YUXI

MMO WIRE ANODES

PRODUCT DATA SHEET

AMPP CORPORATE MEMBER

www.yuxi-anode.com

PRODUCT DATA SHEET

MMO WIRE ANODES

Our MMO wire anode consists of pure titanium wire coated with high-quality mixed metal oxides catalyst. It can be used for impressed current cathodic protection in soil environment and chloride electrolyte.

QUALITY SUBSTRATE MATERIAL

Our MMO wire anodes are manufactured from high-tensile titanium, which meets commercially ASTM B348 Grade I/II standards.

Element		Grade I	Grade II
Iron	(Fe)	0.20% max.	0.30% max.
Carbon	(C)	0.08% max.	0.08% max.
Nitrogen	(N)	0.03% max.	0.03% max.
Hydrogen	(H)	0.015% max.	0.015% max.
Oxygen	(O)	0.18% max.	0.25% max.
Titanium	(Ti)	Remainder	Remainder

NOBEL METAL OXIDE COATING

Whether operating in soil, mud, fresh water or seawater, mixed metal oxide coatings demonstrate high chemical stability, even in environments with low pH values. Depend on the form of usage, the coatings can be mixed of two or more metal oxides such as iridium oxides (IrO_2), tantalum oxides (Ta_2O_5) and ruthenium oxides (RuO_2).

We can produce anodes with different nobel metal oxide ratios and differing coating thickness. Based upon accelerated life testing conducted by an independent laboratory, our MMO coating has been proven to be superior to other similar products in the market.

- **Ir–Ta Mixed Metal Oxide Catalyst**
  The iridium-tantalum mixed metal oxide catalyst is recommended for use in soil or fresh water, where there is either no chloride ions or low chloride ions present.
- **Ir-Ru Mixed Metal Oxide Catalyst**
  The iridium-ruthenium mixed metal oxide catalyst can be used in seawater, brackish water, mud, concrete and any other severe environment conditions including high acidity or in the presence of chlorine or oxygen.

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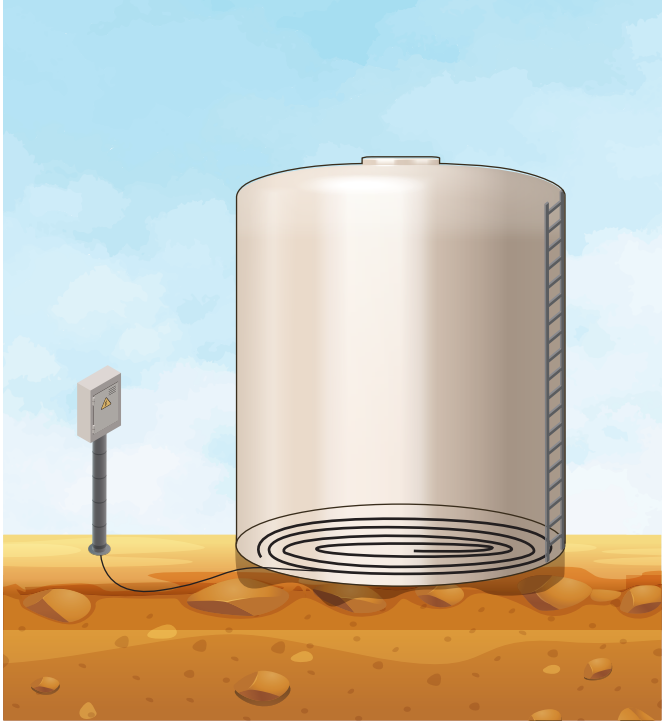
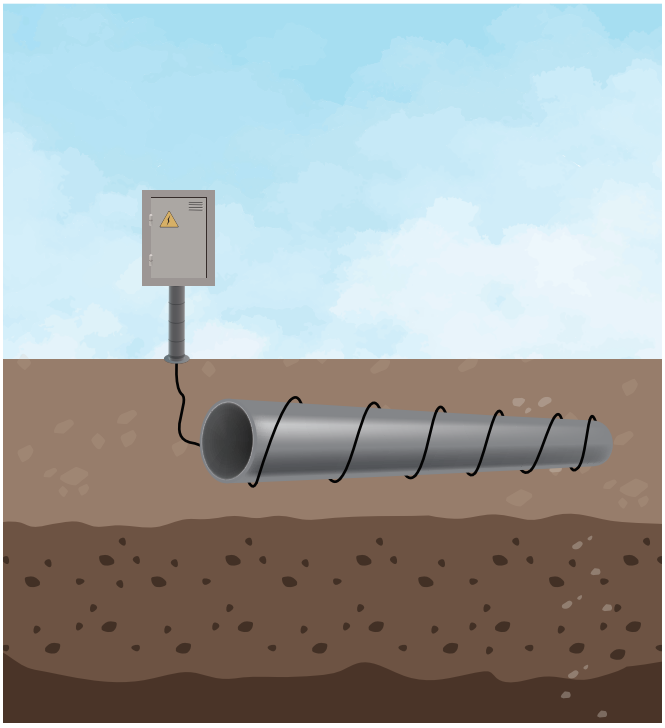
PRACTICAL APPLICATION

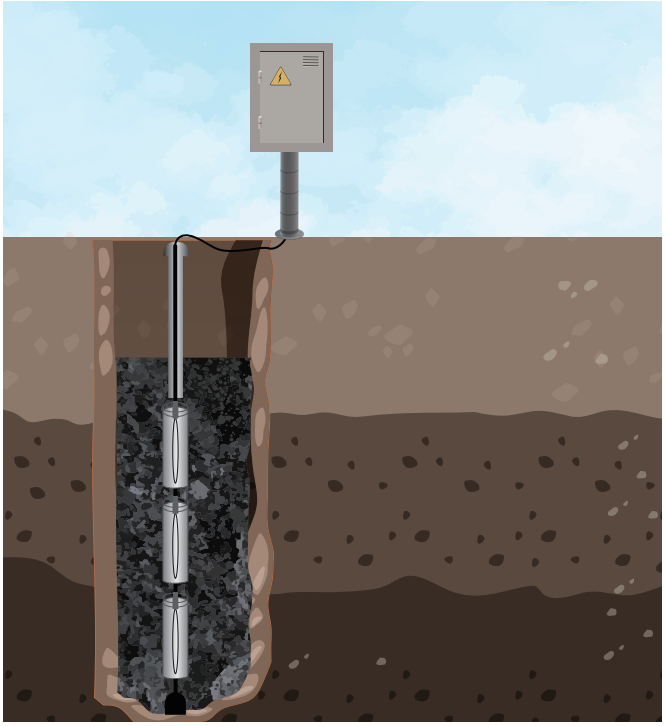
Our MMO wire anode is suitable for direct burial in fine sand, carbonaceous backfill or immersion in fresh or saline waters.



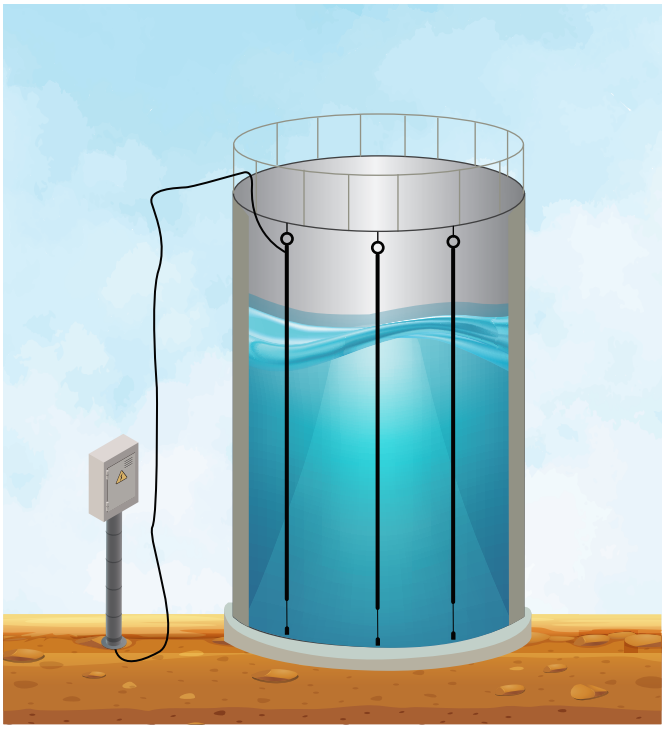
It can be connected to a feed cable at one end or 'piggybacked' to form a continuous anode suitable for installation under storage tanks.



It can twist around the pipelines to provide continuous close protection.



It can be prepacked with coke breeze in canister for deep well installation.



It can be used to protect the internal surfaces of water tanks where its malleable shape permits even current distribution in areas where there can be large variations in water level.

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ELECTROCHEMICAL PROPERTIES

The current output of the anode varies in different applications from soil to seawater. Longer working life can be achieved by increasing the coating thickness or reducing the operating current density.

In Soil

Lifetime	Ø1 mm	Ø1.5 mm	Ø3 mm
20 yrs.	52 mA/m (16 mA/ft.)	79 mA/m (24 mA/ft.)	157 mA/m (48 mA/ft.)
30 yrs.	35 mA/m (11 mA/ft.)	53 mA/m (16 mA/ft.)	105 mA/m (32 mA/ft.)
50 yrs.	21 mA/m (6 mA/ft.)	32 mA/m (10 mA/ft.)	63 mA/m (19 mA/ft.)

In Coke Breeze

Lifetime	Ø1.0 mm	Ø1.5 mm	Ø3.0 mm
20 yrs.	320 mA/m (97 mA/ft.)	480 mA/m (146 mA/ft.)	960 mA/m (291 mA/ft.)
30 yrs.	213 mA/m (65 mA/ft.)	320 mA/m (97 mA/ft.)	640 mA/m (194 mA/ft.)
50 yrs.	128 mA/m (39 mA/ft.)	192 mA/m (58 mA/ft.)	384 mA/m (116 mA/ft.)

In Fresh Water

Lifetime	Ø1.0 mm	Ø1.5 mm	Ø3.0 mm
20 yrs.	452 mA/m (138 mA/ft.)	672 mA/m (205 mA/ft.)	1345 mA/m (410 mA/ft.)
30 yrs.	300 mA/m (91 mA/ft.)	445 mA/m (136 mA/ft.)	889 mA/m (271 mA/ft.)
50 yrs.	181 mA/m (55 mA/ft.)	265 mA/m (81 mA/ft.)	535 mA/m (163 mA/ft.)

In Seawater

Lifetime	Ø1.0 mm	Ø1.5 mm	Ø3.0 mm
20 yrs.	805 mA/m (245 mA/ft.)	1210 mA/m (369 mA/ft.)	2350 mA/m (716 mA/ft.)
30 yrs.	530 mA/m (162 mA/ft.)	811 mA/m (247 mA/ft.)	1598 mA/m (487 mA/ft.)
50 yrs.	325 mA/m (99 mA/ft.)	475 mA/m (145 mA/ft.)	955 mA/m (291 mA/ft.)

SPECIFICATIONS

Ir–Ta MMO Coating

Item No.	Diameter	Linear Resistance	Surface Area	Length(per roll)	Weight	Lifetime
YX-MMO-LW1.0	1.0mm (0.04")	/	/	152m (500 ft.)	0.54kg (1.2 lbs)	20 yrs.
YX-MMO-LW1.5	1.5mm (0.06")	0.023 Ω/m (0.07 Ω/ft.)	4.75×10^{-3} m²/m	152m (500 ft.)	1.2kg (2.6 lbs)	20 yrs.
YX-MMO-LW2.0	2.0mm (0.08")	/	/	152m (500 ft.)	2.1kg (4.6 lbs)	20 yrs.
YX-MMO-LW3.0	3.0mm (0.12")	0.006 Ω/m (0.02 Ω/ft.)	9.5×10^{-3} m²/m	152m (500 ft.)	4.8kg (10.6 lbs)	20 yrs.

Ir-Ru MMO Coating

Item No.	Diameter	Linear Resistance	Surface Area	Length(per roll)	Weight	Lifetime
YX-MMO-SW1.0	1.0mm (0.04")	/	/	152m (500 ft.)	0.54kg (1.2 lbs)	20 yrs.
YX-MMO-SW1.5	1.5mm (0.06")	0.023 Ω/m (0.07 Ω/ft.)	4.75×10^{-3} m²/m	152m (500 ft.)	1.2kg (2.6 lbs)	20 yrs.
YX-MMO-SW2.0	2.0mm (0.08")	/	/	152m (500 ft.)	2.1kg (4.6 lbs)	20 yrs.
YX-MMO-SW3.0	3.0mm (0.12")	0.006 Ω/m (0.02 Ω/ft.)	9.5×10^{-3} m²/m	152m (500 ft.)	4.8kg (10.6 lbs)	20 yrs.

Note: All dimensions and weights shown above are nominal. The information provided is subject to change without notice.

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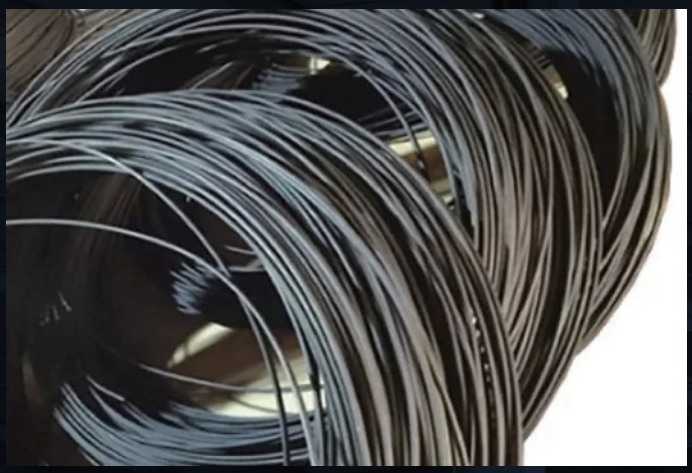

Industrial Corrosion Control Solutions Provider

Established in 2003, YUXI has over a 20-year heritage of innovation in corrosion control science and technology. We're a spirited team of ambitious thinkers and pioneer sheep with a common goal in mind: protect our clients' assets from corrosion with cost-saving measures.

We have the most comprehensive catalog of cathodic protection materials including anodes, transformer rectifiers, backfills, coatings, etc. Our anodes and supplies are manufactured to strict quality standards through an ISO 9001 quality management system and are guaranteed to offer excellent performance in the industry.

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