

ProAct™

MMO RIBBON ANODE

PRODUCT DESCRIPTION

The MMO ribbon anode is widely used for cathodic protection of the external surface of storage tank bottom plates. The MMO ribbon anode and titanium conductor bar are cross-welded to form an anode grid, which is embedded together in the sand cushion beneath the storage tank bottom.

The MMO ribbon is manufactured from titanium ribbon conforming to ASTM B265 Grade 1/Grade 2. It is coated with a corrosion-resistant, high-conductivity mixed metal oxide ($\text{IrO}_2/\text{Ta}_2\text{O}_5$) coating, with a typical thickness greater than $2\text{ }\mu\text{m}$. The titanium conductor bar is made from a continuous titanium metal strip conforming to ASTM B265 Grade 1, providing good electrical conductivity and suitability for high-temperature environments.

PRODUCT PERFORMANCE

Electrochemical Performance

- Excellent coating adhesion and uniform coating thickness provide stable electrochemical performance, ensuring reliable operation in tank-bottom sand cushion environments.

Current Output Capability

- Designed for high current output operation, with excellent electrical conductivity for stable and efficient current distribution.

Application Performance

- Suitable for cathodic protection of new aboveground storage tanks with secondary containment liners, as well as existing tanks with double-bottom construction.



PRODUCT FEATURES

Installation & Construction

- Simple installation and convenient construction support efficient field application.

Custom Engineering Capability

- Ribbon dimensions and configurations can be customized according to the required service life and application environment.

Reference	Title
API RP 651	CATHODIC PROTECTION OF ABOVE GROUND PETROLEUM STORAGE TANKS
NACE RP0285	CORROSION CONTROL OF UNDERGROUND STORAGE TANK SYSTEMS BY CATHODIC PROTECTION
EN 12954	CATHODIC PROTECTION OF BURIED OR IMMERSED METALLIC STRUCTURES-GENERAL PRINCIPLES AND APPLICATION FOR PIPELINES
EN 13636	CATHODIC PROTECTION OF BURIED METALLIC TANKS AND RELATED PIPING

PRODUCT PARAMETERS

Substrate Composition								
Standard	Fe %	C %	N %	H %	O %	Other Impurities (Single) %	Other Impurities (Total) %	Ti %
ASTM B265 Gr. 1	<0.20	<0.08	<0.03	<0.015	<0.18	<0.1	<0.4	Remainder
ASTM B265 Gr. 2	<0.30	<0.08	<0.03	<0.015	<0.25	<0.1	<0.4	Remainder
Electrochemical Properties								
Under the rated current output of 43 or 86 mA/m, the design service life is more than 50 years.								
Coating								
Coating crystal density is 6-12 g/cm³, coating resistivity is 9-11 mΩ·cm								
Coating Thickness								
≥ 2.0 μm								
Mechanical Properties								
Standard	Typical Modulus of Elasticity		Tensile Strength, min.		Yield Strength, 0.2% offset, min.		Elongation, min.	
ASTM B265 Gr. 1	102 GPa		240 MPa		138 MPa		24%	
ASTM B265 Gr. 2	102 GPa		345 MPa		275 MPa		20%	

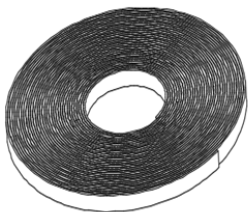
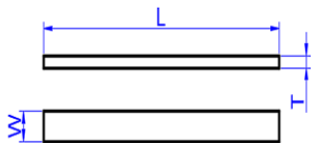
MODELS AND SPECIFICATIONS

MMO Ribbon

Model	Width	Thickness	Length	Current Output	Lifespan	Coating Thickness	Application
AT-MMO-R635-152	6.35 mm	0.635 mm	152 m	43 mA/m	50 Years	≥ 2.0 μm	Tank Bottom
AT-MMO-R127-152	12.7 mm	0.9 mm	152 m	86 mA/m	50 Years	≥ 2.0 μm	Tank Bottom

Titanium Conductor Bar

Model	Width	Thickness	Length	Application
AT-TI-R127-76	12.7 mm	0.9 mm	76 m	Tank Bottom



THE MMO RIBBON ANODE SPLICE KIT

The MMO ribbon anode splice kit is used to fabricate the anode drain point. The ribbon anodes are connected to lead cables through the splice kits and then routed to the junction box, where the lead cables are combined into one anode cable and connected to the transformer rectifier.

One end of the anode splice kit consists of a titanium sheet, which is spot-welded to the titanium conductor bar of the anode grid. The other end is equipped with a copper-core cable. The cable and titanium sheet are connected and sealed using a specialized process and are fully prefabricated at the factory, ensuring reliable electrical connection of the MMO ribbon anode throughout its service life while facilitating on-site installation.

- High insulation performance
- High mechanical strength
- Easy to operate
- Excellent corrosion resistance

Model	Width	Thickness	Length	Cable size	Application
AT-CP-RCK1	12.7 mm	0.9 mm	125 m	Available on request	Tank



Canada

290 North Queen St
Suite 208,
Etobicoke, Ontario
Canada, M9C 5L2

Phone: + 1 416 433 3186

advance-technology.com
consult@advance-tech.ca

For further information, please contact Advance Technology.