



# MIXED METAL OXIDE (MMO) CANISTER ANODES



50 YEARS EXPERIENCE IN CATHODIC PROTECTION

  
JENNINGS ANODES



# MMO CANISTER ANODES

## DATA SHEET

For an improved current output, MMO anode can be prepackaged in a galvanized steel canister containing carbonaceous backfill, ready for direct installation. The actual anode inside the canister can have a wide range of configurations, including tubular, wire, rod, ribbon and mesh types. However, the most common configuration is the tubular anode. The canisters can be singular or assembled in chains.

### ■ Quality Substrate Material

Our MMO tubular anode is manufactured from high-tensile seamless titanium tube, which meets ASTM B338 Grade I standard.

### ■ Noble Metal Oxide Coating

Whether operating in soil, mud, our Ir-Ta mixed metal oxide catalyst demonstrate high chemical stability, even in environments with a low pH value. Based upon accelerated life testing, conducted by an independent laboratory, our MMO coating has been proven to have an increased life expectancy when compared with other similar products on the market.

**Notes:** Differing coating thickness and different noble metal oxide ratios are available on request.

### ■ Low Electrical Resistance

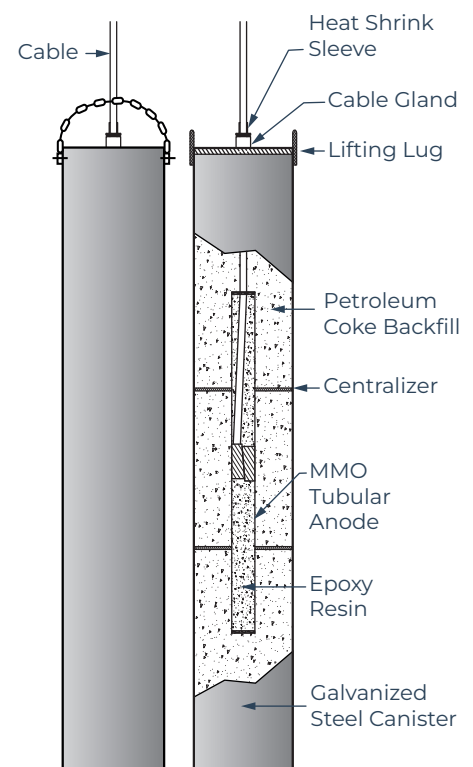
This MMO anode has an extremely low consumption rate, measured in milligrams per ampere-year. The dimensions remain nearly unchanged throughout the design life of the anode, providing a consistently low resistance.

### ■ Wide Cable Selection

PVDF, HMWPE, HALAR, XLPE, PVC or KYNAR are all optional. We recommend dual-insulated cable (such as PVDF/HMWPE) for use in ground beds with high chloride concentration. While HMWPE is an economical choice for shallow vertical and horizontal surface beds with no chloride presence.

## APPLICATIONS

Our canister MMO anodes are commonly used for impressed current cathodic protection of metallic pipelines and storage tanks in either shallow vertical or horizontal surface groundbeds, as well as wet, marshy soil conditions where caving is likely to occur.



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### ELECTROCHEMICAL PROPERTIES

Anode Dimensions		Current Density	Current Output		
ØD	L		For 15 yrs.	For 20 yrs.	For 25 yrs.
5/8" (16 mm)	39.4" (1000 mm)	9.3 A/ft <sup>2</sup> (100 A/m <sup>2</sup> )	/	/	5 A
3/4" (19 mm)	39.4" (1000 mm)		/	/	6 A
1" (25 mm)	19.7" (500 mm)		/	/	4 A
1" (25 mm)	39.4" (1000 mm)		11 A	9 A	8 A
1" (25 mm)	60" (1524 mm)		16 A	14 A	12 A
1 1/4" (32 mm)	48" (1220 mm)		16 A	14 A	12 A
2" (50 mm)	47.2" (1200 mm)		/	/	19 A

### SPECIFICATIONS



Item No.	Anode Dimensions		Canister Dimensions			Weight
	ØD	L	Diameter	Length	Wall Thickness	
JA-MMO-CT160	5/8" (16 mm)	39.4" (1000 mm)	5.9" (150 mm)	59.1" (1500 mm)	0.03" (0.7 mm)	88.2 lbs (40 kg)
JA-MMO-CT190	3/4" (19 mm)	39.4" (1000 mm)	5.9" (150 mm)	59.1" (1500 mm)	0.03" (0.7 mm)	
JA-MMO-CT250S	1" (25 mm)	19.7" (500 mm)	5.9" (150 mm)	59.1" (1500 mm)	0.03" (0.7 mm)	
JA-MMO-CT250	1" (25 mm)	39.4" (1000 mm)	5.9" (150 mm)	59.1" (1500 mm)	0.03" (0.7 mm)	
JA-MMO-CT250L	1" (25 mm)	60" (1524 mm)	5.9" (150 mm)	59.1" (1500 mm)	0.03" (0.7 mm)	
JA-MMO-CT320	1 1/4" (32 mm)	48" (1220 mm)	5.9" (150 mm)	59.1" (1500 mm)	0.03" (0.7 mm)	
JA-MMO-CT500	2" (50 mm)	47.2" (1200 mm)	5.9" (150 mm)	59.1" (1500 mm)	0.03" (0.7 mm)	

**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	Chemical Analysis	Current Output Anode Resistance Anode Life	Dimension & Weight Coating Thickness Cable Connection Sealing Backfill Packaging
Equipment	Optical Emission Spectrometer OBLF QSN 750	JCM-6000 Plus Scanning Electron Microscope / DWW-K-100 Galvanostat / VCC101A Multimeter	Calibrated Digital Measuring Devices

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



## Worldwide Service Network

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