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