

Specification Number: 26 12 16.10.SF

Product Name: PAD-MOUNTED TRANSFORMERS, DRY TYPE

**SECTION 26 12 16.10.SF
PAD-MOUNTED TRANSFORMERS, DRY-TYPE**

Three-phase, dry-type pad-mounted transformers, for use on underground power distribution systems, meet modern design requirements for flexibility, and provide a visually pleasing installation. Construction allows installation in locations accessible to the general public without the need for protective fencing or vaults. These units are ideally suited for apartment buildings, schools, hospitals, shopping centers, commercial buildings, and industrial sites. Standard sizes range from 225 - 750 kVA with primary ratings from 2,400 V to 15,000 V. These designs meet all applicable industry standards of ANSI, NEMA, CSA, and IEEE.

PART 1 PRODUCT

1.01 SUPPLIER

A. Square D Company [no equal] [or approved equal]

1.02 DRY-TYPE PAD-MOUNTED TRANSFORMERS

A. The transformer(s) shall be compartment type, self-cooled, for mounting on a pad and shall comply with the latest applicable standards.

B. The transformer(s) shall be rated [] kVA AA]. Primary voltage [] [delta] [wye] . Secondary voltage [] [wye] [delta], [3-wire] [4-wire], 60 Hz with two 2-1/2% full capacity above normal and two 2-1/2% full capacity below normal primary taps. Impedance shall be [%] [manufacturer's standard impedance], $\pm 7-1/2\%$. All transformers shall have an average temperature rise of [150° C] [115° C] [80° C] above a 40° C maximum, 30° C average ambient.

C. The basic impulse levels (BIL) shall be a minimum of [60 kV for the 15 kV class] [optional 95 kV BIL available] [10 kV for the 1.2 kV class].

D. The coils shall be wound with [aluminum] [copper] conductors.

E. All insulating materials are to be in accordance with IEEE Standard C57.12.01 for 220° C UL insulation system.

F. All cores to be constructed of high grade, grain-oriented, non-aging silicon steel with high magnetic permeability, and low hysteresis and eddy current losses. Magnetic flux densities are to be kept well below the saturation point.

G. The coils and all clamping structure and buswork shall be assembled on the core, and then dried at atmospheric pressure in an oven through which hot air is continuously circulated. The totally assembled core and coil assembly shall be vacuum pressure impregnated in polyester varnish. The total VPI process shall apply a one (1) cycle polyester protective shield of varnish the coils and a protective shield to the bus, core and support structure. The varnish shall be cured on the core and coil assembly following an established temperature vs. time baking cycle in a hot air circulating oven. The VPI process shall effectively impregnate the entire core and coil assembly, which results in a unit, which is virtually impermeable to moisture, dust, salt air and other industrial contaminants.

H. The transformer shall be mounted in a heavy gauge enclosure consisting of three isolated sections; high voltage compartment, low voltage compartment, and transformer compartment. The enclosure is to be of NEMA Type 3R rated rain-resistant construction. Indoor enclosures with weather shields are not acceptable.

I. Rubber vibration isolation pads shall be installed by the manufacturer between the core and coil and the enclosure.

J. The high and low voltage compartments shall be located side by side, separated by a steel barrier. When facing the transformer, the low voltage compartments shall be on the right. Terminal compartments shall be full height, air-filled, with individual doors. The high voltage door fastenings shall not be accessible until the low voltage door has been opened. The low voltage door compartment shall have 3-point latching and padlocking provisions.

K. The high voltage terminations and equipment shall be [live front] [dead front]. (Available options include hook-stick operated and individual-pole load break fused disconnects with current limiting fuses.)

L. Live front terminations shall be spade type terminals with standard NEMA type hole patterns.

M. Dead front bushings shall be either universal wells or one-piece integrated for use with separable connectors.

N. The enclosure base is to be constructed of structural steel members to permit rolling or skidding in any direction. The base shall also be provided with lifting devices and jacking pads designed to be flush with the enclosure.

O. Access to the transformer section is to be through a removable panel with padlock hasps to prevent entry by unauthorized personnel when padlocks are installed.

P. Metal-oxide, gapless-type distribution class lightning arresters shall [shall not] be installed by the manufacturer on the high voltage side of the transformer to provide additional protection against high voltage lightning or switching surges.

Q. Transformer sound levels shall be warranted by the manufacturer not to exceed the values specified in IEEE Std. C57.12.01 .

R. Transformer shall be UL [c/UL] [non-UL] listed

S. Testing - Tests shall be conducted in accordance with the provisions of IEEE C57.12.91 and shall include, as a minimum, the following tests:

1. Ratio
2. Polarity
3. Phase Rotation
4. No-Load Loss
5. Excitation Current
6. Impedance Voltage
7. Load Loss
8. Applied Potential
9. Induced Potential
10. QC Impulse Test
11. Temperature Test (typical data from previous unit is acceptable)
12. Sound Test (typical data from previous unit is acceptable)