

Part 1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA C9-M2002(R2007), Dry-Type Transformers.
- .2 National Electrical Manufacturers Association (NEMA)

1.2 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Include:
 - .1 Dimensioned drawing showing enclosure, mounting devices, terminals, taps, internal and external component layout.
 - .2 Technical data:
 - .1 kVA rating.
 - .2 Primary and secondary voltages.
 - .3 Frequency.
 - .4 Polarity or angular displacement.
 - .5 Full load efficiency.
 - .6 Regulation at unity pf.
 - .7 BIL.
 - .8 Insulation type.
 - .9 Sound rating.
 - .10 Physical dimensions.
 - .11 Connection diagram.

1.3 CONTROL SUBMITTALS

- .1 Submit to Contract Administrator one copy of standard factory test certificates of each transformer and type test of each transformer in accordance with CSA C9. Electronic submissions are accepted.

1.4 CLOSEOUT SUBMITTALS

- .1 Provide operation and maintenance data for dry type transformers for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
- .2 Operation and maintenance instructions to include:
 - .1 Tap changing.
 - .2 Recommended environmental conditions.
 - .3 Recommended periodic inspection and maintenance.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Store transformers indoors in dry location.

Part 2 Products

2.1 MATERIALS

- .1 Dry-type transformers: to CSA C9.
- .2 Bushings: to EEMAC GL1-3.

2.2 TRANSFORMER CHARACTERISTICS

- .1 Type: ANN
- .2 Rating: 300 kVA, 3 phase, 60 Hz.
- .3 220 degrees C insulation system class, 115 degrees C temperature rise.
- .4 Impedance: 3 to 5.5 %.
- .5 Primary winding: 4160 V, delta, BIL 30 kV.
- .6 Secondary winding: 600 V, star, BIL 10 kV, four wire with neutral brought out and grounded.
- .7 Meets all current Canadian energy efficiency regulations (OEE).
- .8 Sound rating: 58 dBA or less.
- .9 CSA Certified.

2.3 ENCLOSURE

- .1 NEMA Type 1, drip proof or NEMA Type 3R. Fabricated from sheet steel.
- .2 Bolted removable panels for access to tap connections, enclosed terminals.
- .3 Conductor entry:
 - .1 Knockouts.
 - .2 Potheads.
 - .3 Junction boxes.
 - .4 Bushings.
 - .5 Clamping rings.
 - .6 Entry for cable.
- .4 Designed for floor mounting.

- .5 Indoor, ventilated, self cooled type. Temperature of exposed metal parts not to exceed 65 degrees C rise.

2.4 VOLTAGE TAPS

- .1 - 5%, -2.5%, 0%, +2.5%, +5%.

2.5 NAMEPLATE

- .1 Include all transformer data including actual impedance.

2.6 WINDINGS

- .1 Primary and secondary coils:
 - .1 Copper.
- .2 Coil and core assembly:
 - .1 Taps located at front of coils for accessibility.

2.7 TERMINATIONS

- .1 Suitable for NEMA standard dual-hole lugs.
- .2 Size:
 - .1 Primary side: suitable for lugs sized for 4 AWG cable.
 - .2 Secondary side: suitable for lugs sized for 500 MCM cable.

2.8 ACCESSORIES

- .1 Over temperature switches
 - .1 Wired to internal terminal strip with labelled terminals.
 - .2 SPDT switch configuration.
 - .3 Two switches on center coil:
 - .1 Switch 1: 170°C setpoint
 - .2 Switch 2: 200°C setpoint
 - .4 Rated 5A @ 120 VAC.
- .2 Grounding terminal: inside of enclosure.

2.9 EQUIPMENT IDENTIFICATION

- .1 Provide equipment identification in accordance with Section 26 05 01 - Common Work Results - Electrical.
- .2 Equipment labels: nameplate text and size as per the lamacoid schedule.

Part 3 Execution

3.1 INSTALLATION

- .1 Locate, install and ground transformers in accordance with manufacturer's instructions.
- .2 Set and secure transformers in place, rigid plumb and square.
- .3 Connect primary terminals to medium voltage circuit.
- .4 Connect secondary terminals to low voltage circuit.
- .5 Energize transformers and check secondary no-load voltage.
- .6 Adjust primary taps as per the drawings.
- .7 Wire the normally closed set of contacts on winding temperature detector relay to the Station Programmable Logic Controller per the drawings.
- .8 Use torque wrench to adjust internal connections in accordance with manufacturers' recommended values.
- .9 Check transformer for dryness before putting it into service and if it has not been energized for some considerable time.

3.2 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 01 - Common Work Results - Electrical.
- .2 Energize transformers and apply incremental loads:
 - .1 At each load change, check ambient, enclosure, and winding temperatures.

END OF SECTION