



# COPPER CORED MMO WIRE ANODES



50 YEARS EXPERIENCE IN CATHODIC PROTECTION



# COPPER CORED MMO WIRE ANODES

## DATA SHEET

Jennings Anodes provides copper cored MMO wire anodes upon request. With electrical-conductive mixed metal oxide coating, the titanium wire is activated and functioned as anode. Copper cored MMO wire anodes has excellent performance characteristics with very little wear and dissolution of the metal oxide coating. A low consumption rate of the electrocatalytic layer operating at recommended current densities for CP applications enables a product lifetime of over 20 years in underground, brackish, seawater and concrete environments. Delivering a superior, reliable product to our clients for many years with a production capacity of 1,000,000 meters per year.

### ■ Quality Substrate Material

The high purity copper cored titanium wire has proven excellent chemical corrosion resistance, low electrical resistance, and high mechanical integrity against damage.

### ■ Noble Metal Oxide Coating

The coating film of the anode used depends on the operating environment. In soil or fresh water where there is either no chloride ions or low chloride ions present, therefore the Ir-Ta mixed metal oxide catalyst is recommended. For brackish and seawater, the Ir-Ru mixed metal oxide catalyst is recommended.

### ■ Low Coating Wear Rate

Stringent quality control procedures are followed throughout the coating process to ensure appropriate thickness and adhesion. Each batch is subject to thorough testing including accelerated life testing and coating thickness verification with X-ray among other tests.

### ■ Flexibility of Use

The lightweight and malleability of copper cored MMO wire anodes allow for adaptability in creating more complex configurations. They provide high conductivity, resulting in better current distribution along the entire length of the wire.

## APPLICATIONS

- Underground storage tanks
- Above ground storage tanks
- Ground beds
- Pipeline
- Electrical cable shielding
- Water treatment equipment



# COPPER CORED MMO WIRE ANODES

## DATA SHEET

## ELECTROCHEMICAL PROPERTIES

The working life of the anode varies depending on the operating current present with the desired application.

### ■ In Coke Breeze / Fresh Water

| Item No.          | Current Output         |
|-------------------|------------------------|
| JA-MMO-CW1.0      | 25 mA/ft. (82 mA/m)    |
| JA-MMO-CW1.5      | 100 mA/ft. (328 mA/m)  |
| JA-MMO-CW3.0      | 300 mA/ft. (984 mA/m)  |
| JA-MMO-CW3.0 Plus | 400 mA/ft. (1312 mA/m) |

### ■ In Seawater

| Item No.          | Current Output          |
|-------------------|-------------------------|
| JA-MMO-CW1.0      | 75 mA/ft. (246 mA/m)    |
| JA-MMO-CW1.5      | 300 mA/ft. (984 mA/m)   |
| JA-MMO-CW3.0      | 900 mA/ft. (2953 mA/m)  |
| JA-MMO-CW3.0 Plus | 1200 mA/ft. (3936 mA/m) |

## SPECIFICATIONS

| Item No.          | Wire Diameter  | Coil Length     | Weight             | Design Life |
|-------------------|----------------|-----------------|--------------------|-------------|
| JA-MMO-CW1.0      | 0.04" (1.0 mm) | 500 ft. (152 m) | 1.17 lbs (0.35 kg) | 25 yrs.     |
| JA-MMO-CW1.5      | 0.06" (1.5 mm) | 500 ft. (152 m) | 2.75 lbs (1.25 kg) | 25 yrs.     |
| JA-MMO-CW3.0      | 0.12" (3.0 mm) | 500 ft. (152 m) | 10.8 lbs (4.9 kg)  | 25 yrs.     |
| JA-MMO-CW3.0 Plus | 0.12" (3.0 mm) | 500 ft. (152 m) | 10.8 lbs (4.9 kg)  | 25 yrs.     |

**Notes:** All dimensions and weights are nominal. The parameter provided is subject to variation in material compositions and Jennings Anodes foundry tolerance.

## TESTING DETAILS

We employ ISO 9001:2015 quality management system and rigorous internal testing standards to ensure the optimum lifespan and performance of our anodes. Each anode is labelled with a unique serial number for quality tracking.

| Technical Measurement | Chemical Composition                          | Electrochemical Performance                                                                      | Physical Properties                     |
|-----------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------|
| Testing Standard      | ASTM E120                                     | NACE TM0108 / ASTM D3359                                                                         | Foundry ITP                             |
| Testing Content       | Substrate Analysis                            | Circuit Potential<br>Current Efficiency                                                          | Dimension & Weight<br>Coating Thickness |
| Equipment             | Optical Emission Spectrometer<br>OBLF QSN 750 | JCM-6000 Plus Scanning Electron<br>Microscope / DWW-K-100<br>Galvanostat / VCC101A<br>Multimeter | Calibrated Digital<br>Measuring Devices |

\* Third party testing is conducted by customer's special request at extra charge.

# COPPER CORED MMO WIRE ANODES

## DATA SHEET



### PACKAGING INFORMATION

We have strict packing protocols to guarantee safe delivery of our products. Clear shipping marks and documentation make delivery acceptance straightforward and simple.

| Item No.          | Coil Length      | Coil Dimension                   | Weight                |                      |
|-------------------|------------------|----------------------------------|-----------------------|----------------------|
|                   |                  |                                  | N.W.                  | G.W.                 |
| JA-MMO-CW1.0      | 500ft.<br>(152m) | Φ 21" × 2"<br>(Φ 530 × 50 mm)    | 1.17 lbs<br>(0.35 kg) | 1.76 lbs<br>(0.8 kg) |
| JA-MMO-CW1.5      | 500ft.<br>(152m) | Φ 21" × 2.35"<br>(Φ 530 × 60 mm) | 2.75 lbs<br>(1.25 kg) | 3.4 lbs<br>(1.55 kg) |
| JA-MMO-CW3.0      | 500ft.<br>(152m) | Φ 21" × 3.15"<br>(Φ 530 × 80 mm) | 10.8 lbs<br>(4.9 kg)  | 11.5 lbs<br>(5.2 kg) |
| JA-MMO-CW3.0 Plus | 500ft.<br>(152m) | Φ 21" × 3.15"<br>(Φ 530 × 80 mm) | 10.8 lbs<br>(4.9 kg)  | 11.5 lbs<br>(5.2 kg) |



## Worldwide Service Network

Our worldwide network of sales and service centers can provide immediate advice and assistance on the complete range of products.

### Global Headquarter

2417 Katy Fort Bend Road,  
Katy, Texas 77493  
United States

Email: [sales@jenningsanodes.com](mailto:sales@jenningsanodes.com)  
Tel: +1 (281) 501 8398 / +1 (713) 799 3884

[www.jenningsanodes.com](http://www.jenningsanodes.com)

### UK Office

Tatham Street, Hendon, Sunderland  
SR1 2AG, United Kingdom

Email: [sales@jenningsanodes.co.uk](mailto:sales@jenningsanodes.co.uk)  
Tel: +44 (0) 191 510 8843  
Fax: +44 (0) 191 514 7749

[www.jenningsanodes.co.uk](http://www.jenningsanodes.co.uk)

### Asia Pacific Office

120 Lower Delta Road, #07-13 Cendex  
Centre, Singapore 169208

Email: [inquiries@jenningsanodes.com](mailto:inquiries@jenningsanodes.com)  
Tel: +65 6715 1514



View Our Website



Follow Us On LinkedIn

