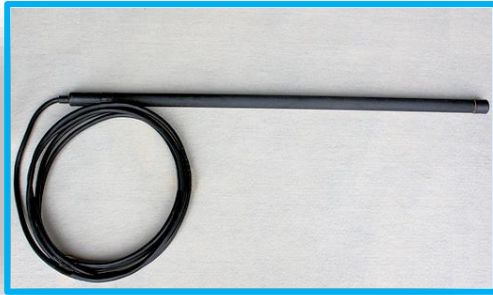


Betelguard MMO Titanium Tubular Anode

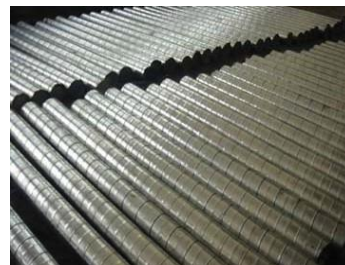
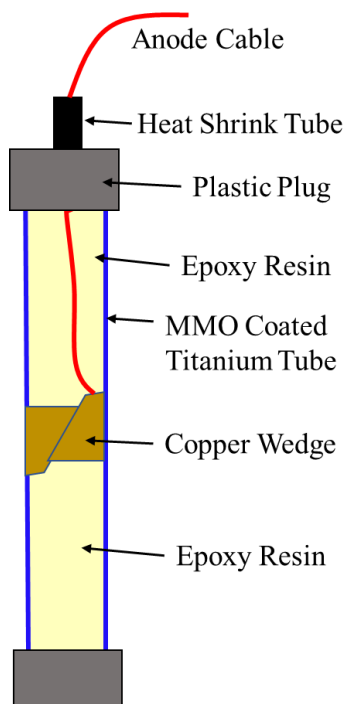


Betelguard MMO coated titanium tubular anode is one of the most popular anodes for ICCP due to the cost-effectiveness, long life and high degree of protected anode-cable connection. MMO coating consumes a negligible amount (less than 1.0 mg/amp-year).

Titanium tubular anodes are the most flexible anode in size, life, and current rating by adjusting the MMO coating thickness and compositions. The anode performance is confirmed by the acceleration acid testing using NACE Standard TM0108 in a short period of time.

Specification

Available Length:	100 mm to 2,000 mm
Available Diameter:	16 mm, 19 mm, 25 mm and 32 mm
Substrate:	ASTM B-265, Grade 1 Titanium
MMO Coating Uniformity:	Greater than 90 percent
Cable-Anode Connection Resistance:	Less than 1 micro ohm
Design Anode Life:	Specified (20 years to 100 years)



Note: MMO anodes are supplied with or without canister.

Betelgard MMO Titanium Tubular Anode



Anode Sizes and Maximum Current Output

Environment	19 x 1000 mm	25 x 1000 mm	32 x 1000 mm
Seawater	34 amp	45 amp	57 amp
Brackish Water	17 amp	22.5 amp	28.5 amp
Fresh Water	5.6 amp	7.5 amp	9.5 amp
Coke Breeze (Canister)	5.6 amp	7.5 amp	9.5 amp

Environment	3/4" x 4 ft	1" x 4 ft	1-1/4" x 4 ft
Seawater	34.5 amp	45.7 amp	58 amp
Brackish Water	17.3 amp	22.9 amp	29 amp
Fresh Water	5.7 amp	7.6 amp	9.7 amp
Coke Breeze (Canister)	5.7 amp	7.6 amp	9.7 amp



Cable Information

Insulation Type	Application
XLPE/PVC	Suitable for underground and underwater application. The cable is flexible and easy to handle.
HMWPE	Suitable for underground and underwater application. The cable is not flexible.
PVDF Fluoropolymer (Kynar) /HMWPE	Insulation is super durable for soil, water and concrete application. This insulation is used as deep anode lead wires where chlorine and hydrogen gases are generated. The cable can be directly installed in fresh, brackish, or salt waters.
ECTFE Fluoropolymer (Hayler)/HMWPE	Fluoropolymer material that has exceptional chemical resistance in the presents of chlorine, sulfuric acid, hydrochloric acid. The outer insulating layer is high molecular weight polyethylene (HMWPE) it exhibits superior dielectric and tensile strength and provides mechanical protection.

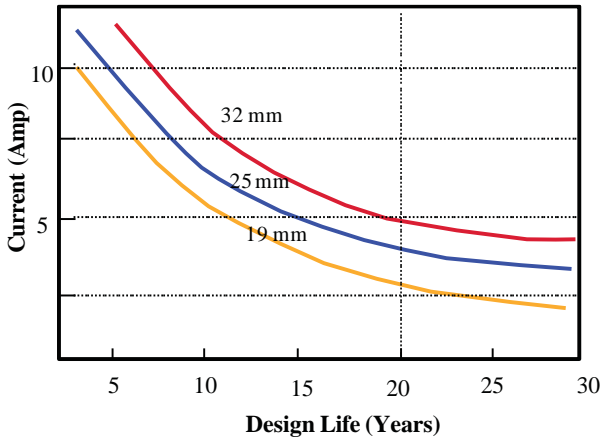
Note: Wire-armored insulated cables are also available upon request for requiring extra protection.

Cable Size (mm ²)	AWG Cable Size	Approx. Max. Current Capacity (Amp)
10	8	40
16	6	55
25	4	70
35	2	85

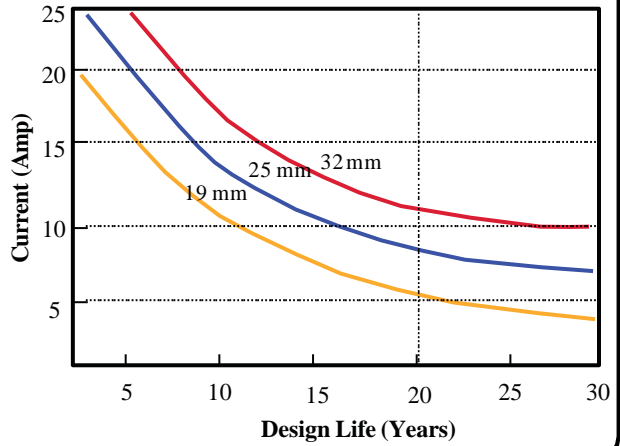
MMO Tubular Anode Design Life and Current Rating

Environment: Coke and Fresh Water

Anode Length: 500 mm

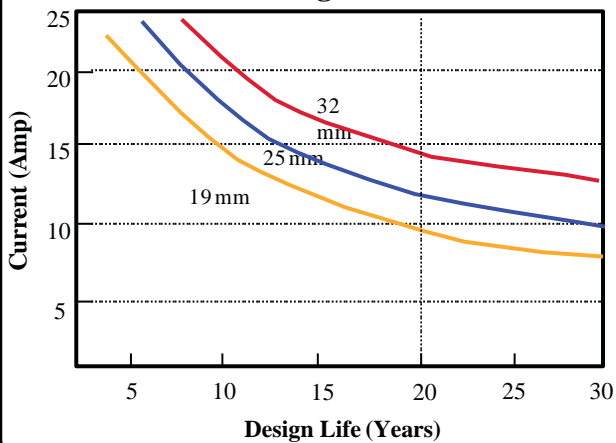


Anode Length: 1000 mm

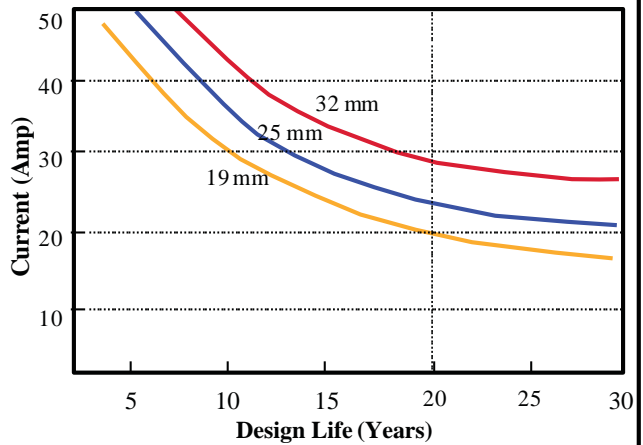


Environment: Brackish Water

Anode Length: 500 mm

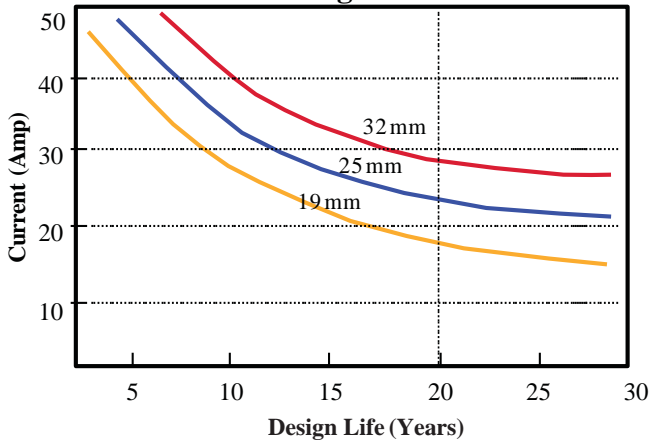


Anode Length: 1000 mm



Environment: Seawater

Anode Length: 500 mm



Anode Length: 1000 mm

