SECTION 26 00 00: DRY TYPE TRANSFORMERS

1. GENERAL
   A. For applications requiring isolation transformers, such as for motor variable speed drives, utilize a rated Drive Isolation-type transformer; transformers to be UL listed; indoor-mounted transformers to be FM listed
   B. For applications where large harmonic loads are anticipated, utilize a non-linear load-type transformer
   C. Transformers shall conform to NEMA TP-1 requirements for energy efficiency and be Energy-Star listed.
   D. Transformer windings and terminations shall be aluminum or copper; materials selection to be reviewed at design phase
   E. Transformers shall be capable of operating at 100% of nameplate rating continuously while in an ambient temperature of 40°C (104°F). Maximum temperature rise for transformers shall be 115°C at rated load
   F. Transformer sound levels shall not exceed the levels indicated below:
      
      | Transformer KVA | Max. Sound Level (db) |
      |-----------------|-----------------------|
      | 15-50           | 45                    |
      | 51-150          | 50                    |
      | 151-300         | 55                    |
      | 301-500         | 60                    |
   G. Transformer core and coil assembly shall be grounded to the transformer enclosure by means of a visible, flexible copper grounding strap.
   H. Enclosures for indoor applications shall be NEMA 2 drip-proof rated, with ventilation openings protected against falling dirt. Enclosures for exterior applications shall be rated NEMA 3R minimum.
   I. Use flexible metal conduit to transformer to minimize vibration
   J. Provide concrete housekeeping pad for floor-mounted transformers
   K. Manufacturers
      1. Square D
      2. Siemens

2. TRANSFORMERS: GENERAL PURPOSE TYPE
   A. Transformer insulation type shall be as follows:
      1. Less than 15 KVA: 185 degrees C insulation system
      2. 15 KVA and above: 220 degrees C insulation system
   B. Taps:
      1. 3 through 12 KVA: two 5% taps below rated primary voltage
      2. 15 KVA and above: six 2.5% taps, 2 above and 4 below rated primary voltage
3. **TRANSFORMERS: DRIVE INSULATION TYPE**
   A. Transformer windings shall be specially braced to withstand the thermal and mechanical stresses of DC drive current spikes
   B. Transformer windings shall incorporate an isolated and shielded secondary winding to provide greater isolation of drive “noise” coupling back to the primary windings
   C. Isolation transformer insulation type shall be as follows:
      1. 7.5 KVA and above: 220 degrees C insulation system
   D. Taps:
      1. Six 2.5% taps, 2 above and 4 below rated primary voltage

4. **TRANSFORMERS: NON-LINEAR LOAD TYPE**
   A. K-factor shall be specified as required for the project. In general, K ratings of 4 or 13 shall be specified
   B. Transformer windings shall incorporate a 200% rated neutral winding and double-capacity neutral terminations
   C. Non-Linear Load transformer insulation type shall be as follows:
      1. 15 KVA and above: 220° C insulation system
   D. Taps
      1. Six 2.5% taps, 2 above and 4 below rated primary voltage