

CITY OF AUSTIN

PURCHASE SPECIFICATION

FOR

CAPACITORS, DISTRIBUTION

DATE	PREPARED BY	ISSUANCE/REVISION	APPROVAL PROCESS MANAGER
4/10/90	Richard Dreiss	Issuance	Steven Booher/Peter Gerard Soosay
7/05/95	Peter Soosay	Revision	Richard Dreiss/Peter Gerard Soosay
8/01/95	Peter Soosay	Revision	Richard Dreiss/Peter Gerard Soosay
9/26/96	Steven Booher	Reviewed	Steven Booher/Gary Noble
6/20/06	Steven Booher	Revision	David Wood
6/23/06	Steven Booher	Revision	
01/04/17	Brantley Gosey	Revision	

REASON FOR REVISION	AFFECTED PARAGRAPHS
Changed Function Requirements to Construction Requirements Added Capacitor Test requirements Revised Paragraph & Deleted Section 5.0 Receiving test reports; Years mfg.	Paragraph 3.0 Paragraph 4.0 Paragraph 1.1& 5.0 Paragraph 1.4, 3.7, 4.2, 4.4

This specification, until rescinded, shall apply to each future purchase and contract for the commodity described herein.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

CITY OF AUSTIN PURCHASE SPECIFICATION FOR CAPACITORS, DISTRIBUTION

1.0 SCOPE AND CLASSIFICATION

- 1.1 The City of Austin (COA) through its Electric Utility Department DBA Electric Utility Department is hereinafter referred to as Austin Energy (AE). This specification covers minimum requirements for outdoor capacitors to be used for distribution-line compensation on the AE Electric Utility system.
- 1.2 No deviation from these specifications on the part of the bidder shall be allowed. Any material supplied under these specifications, not in compliance with these specifications shall be unacceptable and returned to the manufacturer.
- 1.3 Capacitors shall be suitable for arrangement on a three-phase bank configuration.
- 1.4 All manufacturers furnishing capacitors under these specifications shall have at least five years of experience in the manufacture and sale of distribution capacitors.

2.0 APPLICABLE STANDARDS

Equipment furnished under this specification shall be manufactured, tested, and made ready for shipment in accordance with applicable ANSI, ANSI/IEEE, and NEMA standards latest revisions. In the case of conflicting requirements, the City of Austin's purchase specification shall preside.

3.0 CONSTRUCTION REQUIREMENTS

- 3.1 The individual capacitor units shall be rated 200 kVar, 7200 volt, single phase, 15 kV, 60Hz, double bushing 95.0 kV BIL.
- 3.2 Line-to-Line System Voltage is 12.47 kV.
- 3.3 The Capacitor unit elements shall be all film type and not contain Kraft paper. The internal element connections shall be metallurgically joined using a zinc rich soldering alloy. The edges of the foil electrode shall be folded to minimize edge stress. The solid dielectric material shall consist of a minimum of 2 sheets of polypropylene film.
- 3.4 The Capacitor unit shall be equipped with an internal discharge resistor.
- 3.5 Capacitor units shall be equipped with two glazed wet process bushings, which are weld sealed to the case. The bushing terminal stud shall be solid type design. All porcelain shall be ANSI/IEEE No. 70 light gray finish.
- 3.6 Capacitor unit bushings shall be provided with a tin plated copper alloy clamp type parallel-groove terminals that accommodate copper or aluminum conductors from #8 solid through number #2 stranded AWG.
- 3.7 The dielectric fluid contained in the capacitor units shall be PCB-free (less than 0.1ppm). The test method used for analysis of PCB content shall be EPA Method 608 latest revision. The contractor shall supply Austin Energy two copies of certified test reports, upon request, indicating that the dielectric fluid is PCB free. Upon request, copies of the certified test reports shall be sent to the Austin Energy Distribution Standards Supervisor.
- 3.8 Each capacitor unit shall be furnished with a heavy-duty stainless steel or aluminum nameplate in accordance with ANSI- C55.2. The nameplate shall contain, but not limited to the following:

- 3.8.1 Manufacturer name
 - 3.8.2 Manufacture model
 - 3.8.3 Manufacture serial number
 - 3.8.4 Year of manufacture
 - 3.8.5 Rated reactive power
 - 3.8.6 Rated voltage, RMS
 - 3.8.7 Rated frequency
 - 3.8.8 BIL
 - 3.8.9 Statement as to whether insulating fluid is or is not flammable
 - 3.8.10 NON- PCB
 - 3.8.11 The actual tested production capacitance value.
- 3.9 Capacitor tanks shall have type 409 stainless steel and be hermetically sealed by welding. Each tank shall be ANSI/IEEE No. 70 gray in color. All parts requiring painting shall be guaranteed rust free for five (5) years.
- 3.10 Capacitor units shall have stainless steel mounting brackets left unpainted on the underside for positive grounding.
- 3.11 Each capacitor unit shall be supplied with a blue "NON-PCB" decal on the capacitor tank to provide quick and easy identification.
- 3.12 Each capacitor shall be provided with a bird guard for each bushing.

4.0 CAPACITOR UNIT TEST REQUIREMENTS

- 4.1 Each capacitor unit shall be subjected to the following routine production tests as listed below:
- 4.1.1 Short-time overvoltage test
 - 4.1.2 Capacitance test
 - 4.1.3 Leak test
 - 4.1.4 Discharge resistor test
 - 4.1.5 Loss determination test
- 4.2 A copy of the production test shall be provided, upon request. Upon request, the copy of the test report shall be sent to the Austin Energy Distribution Standards Supervisor.
- 4.3 The following design tests shall be performed on the capacitor units as listed below:
- 4.3.1 Impulse Test
 - 4.3.2 Thermal stability test
 - 4.3.3 Radio influence test
 - 4.3.4 Voltage decay test
 - 4.3.5 Overvoltage Endurance Test, similar to IEC 60871 -25° C.

This design test shall include the application of 2.0 times AC voltage for 15 cycles and then reducing the voltage to 1.1 times rated voltage for 1.5 minutes without interruption, and then repeating the cycle again, without interruption, until the test

unit has been subjected to 170 daily overvoltage cycles. This test shall continue until the test unit has been subjected to a total of 850 overvoltage cycles. At the start of each daily test period, the dielectric temperature of the test unit (s) shall be 25 ° C.

- 4.4 Certified Design test reports verifying the above tests should be included in the bid for this item prior to final bid award. The Design tests shall be performed on capacitor units from a standard current production run. Failure to submit design test reports may be grounds for bid rejection.