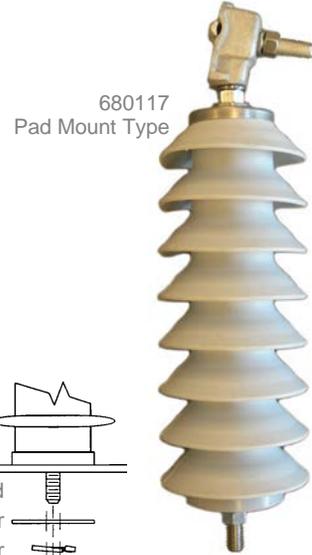


21 KV HEAVY DUTY DISTRIBUTION CLASS, POLYMER, METAL-OXIDE SURGE ARRESTER



680115
Riser Pole Type



680117
Pad Mount Type



1. Scope

This Material Standard applies to 21 kV duty-cycle rating, heavy duty distribution class, polymer-housed, metal-oxide surge arresters.

2. Application

Heavy duty distribution class surge arresters are intended for use on maximum 26400GrdY/15240 Volt power systems in areas where the nominal fault duty is less than 20 kA rms symmetrical.

In areas where the fault duty is greater than 20 kA, refer to Material Standard 6801.60 - 21 kV, Intermediate Class, Polymer, Metal-Oxide Surge Arrester.

Surge arresters designed with gaps (6801.40) offer slightly better electrical performance than surge arresters designed without gaps (6801.3 and 6801.60). Intermediate class arresters are not available with gaps.

This Material Standard applies to two types of surge arresters. The first type of surge arrester is installed on riser poles to protect underground cable and equipment. The second type is installed inside pad mount switches. These two surge arresters differ only in their bottom terminal hardware.

This Material Standard applies to two types of surge arresters. The first type of surge arrester is installed on riser poles to protect underground cable and equipment. The second type is installed inside pad mount switches. These two surge arresters differ only in their bottom terminal hardware and ground lead isolator.

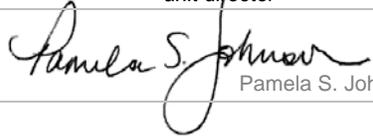
3. Industry Standards

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

IEEE C62.11-1999, Standard for Metal-Oxide Surge Arresters for AC Power Circuits (> 1 kV)

4. Electrical Requirements

Class (recognized by IEEE C62.11):..... heavy duty distribution
 Subclass (recognized by industry)..... riser pole
 Type:..... metal-oxide
 Duty-Cycle Rating:..... 21.0 kV rms
 Maximum Continuous Operating Voltage (MCOV):..... 17.0 kV rms

<i>standards coordinator</i>	<i>standards manager</i>	<i>unit director</i>
 John Shipek	 John Shipek	 Pamela S. Johnson

MATERIAL STANDARD

21 kV Heavy Duty Distribution Class, Polymer,
Metal-Oxide Surge Arrester

standard number: **6801.40**

superseding: December 11, 2008

effective date: August 13, 2010

page: 2 of 2

4. Electrical Requirements, continued

Maximum Front-of-Wave Voltage
Cresting in 0.5 Microseconds for
10 kA Wave: 64.8 kV crest

Maximum Discharge Voltage for
8 X 20 Microsecond **5 kA Wave:** 46.3 kV crest

Maximum Discharge Voltage for
8 X 20 Microsecond **20 kA Wave:** 57.9 kV crest

Minimum Symmetrical RMS Fault-
Current Withstand Rating: 20 kA rms

Minimum Temporary Overvoltage
Capability for Three Seconds at 60
Degrees Centigrade Ambient and No
Prior Energy Absorption
(Overvoltage/MCOV): 1.78 per unit

5. Construction

Housing Material:..... silicon rubber

Housing Material/Hanger
Bracket Color:..... gray

Ground Lead Isolator for
Stock No. 680115 (riser
pole):..... required

Ground Lead Isolator for
Stock No. 680117 (pad
mount): not required or desired

Terminal – Top
(both types):..... 3/8-16 stainless steel stud
with Penn Union STS-4,
Burndy KF-23, or Dossert
DGG-6 connector (Stock
No. 668872), or approved
equivalent

Terminal - Bottom for Stock
No. 680115 (riser pole):..... 3/8-16 stainless steel stud
with Penn Union STS-4,
Burndy KF-23, or Dossert
DGG-6 connector (Stock
No. 668872), or approved
equivalent

Terminal - Bottom for Stock
No. 680117 (pad mount):..... 3/8-16 stainless steel stud
with one stainless steel flat
washer, one stainless
steel lock washer, and one
silicon bronze nut

Nameplate: required per IEEE
C62.11-1999, Section 10.1
Identification data

7. Marking and Packaging

Surge arresters shall be packaged fully assembled,
one per cardboard box. Each package shall be
legibly marked with manufacturer's name or symbol,
product description, and quantity contained.
Shipping containers shall be marked with
manufacturer's name or symbol and Seattle City
Light's purchase order number. A packing slip shall
be included with each shipment.

8. Stock Unit: EA

9. Manufacturers

**Stock Number 680115
Riser Pole Type Arrester**

Approved Manufacturer	Catalog Number
Cooper Power Systems	URT2109-0M1X-1A1A
	URG2109-0M1X-1A1A

**Stock Number 680117
Pad Mount Type Arrester**

Approved Manufacturer	Catalog Number
Cooper Power Systems	URT2109-0M0D-0A1A
	URG2109-0M0D-0A1A

10. References

Shipek, John; SCL Standards Engineer, subject
matter expert of 6801.40 (john.shipek@seattle.gov)

235-99; UltraSIL Polymer-Housed Evolution
(10 kA) Surge Arresters; (Electrical Apparatus);
Cooper Power Systems, September 2008