CITY OF AUSTIN - AUSTIN ENERGY (AE)

PURCHASE SPECIFICATION

FOR

TRANSFORMER, NTWK, DRY TYPE, 3PH, 15 – 500 KVA, 34.5KV, 480Y/277V

DATE	PREPARED BY	ISSUANCE/REVISION	APPROVAL PROCESS MANAGER/M&ESS MANAGER
09/01/20	Brantley Gosey	Issuance	Michael Pittman

REASON FOR REVISION	*AFFECTED PARAGRAPHS*

This specification, until rescinded, shall apply to each future purchase and contract for the commodity described herein.
Retain for future reference.

1.0 SCOPE AND CLASSIFICATION

1.1 Scope

1.1.1 This specification covers three-phase dry-type network transformers.

1.1.2 No deviations from this specification will be permitted.

1.2 Classification

1.2.1 Voltage shall be 216Y/125V to 480Y/277V (step-up).

1.2.2 Transformer rating shall be 15 kVA and 500 kVA as specified on the bid request.

1.2.3 No-load high voltage taps at above nominal full capacity 5% above and 5% below then below nominal full capacity below 2.5% above and 2.5% below.

1.2.4 Basic Insulation Level (BIL) shall be 125 kV for windings, 95 kV for bushings.

2.0 APPLICABLE STANDARDS

Network transformers furnished under these specifications shall meet all applicable, ASTM, EEI-NEMA, ANSI, AND IEEE Standards, latest revision.

2.1 Shall be in accordance with applicable ANSI C57.12.57 - Ventilated Dry-Type Network Transformers 2500 kVA and Below, Three-Phase, with High-Voltage 34 500 Volts and Below, Low-Voltage 216Y/125 and 480Y/277 Volts- Requirements

3.0 FUNCTIONAL REQUIREMENTS

3.1 Transformers shall be self-cooled, 65 degrees (°) Centigrade (C) temperature rise above ambient, vault type construction, suitable for occasional submerged operation.

3.2 The neutral bushing shall be insulated from the transformer tank. The ground to the tank shall be made by a flexible copper braid bolted between the transformer tank and the neutral bushing of the transformer. The neutral bushing shall have a four-hole NEMA pad.

3.3 Alarm contacts shall be suitable for interrupting:

A. 0.02 ampere direct-current inductive load

B. 0.02 ampere direct-current noninductive load

C. 2.5 ampere alternating-current noninductive or inductive load

D. 250 volts maximum in all cases

3.4 All transformers supplied to AE shall meet or exceed the efficiency values in accordance with the latest revision of Department of Energy CFR Title 10, Volume 3, Chapter II, Subchapter D, Part 431, Subpart K – "Energy Efficiency Program for Certain Commercial and Industrial Equipment" as applicable. Certified test data by serial number shall be provided with each transformer.

3.5 The actual losses of anyone transformer on an order shall not exceed the quoted guaranteed losses by more than the following percentages: No-load losses - 10%, Total losses - 6%

4.0 PHYSICAL REQUIREMENTS

4.1 The transformer tank shall be of a sealed construction, consisting of a welded main cover equipped with lifting lugs and gasketed hand hole cover(s).

4.2 Jack pads or bars shall be provided so that there are three inches (3") of clearance up from the bottom of the transformer for lifting jacks.

5.0 SIGNAGE

"SIZE KVA" decal: width as required, 2 7/8 inches tall, Engineer Grade, adhesive reflective vinyl, with yellow numbers, black background.

"SIZE PRIMARY" decal: width as required, 2-7/8 inches tall, Engineer Grade, adhesive reflective vinyl, with yellow numbers on Black Background. The sticker shall read "L-L Voltage Y / L-G Voltage".

"SIZE SECONDARY" decal: width as required, 2-7/8 inches tall, Engineer Grade, adhesive reflective vinyl, with yellow numbers on Black Background. The sticker shall read "L-L Voltage Y / L-G Voltage".

Marking of terminals, winding connections, and vector relationships of windings shall be as shown on the faceplate of the transformer. The phase configuration shall be denoted such that the phase corresponding to H1 shall be denoted as C-phase, H2 shall be denoted as A-phase, and H3 shall be denoted as B-phase.

6.0 BARCODING

6.1 The following referenced documents are indispensable for the application of this Specification (i.e., they must be understood and used, so each referenced document is cited in the text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

ANSI/AIM BC1-1995, Uniform Symbology Specification—Code 39.1
ANSI INCITS X3.182, Bar Code Print Quality Guideline.
ASTM B117, Standard Practice for Operating Salt Spray (Fog) Apparatus. 2
ASTM G154, Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials.

IEEE Std C57.12.00TM, IEEE Standard for General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers.

IEEE Std C57.35.00TM, IEEE Standard for Barcoding for Distribution Transformers and Step-Voltage Regulators

6.2 Network Transformers shall be labeled with permanent and/or temporary bar-code labels, as specified by the user.

6.3 Permanent bar-code label

6.3.1 Purpose of the permanent bar-code label-
The information contained on the permanent bar-code label is to be used as the access key to a database after the initial receipt of the equipment.

6.3.2 The permanent bar-code label shall contain ALL the information found on the nameplate including but not limited to the following data elements:

Transformers:-

a) Manufacturer Name.
b) Equipment serial number.
c) Year of Manufacturing.
d) Size of Equipment. (lbs.)
e) Type (Delta or Wye)
f) Voltage Levels (Primary Voltage L-L & Secondary Voltage "L-N/L-L")
g) Phase type (Single phase or Three Phase)
h) Capacity rating (kVA)
i) Impedance (%Z)

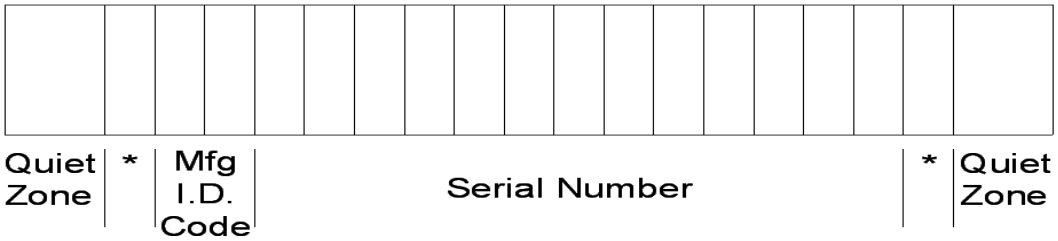
These data elements shall consist of combinations of one or more of the following 43 characters: 0 to 9, A To Z, -, ., /, +, $, %, and space

6.3.3 The information encoded on the permanent bar-code label will appear as shown in Attachment 1.

6.3.4 Bar-code symbology for the permanent label-The barcode symbology utilized on the permanent label shall be Code 39, also referred to as Code 3-of-9, in accordance with ANSI/AIM BC1-1995

6.3.5 The bar code symbol shall be of medium density [four to seven characters per inch (cpi)] with a narrow bar Width of 0.025 cm (0.010 in) to 0.038 cm (0.015 in), and a wide-to-narrow ratio of 3:1. The inter-character gap shall be equal in width to the width of a narrow element.

ATTACHMENT 1



* = Start/Stop Character