

January, 2002

Three Phase "T-connected" Overhead Distribution Transformer

The ABB "T-connected," overhead distribution transformer can be used to serve most three phase applications up to 500 kVA. "T-connected" transformers consist of two single-phase core/coil assemblies. This type of connection is also referred to as a "Scott-T" connection.

"T-connected", overhead distribution transformers can be used to serve most three-phase applications. However, Triplex designed three phase transformers are needed for some applications where large motors are the load and these motors are frequently started. Oil field pumping loads and some irrigation pumping loads should use only the triplex designs.

Ratings

- 30-500 kVA
 - 65°C rise
 - 60 Hertz standard, 50 Hertz optional
 - High Voltages: 13800 and below
 - Low Voltages: 208T/120, 240T x 480T, and 480T/277
 - Transformer BIL Ratings
- | Transformer Primary | Transformer BIL |
|---------------------|-----------------|
| 2400T | 60 kV |
| 4160T | 60 kV |
| 4800T | 60 kV |
| 7200T | 75 kV |
| 8320T | 75 kV |
| 12000T | 95 kV |
| 12470T | 95 kV |
| 13200T | 95 kV |
| 13800T | 95 kV |

Advantages

- Easier, more economical and cleaner installations are provided by three phase overhead transformers compared to three single-phase units.
- Lighter weight and lower cost provided by "T-connected" design compared to conventional three-phase design.
- Elimination of overloads from system unbalance by operating "T-connected" transformers without primary grounds.
- Avoidance of transformer neutral requirement since third harmonic



currents on "T-connected" transformers are negative sequence not requiring a ground path.

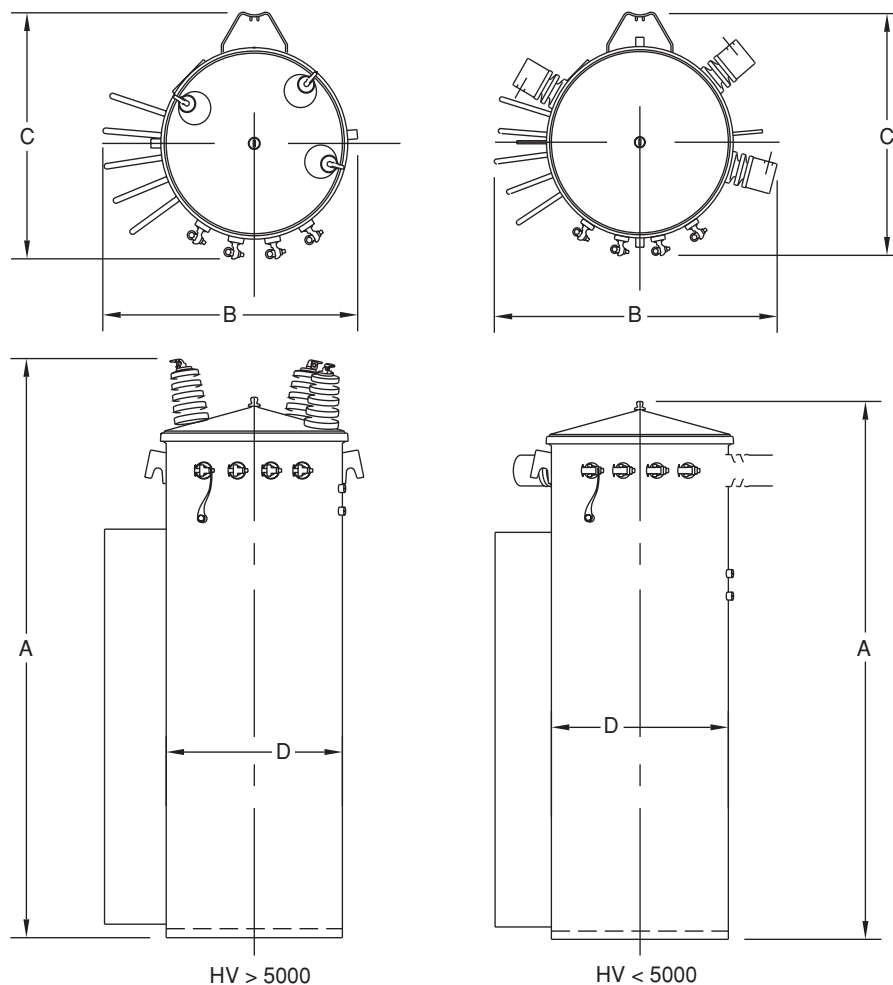
- Reduced installation costs, lower operating cost, safer operation, minimized service disruptions and increased transformer life provided by optional CSP coordinated protection package.

- The same design, manufacturing and performance advantages that are provided on ABB single phase overhead distribution transformers are incorporated into "T-connected" design.

Features

- 1) Wound core with step-lap joints for increased efficiency and lower noise levels.
- 2) Progressively wound coils with adhesive resins on insulating paper or conductors for increased short-circuit strength and thermal strength.
- 3) Three point core-coil bracing for increased mechanical strength.
- 4) CSP protection package available as an option for increased protection against surge currents, short circuits and overloads:
 - Primary protective links
 - Surge arresters
 - Secondary circuit breakers
 - Secondary breaker operating handle with emergency overload reset and overload signal light.
- 5) Self-venting and resealing cover that eliminates the need for an auxiliary pressure relief device and offers increased safety through higher tank withstand.
- 6) The paint finish process applies a durable, corrosion resistant finish to the product. The finish meets or exceeds all the performance requirements of ANSI C57.12.28. The multi-step process includes an epoxy primer uniformly applied by cationic electro-deposition and a urethane top coat.
- 7) Cover has 13 mils minimum of polyester coating providing 15 KV dielectric insulation of tank ground parts from live parts and increasing resistance to corrosion. The cover is sloped 15° preventing water from collecting, thereby reducing the chances of corrosion and leaking.
- 8) Tank bottom rim is three layers thick for increased durability and resistance to shipping and handling damage.

Standard Design Dimensions and Weights (All weights and dimensions are approximate.)



Overall weights and dimensions are given in pounds, inches or gallons and are approximate

A = Overall Height, B = Overall Width, C = Overall Depth, D = Tank Diameter, E = Hanger Spacing

3 Phase T - T Connected

High Voltages 2400T, 4160T, 4800T

| KVA | A | B | C | D | E* | Wgt | Ship Wgt | OIL Qty |
|-------|----|----|----|------|-------|------|----------|---------|
| 30 | 49 | 26 | 25 | 17.5 | 11.25 | 685 | 720 | 35 |
| 45 | 49 | 29 | 28 | 20 | 23.25 | 990 | 1035 | 44 |
| 75 | 49 | 33 | 28 | 20 | 23.25 | 1100 | 1175 | 52 |
| 112.5 | 57 | 31 | 30 | 22 | 36 | 1530 | 1625 | 62 |
| 150 | 57 | 40 | 30 | 22 | 36 | 1770 | 1840 | 70 |
| 225 | 61 | 37 | 34 | 24 | 36 | 2215 | 2303 | 81 |
| 300 | 64 | 41 | 36 | 27 | 36 | 2750 | 2860 | 98 |
| 500 | 78 | 45 | 42 | 27 | | 3560 | 3650 | 118 |

High Voltages 12000T, 12470T, 13200T, 13800T

| KVA | A | B | C | D | E* | Wgt | Ship Wgt | OIL Qty |
|-------|----|----|----|------|-------|------|----------|---------|
| 30 | 54 | 23 | 25 | 17.5 | 11.25 | 700 | 735 | 38 |
| 45 | 54 | 29 | 28 | 20 | 23.25 | 905 | 965 | 43 |
| 75 | 54 | 33 | 28 | 20 | 23.25 | 1175 | 1225 | 50 |
| 112.5 | 62 | 33 | 30 | 22 | 36 | 1505 | 1565 | 59 |
| 150 | 62 | 40 | 30 | 22 | 36 | 1725 | 1780 | 65 |
| 225 | 61 | 37 | 34 | 24 | 36 | 2285 | 2275 | 84 |
| 300 | 69 | 41 | 36 | 27 | 36 | 2915 | 3015 | 100 |
| 500 | 80 | 45 | 42 | 27 | | 3815 | 3900 | 123 |

*E is the distance between the hanger brackets.

All Approximate Dimensions shown reference designs with +/- 2.5% Taps