

Self-Protected Transformers



Application:

Used mainly in residential service loads and where the power utilities require a load control.

Starting at the design stage, self-protected transformers include protection elements against overvoltages, overloads, and elements to isolate it from the network in the event of internal or external failures.

The following elements provide the self-protection:

- Surge Protection Device SPD (lighting arrester)
- Protection fuse: Expulsion fuse or isolation link
- Circuit breakers: Breaker or Magnex interruptor

Protection schemes:

SELF PROTECTED SP (Surge Protecting): Includes SPD and expulsion fuses. Does not include low-voltage or high-voltage circuit breakers

SELF PROTECTED CP (Current Protecting): Built with internal high voltage fuses and an internal breaker that can be installed on the high-voltage (Magnex) or low-voltage (Breaker) end, depending on the customer's requirement. Does not include mounting of SPDs.

COMPLETELY SELF PROTECTED (CSP): These transformers can be supplied with two types of configuration: Breaker or Magnex.



Scope of the offer:

Manufactured in compliance with applicable NTC standards and/or individual customer specifications.

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

Ratings (kVA):

Single Phase: 10 kVA to 75 kVA.

Three-phase: 30 kVA to 225 kVA.

Basic Insulation Level:

Single phase up to BIL 150 kV

Three phase up to BIL 150 kV

Typical construction mode:

Transformers typically consist of an active part made up 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.

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Coils:

- Rectangular sections and concentric copper or aluminum windings.
- Insulation: High-quality paper with epoxy resin coatings.

Cores:

- Shell Type or Core Type, wound, step-lapped for easy assembly and disassembly without loss of dimensional characteristics, guaranteeing low 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 steel, they clamp the core, with individual bolted caps enabling easy disassembly for maintenance purposes.
- They guarantee high resistance to short circuit mechanical stresses, low noise levels and low excitation currents.

Tanks:

- Single-phase transformers Cylindrical made from Cold Rolled and Hot Rolled Steel.
- Three-phase transformers: Rectangular in shape, made of Cold rolled or Hot rolled steel with reinforcements capable of withstanding internal pressures resulting from temperature rise and mechanical stresses due to equipment installation and handling.
- Radiators: Attached to the tank, made from Cold Rolled steel.

Accessories and protection devices:

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

| DESCRIPTION | |
|-------------|---------------------------------------------|
| 1 | Support for hanging on the utility pole |
| 2 | Lifting device |
| 3 | Internal refrigerant liquid level indicator |
| 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 | Tap changer |
| 13 | Breaker or Magnex interruptor |
| 14 | Pilot light |

Optional accessories:

- Current limiting fuses
- Surge arrester mounting device
- Expulsion fuse