

DIVISION 26 - ELECTRICAL

SECTION 26 35 13 – CAPACITORS

PART 1: GENERAL

1.01 Scope of Standard

- A. This standard provides general guidance concerning the specific preferences of Texas State University-San Marcos for Capacitors
- B. Texas State University-San Marcos recognizes that project conditions and requirements vary, thus precluding the absolute adherence to the items identified herein in all cases. However, unless there is adequate written justification, it is expected that these guidelines will govern the design and specifications for Texas State University-San Marcos projects.

1.02 Scope of Work

- A. This section includes unit capacitors for power factor correction.
- B. Power factor capacitors shall be used in conjunction with Variable Frequency Drives (VFD's) as provided in Section 26 29 23 of this standard. This is a design standard and is not intended to be used as a guideline or construction specification.

PART 2: PRODUCTS

- A. The capacitor unit shall be indoor, metal enclosed, and factory assembled, prewired tested and ready for installation. The following are acceptable manufacturer's:
 - 1. Versatex
 - 2. Myron Zucker
 - 3. Cornell Dubiler
 - 4. Asea Brown Boveri
 - 5. General Electric
 - 6. Commonwealth Sprague
- B. Capacitor unit ratings shall be the following:
 - 1. KVAR 150
 - 2. VOLTAGE: 480
 - 3. STEP KVAR: 25
 - 4. NUMBER of STEPS: 6

5. FREQUENCY (HZ): 60
6. WATT LOSS/KVAR: 0.7 max.
- C. Capacitor bank shall be rated for a life expectancy of at least 20 years. The enclosure shall be freestanding type NEMA 12. The assembly shall be accessible from the front with a continuously hinged door with a three point locking handle mechanism.
- D. All capacitor cells shall be three phase industrial grade, metal encased, utilizing threaded type terminals installed with an insulating plastic terminal plate. Only three phase units shall be furnished. Single phase units that have been interconnected shall not be allowed. The capacitors shall be specifically designed for power factor correction and continuous duty.
- E. The following control type items shall be included with each assembly:
 1. A microprocessor based field programmable automatic power factor controller shall be provided and designed with the following features:
 - a. Digital LED readout or meter indication of actual power factor and power factor setpoint. The setpoint shall be continually adjustable to settings that are leading or lagging from 0.7 inductive to 0.7 capacitive.
 - b. Capacitor step display on number of steps activated and the number available.
 - c. Automatic or manual mode of operation.
 2. Instrument transformers shall be provided for the necessary inputs into the automatic controller. Control and potential transformers shall be appropriately fused on both sides of the primary and secondary.
 3. Control power transformers shall be provided, if required, for the contractors and associated equipment.

PART 3: EXECUTION

3.01 Design/Drawing Requirements

- A. The engineer shall show on the single line diagram the planned locations for installing power factor correction capacitor banks.
- B. The drawings shall also indicate location of the capacitor banks in a detail of the electrical room layout.
- C. The capacitor assembly shall be installed a minimum of 200 electrical feet from the nearest SCR drive or as indicated in the VFD manufacturer's Harmonic Analysis Study.

END OF SECTION 26 35 13