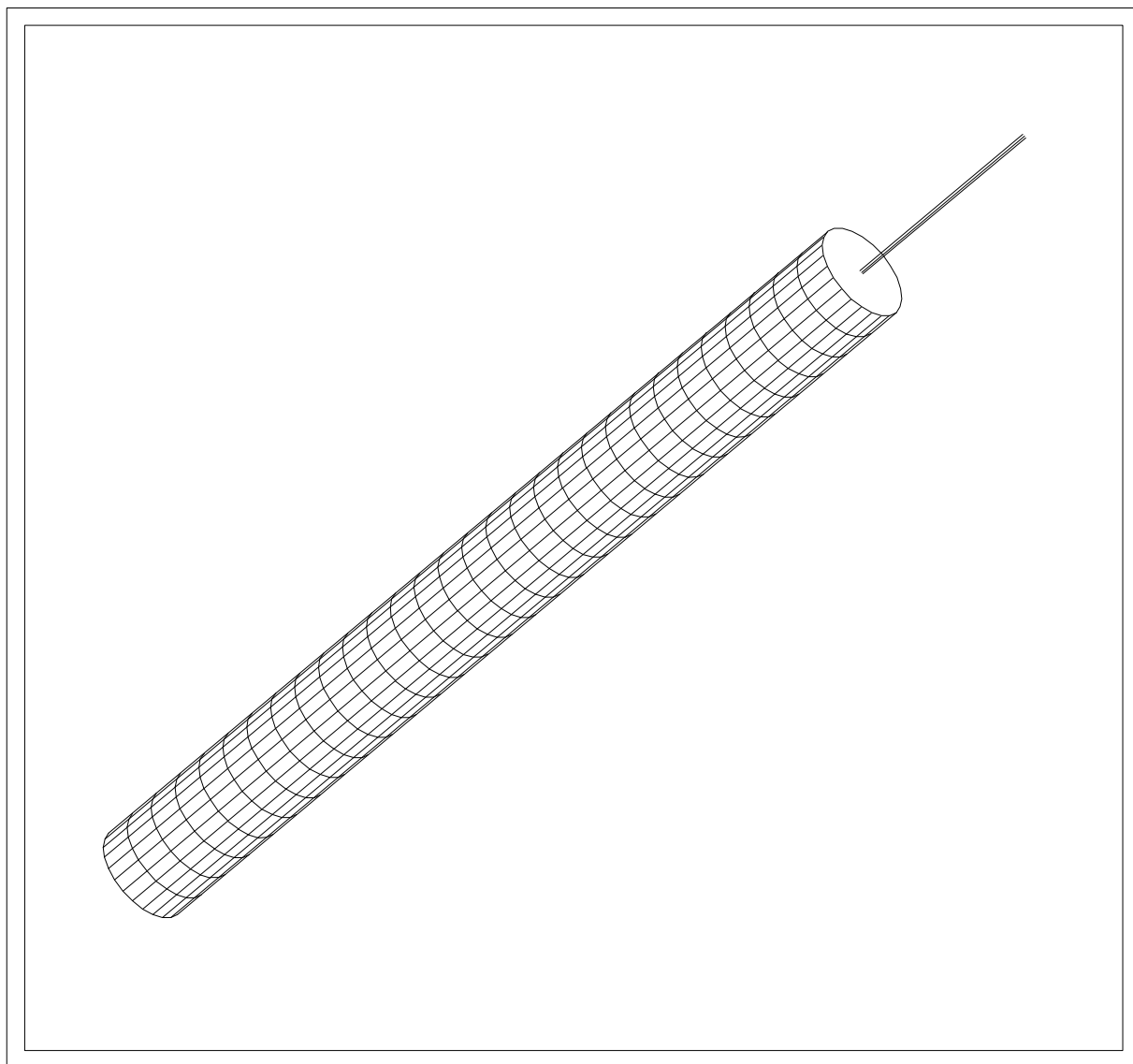


## **CerAnode™ MMO Canister Anode**



## SPECIFICATIONS

### CERAMIC ANODE CANISTER – WITH <100 MICRO OHM CONNECTION RESISTANCE

*(Higher rated anodes will be supplied with a larger anode element (rod or tube) to maintain current density)*

| Part # CAC-                    | 403-0.5<br>Current Rating<br>(Amperes)      | 603-1<br>Current Rating<br>(Amperes)        | 603-2<br>Current Rating<br>(Amperes)        |
|--------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| 20 Years                       | 0.5                                         | 1.0                                         | 2.0                                         |
| 15 Years                       | 0.6                                         | 1.2                                         | 2.5                                         |
| 10 Years                       | 0.75                                        | 1.5                                         | 3.0                                         |
| Canister Size:                 | 3" x 40"                                    | 3" x 60"                                    | 3" x 60"                                    |
| Canister Weight <sup>1</sup> : | 18 Lbs.                                     | 22 Lbs.                                     | 22 Lbs.                                     |
| Hole/Coke Column Size:         | 4" x 60"                                    | 4" x 80"                                    | 8" x 80"                                    |
|                                | Groundbed Resistance <sup>2</sup><br>(Ohms) | Groundbed Resistance <sup>2</sup><br>(Ohms) | Groundbed Resistance <sup>2</sup><br>(Ohms) |
| 1000 ohm-cm Soil Resistivity   | 4                                           | 3.2                                         | 2.6                                         |
| 3000 ohm-cm Soil Resistivity   | 12                                          | 9.5                                         | 7.9                                         |

#### NOTES:

- 1 Canister Weight:** A significant portion of canister weight is high carbon, fine particle size, and calcined petroleum coke earth contact backfill.
- 2 Groundbed Resistance:** Numbers are based on the coke column size using Dwight's vertical anode equation. Groundbed Resistance can be calculated on the coke column size initially. Eventually, as the coke is utilized, it would be calculated per anode element size. Actual resistance will vary.
- 3 Minimum Recommended Coke Column (hole size):** The smaller the hole diameter the less expensive the ground bed. However, for good groundbed life the outer surface area of the coke column must be sized (as above) to provide a current density at the coke to earth interface of no more than 0.15 Amp/ft<sup>2</sup>. This helps to insure electronic conduction from the anode to coke and then to the earth as opposed to electrocatalytic conduction. The volume of coke required for a 20 year design must be based on the coke consumption rate to the degree electrocatalytic conduction is involved. As a rule of thumb, coke is consumed at the rate of 2.2 lb/amp-yr at a current density of 0.09 Amp/ft<sup>2</sup>. The type of electrolyte will influence the coke dissolution rate.

(see next page for specifying custom sizes)

## How to Specify the **CerAnode<sup>TM</sup>** Canister Anode

### CUSTOMIZING THE SPECIFICATIONS

**Typical part number = CAC-603-1-5FT-8AWG-HMWPE-CXP**

|       |                                                                         |
|-------|-------------------------------------------------------------------------|
| CAC   | = Product Designator for <b>CerAnode<sup>TM</sup></b> 's Anode+Canister |
| 603   | = 60 Inch Can, 3 Inches in Diameter                                     |
| 1     | = Rated Current Capacity is One Ampere for 20 Years                     |
| 5FT   | = Cable is 5 Feet Long                                                  |
| 8 AWG | = Cable Size is 8 awg                                                   |
| HMWPE | = Cable Insulation is High Molecular Weight Polyethylene                |
| CXP   | = Cable connection is Cross Linked Polyolefin                           |

#### **Part Number Modifications for Alternate Specifications:**

Can Length and Diameter such as 303 (30 inch long and 3 inches in diameter)

Cable Lengths such as 50FT for 50 feet.

Cable Sizes 10AWG for 10 awg.

Insulation Types such as Halar/ HMWPE for dual extruded Halar layer + HMWPE layer.

Connection Type: Specify X Linked Polyolefin(CXP) or X Linked Fluoropolymer (CXF).

It is important to specify a CXF option (a connection made with a cross linked fluoropolymer) for applications where chlorides may be present.

It is also important to specify Halar or Kynar cable insulation where chlorides may be present.

### **WHEN IN DOUBT ABOUT SPECIFICATIONS, CONSULT **CerAnode<sup>TM</sup>**.**

**CerAnode<sup>TM</sup>** is not a Cathodic Protection Engineering Company and does not take ultimate responsibility for any particular customer design, but we do offer free educated suggestions which are often quite valuable when specifying anodes to best suit your application. If high quality anodes are specified properly for a particular application they will provide the performance anticipated. We would like to help our customers avoid specification related problems whenever possible.

**CerAnode™** MMO Canister Anode

