

Single Phase Vacuum Capacitor Switches, For Pole-Mounted, Three-Phase Capacitor Banks, For 7.2 kV Delta or 14.4 kV Solidly-Grounded Wye Systems

Revised 08/2022

Specification

1.0 SCOPE

This specification covers the requirements for single-phase, molded capacitor vacuum switches for use in a three-phase capacitor bank shunt connection to a standard distribution system in either a 7.2 kV ungrounded delta or 14.4 kV solidly-grounded wye configuration at 60 Hz.

2.0 APPLICABLE PUBLICATIONS AND STANDARDS

The capacitor vacuum switches shall comply with the applicable provisions of the latest NEMA, IEEE, ANSI, and IEC standards relating to capacitors. Applicable standards include, but are not limited to:

- 2.1. IEEE 1036 – Guide for Application of Shunt Power Capacitors
- 2.2. IEEE Std. C37.66 – Standard Requirements for Capacitor Switches for AC Systems (1 kV to 38 kV)

3.0 PRODUCT REQUIREMENTS

3.1. General

The capacitor vacuum switches shall conform to the requirements of the standards referenced in Section 2.0 and the specifications herein, for use in the described application in Section 1.0.

3.2. Ratings

3.2.1. The capacitor vacuum switches shall have the following ratings at a minimum:

Voltage class	15 kV
Maximum design voltage	17 kV
Frequency	60 Hz
BIL Rating	95 kV
One-minute AC withstand (Dry)	60 kV
Ten-second AC withstand (Wet)	50 kV
Continuous current rating	200 A
Capacitive switching current rating	200 A
Withstand peak current	15,000 A
Symmetrical fault making current	6,000 A
High Frequency Making Current – Transient peak	9,000 A / Hz
Ambient operating temperature	-40 to +55 Deg C
Endurance	50,000 Operations

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3.3. **Construction & Features**

- 3.3.1. Switches shall be single phase with mounting provisions for attachment to the outside of a pole mounted capacitor rack. All switch hardware shall be stainless steel.
- 3.3.2. Switches shall have provisions for grounding the tank.
- 3.3.3. Bushings shall have animal proof insulating caps.
- 3.3.4. An external operating lever designed to be operated by a hook-stick shall be included on each switch. The operating lever shall be painted yellow.
- 3.3.5. Switches shall have a means of visual indication of switch state visible from ground level.
- 3.3.6. Switches shall have a nominal control voltage of 120 VAC, 60 Hz.
- 3.3.7. Control and power connections to each switch shall be by means of a single, waterproof multi-pin connector to be installed from the switch to the rack mounted junction box.
- 3.3.8. Each switch shall have a power requirement of less than 500 VA for either open or close operations.
- 3.3.9. Switches shall be ANSI Gray #70 in color.

3.4. **Nameplate**

The switch shall be provided with a securely attached stainless steel nameplate containing the below information, and follow all IEEE standard requirements:

- a) Manufacturer's catalog number
- b) Manufacturer's serial number
- c) Manufacture date
- d) Maximum voltage
- e) Impulse voltage (BIL)
- f) Continuous & capacitive switching current
- g) Momentary & fault close
- h) Total weight

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4.0 TESTING

Certified test reports substantiating compliance with the Standards listed in Section 2.0 shall be furnished upon request.