

SECTION 26 22 13 11
LOW-VOLTAGE DISTRIBUTION TRANSFORMERS, BUCK BOOST

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish and install dry-type, encapsulated buck-boost/isolation transformers of the types, sizes and quantities indicated on the contract drawings. Provide all lugs, accessories and mounting hardware necessary for proper installation and operation

1.2 RELATED DOCUMENTS

- A. All drawings and general provisions of the Contract including General and Supplementary Conditions apply to this section.

1.3 SUBMITTALS

- A. Submit shop drawing and product data for approval and final documentation in the quantities listed according to the Conditions of the contract.
- B. Customer name, Customer location and customer order number shall identify all transmittals.
- C. Product Data including kVa rating, temperature rise, detailed enclosure dimensions, primary & secondary nominal voltages, primary voltage taps, unit weight and warranty.

1.4 RELATED STANDARDS

- A. The buck boost transformers shall meet the following criteria:
 - 1. ANSI C57.12.01/NEMA ST 20-Dry Type Transformer for General Applications
 - 2. IEEE C57.110-1998
 - 3. UL/cUL certified
 - 4. Manufacturer Seismic Qualification
 - a. Seismic: Seismic qualified units are designed and manufactured to comply with the specification, "IBC 2006/2009 and California Building Code (2007-2010; Seismic rating, Sds=2.00g, z/h=1.00, Ip=1.5.

1.5 QUALITY ASSURANCE

- A. Manufacturer shall have produced similar electrical equipment for a minimum period of 10 years.
- B. Products shall be listed by Underwriters Laboratories, Inc.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from potential damage from weather and construction operations. Store so condensation will not form on or in the transformer housing and if necessary, apply temporary heat where required to obtain suitable service conditions.
- B. Handle transformer using proper equipment for lifting and handling, when necessary use lifting hooks provided for that purpose.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The low voltage buck boost transformer(s) shall be Sentron supplied by Siemens or pre-approved equal. Approved manufacturers are as follows:
 - 1. SIEMENS - Sentron
 - 2. []

- B. Transformers specified in this Section and power distribution equipment feeding and being fed by the transformers shall be warranted and serviced by the same manufacturer. Manufacturer shall have a local field service organization available on an as needed basis.

2.2 GENERAL REQUIREMENTS

- A. Construction
 - 1. Single phase encapsulated type transformers. The primary side of each transformer shall, if applicable, be provided with taps that meet or exceed NEMA standards.
 - 2. Transformers shall be designed, constructed and rated in accordance with UL, CSA and NEMA. If shipping to Europe, transformer will also have to be manufactured in accordance to CE standards and carry a CE mark.
- B. Voltage and kVA Requirements:
 - 1. Single Phase Primary and Secondary Voltage Combinations
 - a. **[120x240-12/24] [120x240-16/32] [240x480-24/48] [Other Buck-Boost application voltages]**
- C. kVA Rating: Single Phase
 - 1. **[0.05] [0.10] [0.15] [0.20] [0.25] [0.50] [0.75] [1.0] [1.5] [2.0] [3.0] [5.0] [other]**
- D. System Frequency
 - 1. **[60 Hertz] [50 Hertz] [other]**
- E. Basic Requirements
 - 1. Standard impedance at 60Hz: 2% to 5% (up to 10 kVA), 3% to 6.5% (above 10 kVA)
 - 2. Name Plate Rating: Linear load, 60Hz
 - 3. Single-phase, common core construction. Convection air cooled.
 - 4. Insulation Class: **[130°C] [180°C] [other].**
 - 5. Core construction: high grade electrical steel laminations.
 - 6. Coil conductors: **[Aluminum] [copper]** windings
 - 7. Inrush current: **[10 times full load rating (max)] [__ times full load amps]**
 - 8. Sound level to meet NEMA ST-20.
 - 9. Enclosure: **[NEMA 3R] [other].**
 - 10. Enclosure Finish: **[ANSI 61 Grey suitable for UL50 outdoor applications] [other].**
 - 11. Transformers shall terminate to leads. Contractors shall provide all necessary lugs not already provided with transformer.
 - 12. **[CE Mark]**
 - 13. Built to NEMA ST-20 and in accordance with all applicable UL, CSA and ANSI/IEEE standards.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. The installing contractor shall install the Buck-Boost/Isolation Transformer per the manufacturer's recommended installation practices as found in the installation, operation, and maintenance manual and comply with all applicable codes.
- B. Wiring diagram on unit is correct when using this transformer as a low voltage isolation transformer. When using this item as a Buck-Boost or Auto-Transformer see catalog or Buck-Boost Application Manual
- C. Make sure that the transformer is mounted level and upright.
- D. Check for damage and loose connections.
- E. Mount transformer to comply with all applicable codes.
- F. Coordinate all work in this section with all work of other sections.
- G. Prior to energizing transformer, verify secondary voltages.

3.2 ADJUSTMENTS AND CLEANING

- A. On completion of installation, inspect components. Remove paint splatters and other spots, dirt and debris. Repair scratches and mars on finish to match original finish. Clean components internally using methods and materials recommended by manufacturer.

3.3 TESTING

- A. Inspect accessible components for cleanliness, mechanical and electrical integrity and damage or deterioration. Verify that temporary shipping bracing has been removed. Include internal inspection through access panels and covers.
- B. Inspect bolted electrical connections for tightness according to manufacturer's published torque values or, if not available, those specified in UL 486A and UL 486B.

3.4 WARRANTY

- A. Equipment manufacturer warrants that all goods supplied are free of non-conformities in workmanship and materials for one year from date of initial operation, but not more than eighteen months from date of shipment.

END OF SECTION