



MMO Ribbon & Ti Conductor Bar

MMO Ribbon consists of a solid ribbon of titanium substrate to ASTM 265 Gr. 1 coated with precious mixed metal oxides ($\text{IrO}_2/\text{Ta}_2\text{O}_5$).

YUXI Anodes manufactures MMO ribbon using a bespoke automated production line with unique thermal sintering technology, enabling us to produce a homogeneous coating with superior adhesion properties whilst maintaining a production capacity up to 1,000,000 meters per year.

Our MMO coating is highly conductive and the anodes have a very low consumption rate. This combination of characteristics results in a long-life expectancy even when the anode is subjected to a high current density rating. For example, MMO Ribbon life can exceed 50 yrs. with a $3\text{A}/\text{m}^2$ Current Density.

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APPLICATION

- ▶ MMO ribbon is commonly used for ICCP system of above ground storage tanks.
- ▶ MMO ribbon can be also used for new and old structures and steel reinforced concrete structures.



FEATURES

- ▶ Long lifetime and durable (Over 50 years)
- ▶ Light weight (Easy transportation and handling)
- ▶ Flexible (Quick installation)
- ▶ Reliable, dimensional stability
- ▶ Excellent resistance in acidic medium
- ▶ Working environment: evolution of O_2 , Cl_2 or a combination of the two

CHEMICAL COMPOSITION

Anode	MMO Ribbon / Ti Conductor Bar
Substrate	ASTM B265 Titanium Grade I
Coating	Ir-Ta Mixed Metal Oxide Catalyst

MECHANICAL PROPERTIES OF TI SUBSTRATE

Substrate	ASTM B265 Titanium Grade I
Coefficient of Thermal Expansion	$8.7 \times 10^{-5} /K$ (0.0000048/in/in/K)
Thermal Conductivity@20°C	15.6 W/m·K (9.0BTU/hr/ft ² /°F/ft)
Electrical Resistivity@20°C	0.000056 Ohm-cm (0.000022 Ohm-in)
Modules of Elasticity	105 Gpa Min. (14,900,000 PSI Min.)
Tensile Strength	245 Gpa Min. (35,000 PSI Min.)
Yield Strength (0.2% offset)	175 Gpa Min. (25,000 PSI Min.)
Elongation	24% Min

ELECTROCHEMICAL PROPERTIES

Anode Model	MMO Ribbon	Ti Conductor Bar
	YX-MMO-R01	YX-TB01
Dimension	6.35mm x 0.635mm (1/4" x 0.025")	12.7mm x 0.9mm (1/2" x 0.035")
Anode Surface Area	0.014m ² /m	0.027m ² /m
Standard Packing	500ft/Coil (152m/Coil) or Cut to Length	
Anode Weight (Coli)	6.17lbs (2.8kg)	18.07lbs (8.2kg)

SPECIFICATIONS

Anode Model	MMO Ribbon Anode	Ti Conductor Bar
	YX-MMO-R01	YX-TB01
Dimension	6.35 x 0.635mm (1/4" x 0.025")	12.7mm x 0.9mm (1/2" x 0.035")
Length Wise Electrical Resistance	0.138Ohm/m (0.45Ohm/ft.)	0.081 Ohm/m (0.26Ohm/ft.)
Current Density (Soil Application)	185mA/ft.) 3A/m ² (0.278A/sq.ft.)	185mA/ft.) 3A/m ² (0.278A/sq.ft.)
Current Output	17mA/m (5.185mA/ft.)	/