SECTION 16271

PADMOUNT TRANSFORMER - OIL FILLED

PART 1  GENERAL

1.1 DESCRIPTION:

Padmount Transformers and Insulating Oil with underground primary and secondary connections for use in distribution system.

1.2 INCORPORATED DOCUMENTS:

Latest applicable NEMA and ANSI standards for padmount, dead front, oil filled distribution transformers. Including:

NEMA TP-1 Guide for Determining Energy Efficiency for Distribution Transformers


C57.12.22-1993 American National Standard for Transformers- Pad-Mounted, Compartmental-Type, Self-Cooled Three-Phase Distribution Transformers…

10CFR431 Part III, ENERGY EFFICIENCY PROGRAM FOR CERTAIN COMMERCIAL AND INDUSTRIAL EQUIPMENT

1.3 SUBMITTALS:

A. Submit shop drawings containing information of dimensions, weight, sound level, impedance, voltage regulation, efficiency, and fabrication details.

B. Submit manufacturers’ test report of the transformer furnished

PART 2  PRODUCTS

2.1 GENERAL DESCRIPTION:

Padmount Compartmental Type, Self-cooled, Three Phase Distribution Transformer, with disconnect switch and fuses.

Acceptable manufactures:

Pacific Crest Transformer, Medford, OR (suggested vendor: Ormond Associates, phone (925) 377-7070)
2.2 ELECTRICAL CHARACTERISTICS:

See purchase order for specific model and rating information.

A. Self cooled rating: ___________ KVA, 3-Phase, 60 Hz.

B. Insulating Liquid: Mineral Oil, ASTM D-3487.

C. Primary Voltage: [4,160] [12,470] Delta.

D. Secondary Voltage: [208/120] [480/277] Four wire.

E. Impedance: 4.5%, Minimum.

F. Taps: Two - 2.5% full capacity above and below normal; externally operable no-load tap changer.

G. Temperature rise: 65 °C.

2.3 PRIMARY TERMINATION AND EQUIPMENT

A. Loop Feed

1) Provide six (6) externally clamped 200 Amp bushing wells and inserts and parking stands. The face of the parking stand shall extend from the tank wall a minimum of 1.75-inch.

2) Provide three (3), OFF-ON, 200 Amp LBOR switches (feed left, feed right and isolate transformer) with eyes for hot stick operation in the primary section.

3) Provide primary protection by bay-o-net fuses with internal current-limiting backup fuses. Interlock the bay-o-net fuses so that transformer switch (“MAIN”) must be in the off position before the bay-o-net fuses can be removed. Fuses shall be Cooper Power System or approved equal. Spare bay-o-net fuses, in their original carton, shall be provided with the transformer, in a metal pocket on the inside of the primary compartment door.

B. Radial Feed

1) Provide three (3) externally clamped 200 Amp bushing wells and inserts and parking stands. The face of the parking stand shall extend from the tank wall a minimum of 1.75-inch.

2) Provide one (1), OFF-ON, 200 Amp LBOR switch with eye for hot stick operation in
the primary section.

3) Provide primary protection by bay-o-net fuses with internal current-limiting backup fuses. Interlock the bay-o-net fuses so that transformer switch ("MAIN") must be in the off position before the bay-o-net fuses can be removed. Fuses shall be Cooper Power System or approved equal. Spare bay-o-net fuses, in their original carton, shall be provided with the transformer, in a metal pocket on the inside of the primary compartment door.

2.4 LOW VOLTAGE TERMINATION AND EQUIPMENT

Low voltage connections shall be by blade type spade terminals with NEMA standard hole spacing. Low voltage spades, 8-hole and above, shall be provided with phenolic cross bracing under the outside end of the bushing.

2.5 CONSTRUCTION:

A. Construction shall be dead front primary with a steel barrier separating the high and low voltage sections.

B. The transformer tank is to be provided with a domed welded lid with a minimum 16-inch diameter bolted, tamperproof hand-hole.

C. The high and low voltage compartments shall be side-by-side with the low voltage compartment on the right facing the transformer. The doors shall be tamperproof, secured by a pentahead bolt and padlock arrangement. The lid is to be hinged on the tank to allow removal and insertion of the bay-o-net fuses. The high and low voltage compartments shall be side-by-side with the low voltage compartment on the right facing the transformer. The doors shall be tamperproof, secured by a pentahead bolt and padlock arrangement.

D. Provide lifting lugs and provisions for jacking, rolling, and skidding.

E. Provide lugs, attached at the bottom of the transformer tank, for bolting the transformer to the pad. The lugs shall be designed for UBC (California – 1997) Seismic Zone 4 earthquake forces.

F. Provide the following accessories:
   1) Pressure relief valve
   2) One inch drain valve with sampling device
   3) Upper filter press connection
   4) Liquid level gauge
   5) Ground pad
   6) NEMA standard padmount warning label on door to primary section.
7) Thermometer
8) Pressure/Vacuum Gauge
9) Gas Sample/Pressure Test Valve
10) Non PCB Label.
11) Units rated 2000 kVA and above are to be provided with a phenolic cross brace for secondary cable support located approximately on-half the way between the bottom of the low voltage bushings and the pad, and one-half the way between the end of the bushings and the compartment door.

G. Transformer to be five-legged, wound core design.

H. Paint and Finish: Finish the transformer according to ANSI standard (C57.12.28/29) for surface preparation, primer, and paint durability. Exterior color: Kelly Moore DTM 5725 569 Wrought Iron Black.

2.6 FACTORY TESTS:

A. Perform factory tests on each transformer according to ANSI C57.12.90 and submit certified test reports to the Owner prior to shipment of the transformer.

B. Include the following test results in the report:
   1) Winding-to-winding and winding-to-ground resistance
   2) Ratio tests on rated voltage and all tap connections
   3) Polarity and phase relation test on rated voltage connection
   4) No load loss
   5) Exciting Current
   6) Impedance and load loss at full load
   7) Applied potential test
   8) Induced potential test
   9) Impulse test (one full wave, QC on all units)
   10) Pressure leak test.

PART 3 EXECUTION

3.1 SHIPPING AND DELIVERY:

A. Ship the transformer on a flat-bed truck and secured to a pallet suitable for unloading by forklift.

B. Notify the Owner 24 hours prior to delivery at the phone number provided in the Purchase Order.
3.2 WARRANTY

The manufacturer shall warrant the product for a period of not less than eighteen (18) months from the date of shipment or twelve (12) months from the date of energization, whichever occurs earliest.

END OF SECTION