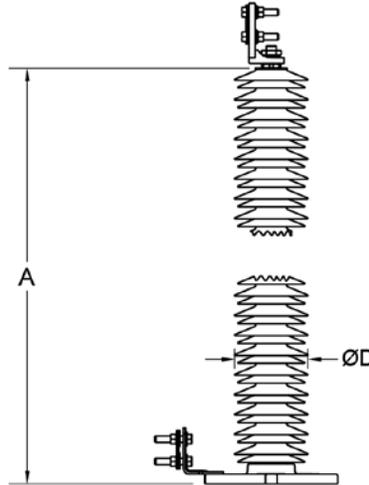


## Station Class, Polymer, Metal-Oxide Surge Arrester for 34.5 kV Systems



### 1. Scope

This standard details requirements for 30 kV duty-cycle rating, station class, polymer-housed, metal-oxide surge arresters.

This standard applies to Seattle City Light (SCL) stock number 013547.

### 2. Application

Station class surge arresters are intended for use on a nominal 34.5 kV, grounded, wye-connected, 60 Hz power system.

Arresters are intended for upright or horizontal mounting in substations.

Arresters are intended for direct connection to the substation ground grid.

### 3. Industry Standards

Surge arresters shall meet all the applicable requirements of the following national standard:

**IEEE C62.11 – 2012**, Standard for Metal-Oxide Surge Arresters for AC Power Circuits (> 1kV)

Standards Coordinator  
Tanya Panomvana

Standards Supervisor  
John Shipek

Unit Director  
Darnell Cola

#### 4. Requirements

Class (recognized by IEEE C62.11)	Station
Type	Metal oxide
Duty-Cycle Rating	30 kV rms
Maximum Continuous Operating Voltage (MCOV)	24.4 kV rms
Maximum Front-of-Wave Voltage Cresting in 0.5 Microseconds for <b>10 kA</b> Wave	80 kV crest
Maximum Discharge Voltage for 8 x 20 Microsecond <b>10 kA</b> Wave	74 kV crest
Maximum Discharge Voltage for 8 x 20 Microsecond <b>20 kA</b> Wave	81 kV crest
Maximum Discharge Voltage for <b>500 A</b> Switching Surge	59 kV crest
Minimum Temporary Overvoltage (TOV) Capability, <b>No Prior Duty</b> ,	
1 sec	1.42 per MCOV
10 sec	1.35 per MCOV
Minimum Energy Capability	8.7 kJ/kV of MCOV
Minimum Pressure Relief Rating	63 kA rms
Minimum Cantilever Strength,	
Ultimate	21,000 in-lb
Maximum design (40% of ultimate)	8,400 in-lb

#### 5. Construction

Housing Material	Silicone rubber; To qualify as silicone type, housing material must be composed of at least 33% silicone by weight; "EP/silicone alloys" do not qualify
Housing Color	Gray
Terminal – Top	4-hole NEMA vertical pad
Terminal – Bottom	Ground clamp suitable for #4 AWG to 250 kcmil stranded copper conductor
Mounting	Three 1/2-in mounting holes spaced 120 degrees from each other on an 8.75 to 10 in-diameter bolt circle
Height, nominal	16 in, measured from bottom of mounting base to just underneath terminal pad
Minimum Leakage Distance	43 in

#### 6. Marking and Packaging

Surge arresters shall be packaged individually in wood crates to protect against physical damage that could occur during shipping, handling, or long-term outside storage. Crates shall be secured to pallets for handling by forklift.

Crates shall be marked with the manufacturer's name or symbol, catalog number, SCL stock number, and purchase order number.

#### 7. Issuance

Stock Unit: EA

## 8. Approved Manufacturers

<b>Manufacturer</b>	<b>Eaton's Cooper Power Systems</b>
Type	UX
Catalog No.	UXAA030024A1849A12

---

<b>Manufacturer</b>	<b>TE Connectivity</b>
Type	PCA
Catalog No.	PCA130L21E2M7

---

## 9. Sources

**235-103**; UltraSIL polymer-housed VariSTAR station-class surge arresters, Eaton's Cooper Power Systems; November 2013

**Bowthorpe EMP High Voltage Surge Arresters Brochure**; TE Connectivity, June 2012

**Panomvana, Tanya**; SCL Standards Engineer, subject matter expert and originator of 6802.40 (tanya.panomvana@seattle.gov)