate
12	De-energized tap changer

Optional accesories

- External surge arresters
- Control and measurement accessories
 - Vacuum Pressure Gauge
 - Oil temperature indicator
 - Oil level indicator with or without contacts
- Bi-directional wheels (Applies to three phase transformers with power rating ≥ 300 kVA)



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