



SINGLE PHASE CORE & COIL ASSEMBLY

ERMCO's Single Phase distribution transformers are designed and manufactured in compliance with all applicable ANSI, and RUS standards. All transformers are oil filled, 65°C rise, and designed for usual service conditions per ANSI C57.12.00.

CAPABILITIES

- kVA sizes 5 through 250 kVA
- High voltages 2.4 through 19.9 kV (150 kV BIL)
- Low voltages 120 through 600 volts
- Shell form construction (two core loops and one coil)

Special Design Emphasis:

- Overload
- Fault Current
- Extreme Transient Performance
- Electrical Efficiency
- Thermal Performance
- Material Standardization

CORES

- Designed for low watts loss.
- High quality grain oriented silicon steel.
- Step lap joint construction.
- State-of-the-art core forming.
- Quality inspection procedure requires 100% loss testing.

COILS

- Constructed to pass the next higher BIL ANSI impulse test.
- Dual voltage coils are rated at highest BIL in both switch positions.
- High voltage taps are wound in two sections for optimum magnetic balance.
- Wound in a low-high-low configuration in concentric layers.

Coil Insulation:

- Each layer is insulated with thermally upgraded 65°C rise paper.
- Layer insulation is coated with an epoxy adhesive in a diamond pattern for mechanical bonding.
- Cooling ducts are rectangular with a flat surface to prevent pressure damage on layer insulation.

High Voltage Coils:

- Conductor is magnet wire with a film coating to insulate for turn-to-turn voltage.
- Flat wire and hot pressing improve short circuit strength.
- Coil ends have extra insulation for protection against secondary induced lightning surges.

Low Voltage Coils:

- Interlaced low voltage windings *available up on request.*
- Wound with full width sheet conductor *provides maximum short circuit strength.*



- All low voltage conductors are deburred *providing added protection to layer insulation.*

CLAMPING STRUCTURE

- Rigid steel frames *clamp the coil through high density press board shims.*
- No pressure is applied to the core *for stress free construction and assuring low core losses remain stable for the life of the transformer.*
- The core and coil assembly is securely banded to the top and bottom frames *providing excellent short circuit strength.*

COIL LEADS

High Voltage Leads

- Leads are stranded copper *eliminating the possibility of breakage associated with solid wire.*
- Leads are joined to coil conductor with insulation piercing clamp connector *eliminating the need to abrade the film which would weaken the conductor.*
- Leads are attached to rigid terminal block before connection to HV bushing *providing increased reliability.*

Low Voltage Leads

- Leads are hardened aluminum alloy
 - *Preventing cold flow at the cooper bushing connection*
 - *Extending the full length inside the coil body to the low voltage bushing.*
 - *Improving reliability by eliminating a welded joint for a hard alloy tab.*