

SECTION 16461 - DRY TYPE TRANSFORMERS

GENERAL

1.1 SECTION INCLUDES

- A. Dry Type Two Winding Transformers

1.2 REFERENCES

- A. ANSI/NEMA - ST 1 - Specialty Transformers.
- B. ANSI/NEMA ST 20 - Dry Type Transformers for General Applications.
- C. NEMA TR27 - Commercial, Institutional and Industrial Dry Type Transformers.
- D. NFPA 70 - National Electrical Code.

1.3 SUBMITTALS

- A. Submit product data under provisions of Section 16010.
- B. Include outline and support point dimensions of enclosures and accessories, unit weight, voltage, KVA, and impedance ratings and characteristics, loss data efficiency at 25, 50, 75, and 100 per cent rated load, sound level, tap configurations, insulation system type, and rated temperature rise.
- C. Operation and Maintenance Instructions: Furnish copies of "Installation, Operation, and Maintenance" Instructions for each transformer.

PRODUCTS

2.1 DRY TYPE TWO WINDING TRANSFORMERS

- A. Manufacturers
  - 1. General Electric.
  - 2. Square D.
  - 3. Cutler-Hammer.
  - 4. Substitutions: Or Approved Equal.
- B. Description: ANSI/NEMA ST 20: factory assembled, air-cooled dry type transformers; ratings as shown on the Drawings.
- C. Voltage Ratings:
  - 1. Primary: 480 volts, 3-phase.
  - 2. Secondary: 208/120 volts, 3-phase.
- D. Insulation system and average winding temperature rise for rated KVA as follows:

| <u>Rating</u> | <u>Class</u> | <u>Rise (degrees C)</u> |
|---------------|--------------|-------------------------|
| 1-15          | 185          | 115                     |
| 16-500        | 220          | 150                     |

- E. Winding Taps, Transformers less than 15 KVA: Two (2) 5% below rated voltage, full capacity taps on primary winding.
- F. Winding Taps, Transformers 15 KVA and Larger: ANSI/NEMA ST 20.
- G. Sound Levels: ANSI/NEMA ST 20.
- H. Sound Levels: Maximum sound levels are as follows:
- | <u>KVA Rating</u> | <u>Sound Level</u> |
|-------------------|--------------------|
| 1-5               | 30 db              |
| 6-25              | 40 db              |
| 26-150            | 42 db              |
| 151-225           | 43 db              |
| 226-300           | 47 db              |
| 301-500           | 51 db              |
- I. Basic Impulse Level: 10 KV.
- J. Ground core and coil assembly to enclosure by means of a visible flexible copper grounding strap.
- K. Mounting: Transformers 30 KVA and less shall be suitable for wall or floor mounting; transformers larger than 30 KVA shall be suitable for floor mounting.
- L. Coil Conductors: Continuous windings with terminations brazed or welded.
- M. Enclosure: ANSI/NEMA ST 20; Type 1. Provide lifting eyes or brackets.
- N. Isolate core and coil from enclosure using vibration-absorbing mounts.
- O. Nameplate: Include transformer connection data.

## EXECUTION

### 3.1 INSTALLATION

- A. Set transformer plumb and level.
- B. Use flexible conduit, 2 ft. (0.6 m) minimum length, for connections to transformer case. Make conduit connections to side panel of enclosure.
- C. Provide grounding and bonding in accordance with Section 16450.

### 3.2 FIELD QUALITY CONTROL

- A. Check for damage and tight connections prior to energizing transformer.
- B. Measure primary and secondary voltage and make appropriate tap adjustments

\*\*\*END OF SECTION 16461\*\*\*