SECTION 26 22 00 – LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SCOPE

A. Section includes two-winding transformers; K- factor rated shielded transformer.

1.2 SUBMITTALS

- A. Product Data: Submit outline and support point dimensions of enclosures and accessories, unit weight, voltage, kVA, and impedance ratings and characteristics, tap configurations, insulation system type, and rated temperature rise.
- B. Test Reports: Indicate loss data, efficiency at 25, 50, 75 and 100 percent rated load, and sound level.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Store in clean, dry space. Maintain factory wrapping or provide additional canvas or plastic cover to protect units from dirt, water, construction debris, and traffic.
- B. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided. Handle carefully to avoid damage to transformer internal components, enclosure, and finish.

PART 2 - PRODUCTS

2.1 TWO-WINDING TRANSFORMERS

- A. Manufacturers:
 - 1. Cutler Hammer
 - 2. General Electric.
 - 3. Square D.
- B. Product Description: NEMA ST 20, factory-assembled, air-cooled, dry type transformers.
- C. Primary Voltage: 480 volts, 3 phase or unless otherwise noted.
- D. Secondary Voltage: 208Y/120 volts, 3 phase or unless otherwise noted.
- E. Insulation system and average winding temperature rise for rated kVA as follows:
 - 1. 1-15 kVA: Class 185 with 115 degrees C rise.
 - 2. 16-500 kVA: Class 220 with 115 degrees C rise.



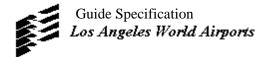
- F. Case temperature: Do not exceed 35 degrees C rise above ambient at warmest point at full load.
- G. Winding Taps:
 - 1. Transformers Less than 15 kVA: Two 5 percent below rated voltage, full capacity taps on primary winding.
 - 2. Transformers 15 kVA and Larger: NEMA ST 20.
- H. Sound Levels: NEMA ST 20. Maximum sound levels are as follows:
 - 1. 0-9 kVA: 40 dB.
 - 2. 10-50 kVA: 45 dB.
 - 3. 51-150 kVA: 50 dB.
 - 4. 151-300 kVA: 55 dB.
 - 5. 301-500 kVA: 60 dB.
 - 6. 501-700 kVA: 62 dB.
- I. Ground core and coil assembly to enclosure by means of visible flexible copper grounding strap.
- J. Mounting:
 - 1. 1-15 kVA: Suitable for wall mounting.
 - 2. 16-75 kVA: Suitable for wall, floor, or trapeze mounting.
 - 3. Larger than 75 kVA: Suitable for floor mounting.
- K. Coil Conductors: Continuous copper windings with terminations brazed or welded.
- L. Enclosure: NEMA ST 20, Type 1 indoor, dry locations and Type 3R for wet locations. Furnish lifting eyes or brackets.
- M. Isolate core and coil from enclosure using vibration-absorbing mounts.
- N. Nameplate: Include transformer connection data and overload capacity based on rated allowable temperature rise.

2.2 K-FACTOR TRANSFORMERS

- A. Manufacturers:
 - 1. Cutler-Hammer
 - 2. General Electric
 - 3. Square D.
- B. Product Description: NEMA ST 20, factory-assembled, air-cooled, dry type transformers. K-

factor 13 rated, 220 degree C insulation.

- C. Primary Voltage: 480 volts, 3 phase or unless otherwise noted.
- D. Secondary Voltage: 208Y/120 volts, 3 phase or unless otherwise noted.
- E. 200% neutral.
- F. Insulation system and average winding temperature rise for rated kVA as follows:
 - 1. 16-500 kVA: Class 220 with 115 degrees C rise.
- G. Case temperature: Do not exceed 35 degrees C rise above ambient at warmest point at full load.
- H. Winding Taps:
 - 1. Transformers Less than 15 kVA: Two 5 percent below rated voltage, full capacity taps on primary winding.
 - 2. Transformers 15 kVA and Larger: NEMA ST 20.
- I. Sound Levels: NEMA ST 20. Maximum sound levels are as follows:
 - 1. 0-9 kVA: 40 dB.
 - 2. 10-50 kVA: 45 dB.
 - 3. 51-150 kVA: 50 dB.
 - 4. 151-300 kVA: 55 dB.
 - 5. 301-500 kVA: 60 dB.
 - 6. 501-700 kVA: 62 dB.
- J. Ground core and coil assembly to enclosure by means of visible flexible copper grounding strap.
- K. Mounting:
 - 1. 16-75 kVA: Suitable for wall, floor, or trapeze mounting.
 - 2. Larger than 75 kVA: Suitable for floor mounting.
- L. Coil Conductors: Continuous copper windings with terminations brazed or welded.
- M. Enclosure: NEMA ST 20, Type 1 indoor, dry locations and Type 3R for wet locations. Furnish lifting eyes or brackets.
- N. Isolate core and coil from enclosure using vibration-absorbing mounts.
- O. Nameplate: Include transformer connection data and overload capacity based on rated allowable temperature rise.



P. Provide an electrostatic shield.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Set transformer on housekeeping pad as required in the hangers and supports for electrical systems section.
- B. Use flexible conduit, 2 feet minimum length, for connections to transformer case. Make conduit connections to side panel of enclosure.
- C. Support transformers.
 - 1. Mount wall-mounted transformers using integral flanges or accessory brackets furnished by manufacturer.
 - 2. Mount floor-mounted transformers on vibration isolating pads suitable for isolating transformer noise from building structure.
 - 3. Mount trapeze-mounted transformers.
- D. Provide seismic restraints.
- E. Electrical transformer for toilets, urinals and sensors shall be located in ceiling and provided with ceiling access panels to the extent possible.

END OF SECTION 26 22 00