

# Single Phase Wound Core Transformers

Energising India since 1969...



**TECHNICAL  
ASSOCIATES  
LIMITED**

An ISO 9001:2000 Company



Technical Associates Ltd. is today one of India's oldest and most respected transformer manufacturers. TAL has been manufacturing Single Phase, Wound Core Transformers for the past many years for overseas customers and is today poised to offer high quality Single Phase, Wound Core Transformers of all required ratings to discerning Indian customers.

## **The TA Single Phase, Wound Core Transformer: a Primer**

### **The core**

High grade CRGO steel, having low core loss is used for making circular cores. Thereafter inner core mendrels are inserted and correct shape is achieved by hydraulic jacks. These formed wound cores are annealed in an inert environment which ensures that the original characteristic of the magnetic steel are retained.

WE TRANSFORM THE NATION'S POWER

**Pre Core Loss :** Pre-core loss of each core is measured to ensure quality assurance.

**Coil Design and Construction :** The core so formed has rectangular cross section and accordingly the LV and the HV coils also have rectangular geometry. Whereas enameled copper conductor is used for the HV winding, paper cover or enameled rectangular strips are used for the low voltage windings. The insulation is designed to withstand the specified impulse level.

The coils are progressively wound, the HV being wound directly on the LV coil. This ensures that the coils are rigid, compact and have high mechanical and dielectric strength. Such winding ensures better short circuit withstand capability for the transformer. The result is a single coil structure having high strength, which prevents movement of conductor of the coil in the event of any short circuits on the Transformer during its operation.

**Core Coil Assembly :** The annealed wound core is assembled with the progressively wound coils along with required insulation and core clamps. The whole assembly is strapped with high tensile steel strap ensuring that the core coil assembly is:

- Mechanically strong to resist the short circuit forces
- For higher over load capacity and longer life due to the additional cooling surface area of the coil

**Tanking :** For single phase transformers, round tanks are used. These tanks are capable of withstanding the specified vacuum and pressure. The core coil assembly is processed under alternate cycles of heat and vacuum and after being placed in the tank is impregnated with processed transformer oil.

**Testing :** Besides the testing of the individual components and subassemblies at different stages, each transformer is tested as per agreed standards of acceptance. These tests include but are not limited to : Turns ratio, Polarity, Exciting current and no load loss measurement, Impedance and load loss measurement, Induced over voltage test, Separate source voltage withstand test, Insulation resistance, Winding resistance

Finally every transformer is tested for oil leakage and pressure. Type tests such as short circuit and impulse are done at third party laboratories as per customer requirements.



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