



CATHODIC PROTECTION MATERIAL SOLUTIONS-CORROSION MANAGEMENT FOR OIL & GAS FACILITIES

INDONESIA DISTRIBUTOR



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Research & Development
Design
Manufacture
Construction
Technical Support





Company Profile

KIG Cathodic Protection Solutions

Your Trusted Partner in Corrosion Control

As a leading manufacturer and exporter in China, KIG specializes in **high-performance cathodic protection systems** for pipelines, marine structures, storage tanks, and industrial infrastructure. With over 17 years of expertise, we deliver turnkey solutions encompassing **design, manufacturing, installation, and technical support** to ensure optimal corrosion prevention.

Core Competencies

Comprehensive Product Range

- Sacrificial Anodes:** Magnesium, Aluminum, Zinc alloy anodes (ISO 15589-1/NACE SP0169 compliant)
- Impressed Current Systems:** MMO/Ruthenium-coated titanium anodes, ICCP power supplies
- Accessories:** Insulating joints, test piles, reference electrodes, protection cables

Engineering Excellence

- Customized anode designs for complex environments (e.g., offshore platforms, urban pipelines)
- Rigorous quality control with precision electronic testing on all products
- Stable production capacity supporting large-scale projects

Value-Added Services

- Turnkey Project Solutions:** From material supply to system installation
- Corrosion Risk Assessment:** Data-driven recommendations for long-term protection
- Global Compliance:** Certified for international standards and hazardous environment applications



Why Partner With KIG?

- Proven Expertise:** Trusted by clients in oil & gas, maritime, and infrastructure sectors
- End-to-End Support:** Seamless integration from product design to on-site commissioning
- Innovation-Driven:** R&D-focused team advancing anode efficiency and durability

Applications:

- Oil/Gas Pipelines ► Offshore Wind Farms ► Ship Hulls & Ballast Tanks
- Water Treatment Plants ► Chemical Storage Tanks ► Bridge & Port Infrastructure

Commitment to Quality

- Every KIG product undergoes 3-stage quality verification:
- 1.Raw material inspection
 - 2.In-process dimensional/electrochemical testing
 - 3.Final performance validation with calibrated instruments

Contact Us for tailored corrosion control solutions that combine innovation, reliability, and cost-effectiveness. Let’s build long-term partnerships for your critical infrastructure protection needs.

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SACRIFICIAL ANODE

Sacrificial anode or galvanic anode, is the main component of a galvanic cathodic protection system used to protect buried or submerged metal structures from corrosion.

The anode is made from a metal with a more “active” voltage (more negative electrochemical potential) than the metal of the structure it is protecting (the cathode). The difference in potential between two metals means the sacrificial anode material corrodes in place of the structure by effectively stopping the oxidation reactions at the metal surface of the structure being protected.

The materials used for sacrificial anodes are either relatively pure active metals or metal alloys. Our sacrificial anodes are generally made from one of four metals: aluminum, magnesium, zinc or iron. They are often used to protect the hulls of ships, water heaters, pipelines, distribution systems, above-ground tanks, underground tanks and refineries.

No external power source is needed, making sacrificial anode systems easy to install. Sacrificial anodes are normally supplied with either lead wires or cast-in metal straps to allow for an easily installed connection to the structure being protected. The lead wires may be attached to the structure by welding or mechanical connections. The anodes in sacrificial anode CP systems must be periodically inspected and replaced when consumed so as to maintain optimum performance.

● Magnesium Sacrificial Anode

Magnesium alloy sacrificial anodes have the characteristics of low density, large theoretical capacity, negative potential, low polarizability and large driving voltage to steel, which is suitable for the protection of metal structures in soil and fresh water with high resistivity, by creating an easier and more attractive source of oxidation, magnesium anodes prevent or slow down the rusting of steel structures to which they are connected. Magnesium anodes are widely used for cathodic protection of land pipelines and freshwater vessels such as river or canal boats.

Magnesium cast bare anode has two alloy types available with varying electrode potential (relative to a Cu/CuSO4 reference electrode).

1. Standard Magnesium Alloy Anode(H1 or AZ63B Anode)

Standard :ASTM B843—AZ63B

Application:AZ63B anode is usually for soil conditions where resistivity is under 20 Ω.m.

2. High Potential Magnesium Alloy Anode(M1C Anode)

Standard :ASTM B843—M1C

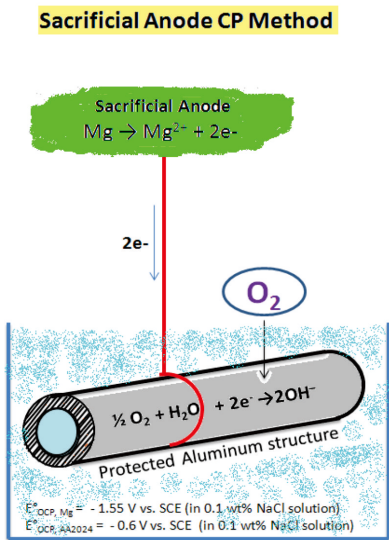
Application□M1C anode has higher open circuit voltage and driving potential than standard potential anode, with its open circuit potential being as high as -1.7 volts. The high driving voltage means greater protection can be provided by fewer anodes. Therefore, this anode is able to be used in a higher soil resistivity environment.

Chemical Composition %

Alloy type	A1	Zn	Mn	Si (max)	Cu (max)	Ni (max)	Fe (max)	Others (max)
AZ63B	5.30–6.70	2.50–3.50	0.15–0.70	0.10	0.02	0.002	0.003	0.30
AZ31	2.5–3.5	0.6–1.4	0.2–1.0	0.01	0.05	0.005	0.005	0.30
M1C	≤0.01		0.50–1.3	0.05	0.02	0.001	0.03	0.30

Electrochemical Performance

Alloy type	Open circuit potential (-V)	Closed circuit potential (-V)	Actual current capacity (A.h/kg)	Current efficiency (%)
AZ63B	1.57–1.62	1.52–1.57	≥ 1210	≥ 55
AZ31	1.57–1.67	1.47–1.57	≥ 1210	≥ 55
M1C	1.77–1.82	1.58–1.66	≥ 1100	≥ 50



Anode Dimensions

D Type	Type	Weight(Kg)	Specification		
			W(mm)	H(mm)	L(mm)
	9D2	4.082	69.90	76.20	549.30
	14D2	6.350	69.90	76.20	850.90
	20D2	9.072	69.90	76.20	1212.90
	9D3	4.082	88.90	95.30	352.40
	17D3	7.711	88.90	95.30	641.40
	32D5	14.515	139.70	146.10	504.80
	48D5	21.772	139.70	146.10	765.20
	1.5kg	1.50	80.00	70.00	190.00
	2.5kg	2.50	80.00	70.00	300.00

S Type	Type	Weight	Specification		
			W(mm)	H(mm)	L(mm)
	3S3	1.4	76.20	76.20	114.30
	5S3	2.5	76.20	76.20	190.50
	9S2	4.1	50.80	50.80	685.80
	9S3	4.1	76.20	76.20	342.90
	17S2	7.7	50.80	50.80	1295.40
	17S3	7.7	76.20	76.20	647.70
	20S2	9.1	50.80	50.80	1524.00
	32S3	14.5	76.20	76.20	1143.00
	32S5	14.5	127.00	127.00	533.40
	40S3	18.1	76.20	76.00	1524.00
	48S5	21.8	127.00	127.00	787.40
	60S4	27.2	101.60	127.00	1524.00

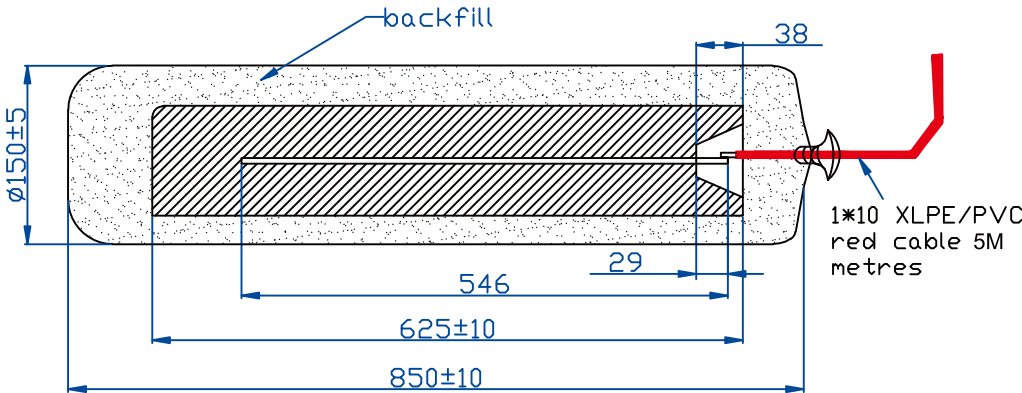
Pre-packaged Magnesium Anode

Prepackaged magnesium anode is composed of a cast magnesium anode centrally packed in a cotton bag with a highly hygroscopic backfill containing a 75% gypsum, 20% bentonite and 5% sodium sulfate mix.

Efficiency of an anode can be further enhanced when pre-packaged in this depolarizing backfill. The specialized mixture lowers the anode-to-soil resistance, and allows electrical current to flow more easily to the targeted structure.

Our magnesium anode is assembled with the cable and joints sealed in with epoxy resin. Designed to meet the fast-paced and high-efficiency requirements of engineering construction, these prepackaged magnesium anodes are often used for the cathodic protection of buried metallic structures in a range of soil resistivities; such as pipelines, underground tanks and external tank bases as well as other similar structures.

Normal Type: 9LBS,17LBS,32LBS and so on .



Type	Weight (nominal)		Anode Dimensions				
	Bare	Packaged	W	H	L	φL	OL
	Kg	Kg	mm	mm	mm	mm	mm
3D3	1.4	3.6	89	95	127	152	254
3D5	2.3	7.7	89	95	216	152	305
9D3	4.1	12.2	89	95	356	152	432
17D3	7.7	20.4	89	95	654	191	864
20D2	9.1	31.8	70	76	1518	127	1676
32D5	14.5	31.8	140	127	521	203	711
32D3	14.5	41.3	89	95	1149	165	1346
40D3	18.1	43.5	89	95	1518	165	1676
48D5	21.8	45.4	140	146	787	203	965
4x4x60	27.2	56.7	102	102	1524	176	1626



Magnesium Ribbon Anode

Magnesium ribbon anode is generally used in higher resistivity soil or freshwater, particularly in areas with restricted space. It is often used to achieve cathodic protection of well coated buried pipelines, pipelines in casings, crossing pipe sections, internal water tank surfaces and as grounding protection against strong electrical interference, among other areas.

Magnesium ribbon anode consists of an extruded ribbon of magnesium around a central continuous galvanized steel core which ensures uniform current and efficient electrical discharge. Due to the ribbon's greater surface area to weight ratio, magnesium ribbon anode can provide higher current outputs compared to other magnesium anodes.

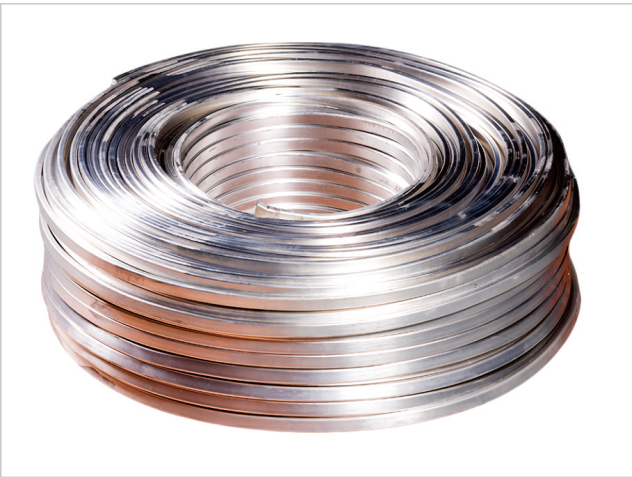
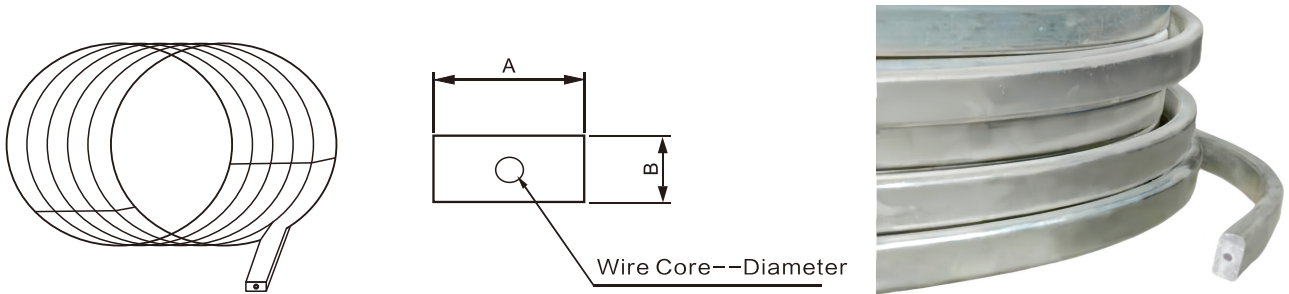
Our magnesium ribbon anode is produced using high-purity magnesium, conforming to ASTM B843–M1C standards.

Chemical Composition%

Alloy type	A1	Mn	Si (max)	Cu (max)	Ni (max)	Fe (max)	Others (max)
M1C	≤0.01	0.50–1.3	≤0.05	≤0.02	≤0.001	≤0.03	0.30

Anode Dimensions

Anode Sectional Area	Core Wire Diameter	Centrality Core Wire	Approx. Weight	Packaging Availability	Weightroll	Capacity
3/8"x3/4"+/-0.015" 1/8"corners	0.135"	<1/16	0.243 lb./ft	1000ft/roll	243lbs	500Amp hrs/lb min



● Aluminum Sacrificial Anode

Aluminum anodes are used to prevent corrosion of steel structures in seawater and fresh water. Its advantages are low weight, simplicity of installation and ability to be cast into a variety of shapes and sizes to meet required specification.

Although the voltage rate is lower than that of magnesium anodes, aluminum anodes have a much slower consumption rate, making them ideally suited for seawater applications such as marine vessels, ship hulls, ballast tanks, marine engineering, harbor facilities, subsea pipelines and offshore drilling platforms.

KIG can offer a comprehensive selection of aluminum anodes in various sizes, weights and core configurations.



Chemical Composition:

Specification	GALVALUM III	DNV-RP-B401-2011	GS EP COR 201
	Al-Zn-In-Si	Al-Zn-In	Al-Zn-In
Zinc (Zn)	2.0~6.0%	2.5~5.75%	4.75~5.75%
Indium (In)	0.01~0.02%	0.01 5~004%	0.015~002%
Cadmium (Cd)	/	0.002 Max	0.002% Max
Silion (Si)	0 08~0.20%	0.12% Max	0.06~0.12%
Iron (Fe)	0.13%	0.09% Max.	0.12% Max
Copper (Cu)	0 006% Max.	0.003% Max	0.003% Max
Others Total	0.10%Max	0.10% Max	0.10%Max
Aluminum (Al)	Remainder	Remainder	Remainder

Electrochemical Performance

Type	Working Potensial (ref Electrode Ag/AgC1)(V)	Efficiency (%)	Capacity (A. h/kg)
Galvanum III	≤-1.05	≥85	≥2500
DNV	≤-1.05	≥90	≥2500

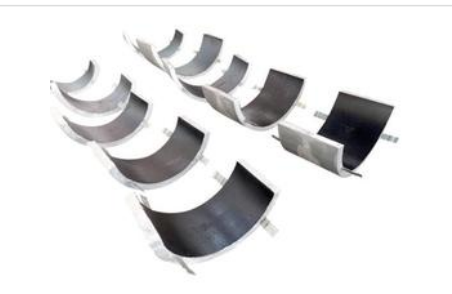
Aluminium Bracelet Anode

Aluminium bracelet anode is specifically designed for the cathodic protection of submarine/offshore pipelines. The half-shell bracelet anode, consisting of two semi-circular sections, is clamped around the pipeline. The electrical continuity between the anode body and the pipe is allowed by a steel continuity bar or by an electrical cable. With tapered ends, our half-shell aluminium bracelet anodes are suitable for easy movements over stringer during pipeline laying.



Application :

Offshore pipelines
Subsea pipelines
Offshore steel piles



Square end

Features:

High density and uniform thickness
Perfect core eccentricity ensuring uniform consumption
Quick and easy installation
There are two basic configurations: square end and tapered end, which could be either welded or bolted on the protected structure



Tapered end

Anode Type	Bracelet Size			Gap	Anode Weight	
	Inner dia.	Leng th	Thickness	2"(50mm)	Net Weight	Gross Weight
KIG-AL-BLO1	12.8" (325mm)	19" (485mm)	2" (50mm)	4" (100mm)	139.5lbs (63kg)	152.5lbs (69kg)
KIG-AL-BLO2	18" (459mm)	15.7" (400mm)	2" (50mm)	4" (100mm)	161.5lbs (73kg)	184.0lbs (83.5kg)
KIG-AL-BLO3	18" (459mm)	11.8" (300mm)	3.5" (90mm)	4" (100mm)	241.0lbs (109kg)	263.0lbs (119kg)
KIG-AL-BLO4	48.7" (1236mm)	27" (685mm)	3" (75mm)	4" (100mm)	1212.0lbs (550kg)	1238.0lbs (561kg)
KIG-AL-BLO5	48.7" (1236mm)	15.7" (400mm)	3" (75mm)	4" (100mm)	692.0lbs (314kg)	726.0lbs (330kg)

Aluminium Slender Anode

Aluminum Slender Anode with trapezoidal cross-section is cast on a bending tube insert. The cow horn tubular insert protruding from both ends can be directly welded to the surface of protected steel structure, ensuring a reliable connection.



Application:

It is used for the cathodic protection of inshore structures or marine engineering facilities, including offshore platform jackets, drilling rigs, harbour walls and jetties, wind farms, reclamation's pile, sheet pile, etc.

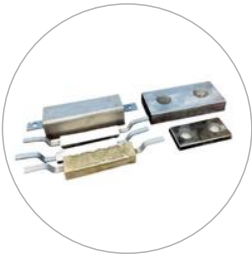
Anode Type	Weight		Size	Steel Core Insert		
	Anode	Core	La*(Wt+Wb)*H	Dia.	Lc	Pipe Specification
KIG-AL-S01	56.5kg	10.5kg	900*(150+170)*160mm	50mm	1300mm	Thickness 5mm
KIG-AL-S02	126kg	14kg	1500*(170+200)*180mm	50mm	1900mm	Thickness 5mm
KIG-AL-S03	181.5kg	18.5kg	1600*(200+210)*220mm	60mm	2000mm	Thickness 5mm
KIG-AL-S04	289kg	35.5kg	2300*(220+240)*230mm	89mm	2800mm	Thickness 5mm



● Zinc Sacrificial Anode

Zinc anodes are generally used in salt water where the resistivity is often lower than other applications. Being a high voltage conductor, zinc has a greater negative electrochemical potential than other similar metals when it is placed into salt water. This means current will flow at a higher rate through zinc than it does the other metals when subject to this same environment, therefore, limiting electrolysis to zinc alone. In essence, the zinc stops the oxidation reaction happening at the protected metal surface as the zinc is corroded in its place.

This means that in certain situations zinc is far and away the best option as a sacrificial anode, notably when it is docked or anchored in seawater for long periods of time. In practice, zinc anodes are often positioned near and connected to the metallic components of a marine vessel that require protection from electrolysis-caused corrosion found in sea water usage, meaning they are typically used in the protection of ship hulls, boat propellers and rudders, shafts, offshore pipelines and production platforms.



Chemical Composition %

Element	ASTM-Type I	ASTM-Type II
Aluminum	0.1%~0.5%	0.005%max.
AluminumLead(Pb)	0.006%max.	0.003%max.
Iron(Fe)	0.005%max.	0.0014%max.
Copper(Cu)	0.005%max.	0.002%max.
Cadmium(Cd)	0.025%~0.07%	0.003%max.
Total Impurities	0.1%max.	0.1%max.
Zinc(Zn)	Remainder	Remainder

Electrochemical Performance

Technical Measurement	ASTM-B418 Type I	ASTM-B418 Type II
Open Circuit Potential (-V)	1.05min.	1.10min.
Close Circuit Potential (-V)	1.00min.	1.05min.
Current Capacity	354A.h/lbs(780A.h/kg)	335A.h/lbs(740A.h/kg)
Current Efficiency	95%	90%
Consumption Rate	24.8 lbs/A · y(11.2kg/A.y)	26.2 lbs/A.y(11.9)

Standard Size

Anode type	Size L* (top+bottom) *H	Weight (kg)
KZ-1	500* (115+135) *130	56.00
KZ-2	1500*(65+75)*70	50.00
KZ-3	500*(110+130)*120	50.00
KZ-4	1000*(58.5+78.5)*68	33.00
KZ-5	800*(56+74)"65	25.00

Note:Any size can be customized according to customer's requirements.

Zinc Ribbon Anode

Zinc ribbon anodes are a thin, wire-like strip of zinc metal extruded around a centralized galvanized steel wire core. This steel wire core is firmly bonded to the zinc outer shell to ensure electrical path continuity. Zinc, being the sacrificing element in zinc ribbon anodes, contributes to a very simple, cost-effective and maintenance-free corrosion control method for buried or immersed metals such as iron, steel, aluminum or copper.

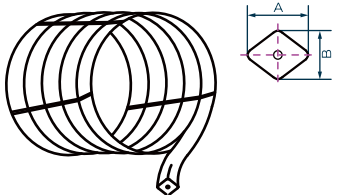
Zinc ribbon anodes are ideal for remote applications, where impressed current cathodic protection systems or constant monitoring is not feasible. They are commonly used in passive cathodic protection of metallic structures in confined spaces or high resistivity locations, such as underground carrier pipes within sleeves, closely spaced pipe networks, pipelines in rocky and mountainous terrain, wells with limited space between inner and outer casings, interstitial spaces between old, corroded and new storage tank bottoms, or narrow spaces where the anode needs to be wound around the protected structure.



Chemical Composition:

Type	Al%	Cd%	Zn%	Fe%	Pb%	Cu%
KZR-1	0.1-0.5	0.02-0.07	Balance	≤0.005	≤0.006	≤0.005
KZR-2	≤0.005	≤0.002	≥99.995	≤0.001	≤0.003	≤0.001

Anode Dimensions:

	Type	Sectional Dimension			Weight g/cm
		A/mm	B/mm	C/mm	
	A	25.4	317.5	30.5	35.72
	B	15.88	22.23	61	17.82
	C	12.7	14.29	152.5/305/098	8.93
	D	8.73	11.91	305	3.72

Normal Packaging Detail(Coil):

Item No.	Coil Size	Coil Length	Net Weight	Gross Weight	Coil Qty (per 20ft. Container)
A	880 x 460mm	30.5m	109kg	126kg	48
B	650 x 410mm	61m	109kg	124kg	96
C	480 x 360mm	152m	136kg	148kg	96
D	480 x 360mm	(305m)	113.5kg	126kg	96

Concrete Zinc Anode

Concrete zinc anodes are designed for corrosion protection in reinforced concrete structures such as bridges, parking garages, and buildings. These anodes prevent steel reinforcement corrosion by providing a sacrificial protective layer. With durable construction and reliable performance, zinc anodes effectively extend the lifespan of concrete infrastructures, reducing maintenance costs and structural failures.

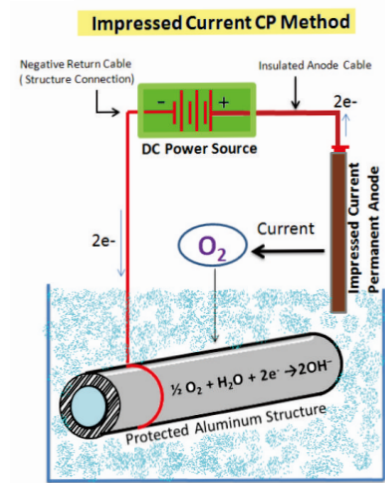


IMPRESSED CURRENT ANODE

Impressed current cathodic protection (ICCP) is a corrosion protection system consisting of long-lasting anodes which are connected to an external power source (known as a “Transformer-Rectifier”). The external power source, most often a DC power supply, induces a high potential difference between the surface to be protected and the anode.

In the absence of a DC power source, a transformer-rectifier unit connected to an AC power supply can be used. Alternative sources, including wind, solar or gas-powered thermoelectric generators, are also appropriate to be used to power the electrochemical cell.

Impressed current cathodic protection systems are typically used to protect relatively large structures (such as oil & gas pipelines and storage tanks), where passive cathodic protection methods are ineffective or impractical. The anodes employed are generally made of graphite, cast iron, titanium alloys, silicon iron or platinum-niobium clad metals.



● High Silicon Cast Iron Anode

KIG manufactures a full line of high silicon cast iron anodes in various configurations (tubular, solid rod or packaged in coke backfill), sizes and current ratings.

High silicon cast iron anodes are amongst the most widely used anodes for ICCP systems. Due to their high content of silicon(14% – 16%), the anode surface is oxidized with a thin film of hydrated silicon oxides (SiO2), which serves to protect the anodes from metal pitting. The high silicon cast iron anodes exhibit extraordinary corrosion resistance and low consumption rates when subject to a low-pH environment. They have a long history of use in the protection of buried and submerged structures from corrosion.

Standard□ASTM A518 Gr 1 or 3



Chemical Composition:

Type	Fe	Si	Mn	C	Cr	Mo	Cu
ASTM A518 Grade 3	Balance	14.20-14.75%	1.5%Max	0.7-1.10%	3.25-5.00%	0.2%Max	0.5%Max
BS 1591	Balance	14.2-15.25%	0.5%Max	1.4Max	0.5%Max	/	/

HSCI Tubular Anodes

Tubular type	O.D(mm)		I.D(mm)		Length(mm)		Wt.Kg	
	Standard	Scope	Standard	Scope	Standard	Scope	Standard	Scope
K-TA01	71	70-73	47	44-50	1067	1042-1092	14.1	13.6-14.6
K-TA02	58	57-61	37	34-40	2134	2109-2159	20.9	20.4-21.4
K-TA03	71	70-74	47	44-50	2134	2109-2159	28.6	28.1-29.1
K-TA04	71	70-74	38	36-42	2134	2109-2159	38	37.5-38.5
K-TA05	96	95-99	74	71-77	2134	2109-2159	39.2	28.7-39.7
K-TA06	122	121-125	100	97-103	2134	2109-2159	49.9	48.9-50.9
K-TA07	122	121-125	87	84-90	2134	2109-2159	79.4	78.4-80.4

HSCI Solid Anodes

Rod type	O.D(mm)		Head diameter(mm)		Length(mm)		Wt.Kg	
	Standard	Scope	Standard	Scope	Standard	Scope	Standard	Scope
K-SA01	38	37-40	63	62-65	1220	1195-1245	10.5	10-11
K-SA02	38	37-40	63	62-65	1524	1500-1550	13	12.5-13.5
K-SA03	51	50-53	76	75-78	1220	1195-1245	18	17.5-19.5
K-SA04	51	50-53	76	75-78	1524	1500-1550	22	21.5-22.5
K-SA05	76	75-78	100	99-102	1220	1195-1245	40	39-41
K-SA06	76	75-78	100	99-102	1524	1500-1550	49	48-50
K-SA07	64	63-66	88	87-90	1524	1500-1550	34	33-35

Canister Prepackaged High Silicon Cast Iron Anode

Stick Type Anode



Model	Rod Diameter	Connection End Diameter	Length	Canister Dimensions
K-PSA01	1.49"(38mm)	2.2"(56mm)	59"(1500mm)	7.9"*78.7"(200*2000mm)
K-PSA02	1.97"(50mm)	2.75"(70mm)	59"(1500mm)	7.9"*78.7"(200*2001mm)
K-PSA03	2.48"(63mm)	3.86"(98mm)	59"(1500mm)	7.9"*78.7"(200*2002mm)
K-PSA04	2.95"(75mm)	3.86"(98mm)	59"(1500mm)	7.9"*78.7"(200*2003mm)

Tubular Type Anode



Model	OD	ID	length	Type
K-PTA01	2.2"(56mm)	1.4"(36mm)	83.98"(2133mm)	Tube
K-PTA02	2.95"(75mm)	2.16"(55mm)	59"(1500mm)	Tube
K-PTA03	2.67"(68mm)	1.89"(48mm)	83.97"(2133mm)	Tube
K-PTA04	3.78"(96mm)	2.99"(76mm)	59"(1500mm)	Tube



● Soft Iron Anode

The soft iron anode is especially useful in protection against stress corrosion of copper alloys. Therefore, the soft iron anode is mostly applied to the corrosion protection of copper alloy tubes found in heat exchanger, condensers, pumps, fresh water facilities, desalination plants (evaporator, brine heater) and cooling systems of power plants. It is also used as a positive pole which has less carbon than other general irons.



Mixed Metal Oxide Anode

MMO anode is a highly conductive and corrosion-resistant anode which consists of the base metal and a metal oxide coating on its surface. Our MMO anodes coating are applied with Grade I or Gr II pure titanium substrate. Depending on the intended usage, the coating used can be a mix of two or more metal oxides, such as Iridium oxides(IrO2), Tantalum oxides(Ta2O5) and Ruthenium oxides (RuO2). Since the coating of a MMO Anode creates a low resistance, it results in lower consumption rate and high current densities maximizing anode performance.

Our MMO anodes are available in various forms to meet any desired specification, including tube, ribbon, wire, mesh and sheets. These anodes are widely used in the protection of bridges, marine structures, offshore platforms, storage tanks bottom, buried or submerged pipelines and reinforced concrete structures.



MMO Tubular Anode

MMO tubular anodes are generally titanium tubes coated with an electrocatalytic film of noble metal oxides. The mixed metal oxide film is a crystalline, electrically conductive coating that activates and enables the titanium substrate to function as an anode. Our MMO coating consists of Iridium-Tantalum oxides (IrO2/Ta2O5) or Iridium-Ruthenium oxides (IrO2/RuO2) and it has been proven to increase the anode design life. MMO coatings are not affected by the generation of chlorine. Our high performance MMO tubular anode is extremely durable and can be used in severe conditions, including high acidity and in the presence of chlorine or oxygen. They are widely used for cathodic protection of metal structures in soil, mud, seawater, brackish water, fresh water, concrete, etc. For an improved current output, coke breeze is commonly used in anode beds, or the anodes can be prepackaged in canisters containing carbonaceous backfill, ready for direct installation.

MMO tubular anode is highly versatile, and is also widely used as an anti-fouling electrode in sewage water treatment. Moreover, MMO tubular anodes can be connected together in strings for the cathodic protection of internal storage tank walls.

Standard Dimensions:

Type	Anode Size	Current Output(A/m)	Weight(kg)	Surface area(m²)
KMT01	19mmx1200mm*thickness 1mm	7.2	0.305	0.072
KMT02	25mmx 500mm*thickness 1.5mm	4	0.249	0.039
KMT03	25mm x1000mm*thickness 1.5mm	8	0.498	0.079
KMT04	25mm x1200mm*thickness 1.5mm	10	0.598	0.094
KMT05	25mmx1500mm*thickness 1.5mm	12	0.747	0.118
KMT06	31mmx 1200mm*thickness 2mm	12	1.02	0.121

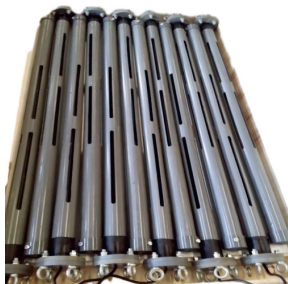
Note: Any size can be customized according to customer's requirements.



MMO Tubular Anode



MMO Tubular Anode String



MMO Vertical Tension Anode String

MMO Canister Anode

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. Canister MMO anodes are commonly used for impressed current cathodic protection of metallic pipelines and storage tanks in either shallow vertical or horizontal surface ground beds, as well as wet, marshy soil conditions where caving is likely to occur. The canisters can be singular or assembled in chains.

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.

Standard:ASTM B338 Grade 1

MMO Canister Anode Dimensions &Properties		
MMO Tubular Anode		
Tubular Size	Current Rating	Canister Size
16X500mm	2.5A	75X700mm
19X1000mm	6.0A	100X1500mm
25X1000mm	8.0A	150X2000mm
32X1200mm	12.0A	203X2133mm



MMO Mesh Ribbon Anode

KIG MMO mesh ribbon anode is manufactured from an expanded titanium mesh substrate coated with mixed metal oxides. The mixed metal oxide coating, with industrially proven lifetime characteristics, ensures an even current distribution along the anodes length.

As a highly conductive anode with extremely low consumption rate, the titanium substrate is unchanged throughout the design life of the anode.

Usually, MMO mesh ribbon anodes are a key component for impressed current cathodic protection of new build reinforcement concrete structures and existing concrete structures. For new build structures, the mesh ribbon anode is simply attached onto the rebar embedded in concrete/mortar before the concrete is poured. For retrofit applications, the mesh ribbon anode can be inserted into slots cut into the concrete surface.

In addition, the MMO mesh ribbon anode is field assembled with titanium conductor bars and a resistance welder. It has been proved to be a very effective way of controlling corrosion of rebar, particularly in hot and saline conditions.

Anode Dimensions &Properties				
Size(mmxm)	Thickness (mmxm)	Current rating*	Mesh Diamond (mm)	Weight/Roll
10 x76	1.3	2.8mA/m	2.5x4.6x0.6	1.4kg(3.1 lbs)
13 x76	1.3	3.5mA/m	2.5x4.6x0.6	1.8kg(4 lbs)
19 x76	1.3	5.28mA/m	2.5x4.6x0.6	2.7kg(4 lbs)
1220x76	1.98	37.8mA/m	25x50x0.89	43kg(95 lbs)
1220x76	1.98	24.4mA/m	34x76x0.89	33kg(95 lbs)



MMO Wire Anodes

MMO wire anode is manufactured using a high tensile solid titanium wire substrate (conforming to ASTM B348 Grade I/II) coated with a multi-layer noble metal oxide catalyst. The crystalline, electrically-conductive noble metal oxide coating activates the titanium wire and enables it to function efficiently as the anode. It is suitable for direct burial in fine sand, carbonaceous backfill and immersion in fresh or saline waters. MMO coated titanium wire anode has an extremely low consumption rate. The working life of the anode varies depending on the operating current present with the desired application. Longer life can be obtained by increasing the coating thickness or reducing the current density. Furthermore, MMO wire anodes can also be used to protect the internal surfaces of water tanks where their malleable shape allows for even current distribution in areas where there can be large variations in water level.

Anode Dimensions &Properties		
Diameter	3mm	1.5mm
Surface Area per Unit Length	9.5x10-3m²/m	4.75x10-3m²/m
Composition	Mixed Metal Oxide	Mixed Metal Oxide
Current Output		
Max.in Seawater	5.6A/m	2.8A/m
Max.in Brackish Water	2.8A/m	1.4A/m
Max.in Fresh Water	0.94A/m	0.47A/m
Max.in coke backfill	0.94A/m	0.47A/m
Expected Life	20 Years	20 Years



Canistered Wire Anodes

KIG Pack canistered wire anodes are the perfect impressed current anode for shallow vertical and horizontal surface groundbeds, as well as wet, marshy soil conditions where caving is likely to occur.

Applications

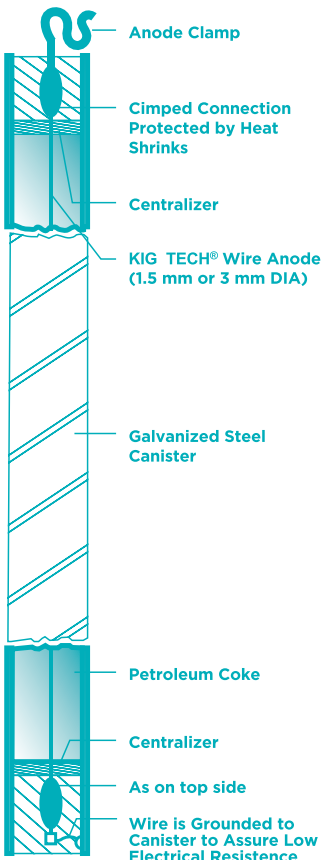
- Underground Storage Tanks
- Above Ground Storage Tanks
- Pipelines

Features/Benefits

- Light weight
- Easy to Handle and Install
- Reduces Excavation and Drilling costs
- Unconditional Five Year Warranty

Dimensions			
Model	Weight w/o Cable	Current Output at 20	Backfill Lifetime
	Lbs (Kg)	Amps	Amps-yrs
KIG 3x40 S	18 (8.17)	0.6	4.8
KIG 3x60 S	27(12.26)	1.0	7.5
KIG 3x80 S	36 (16.34)	1.4	10.3
KIG 3x40 H	18 (8.17)	1.3	4.8
KIG 3x60 H	27(12.26)	2.0	7.5
KIG 3x80 H	36(16.34)	2.8	10.3

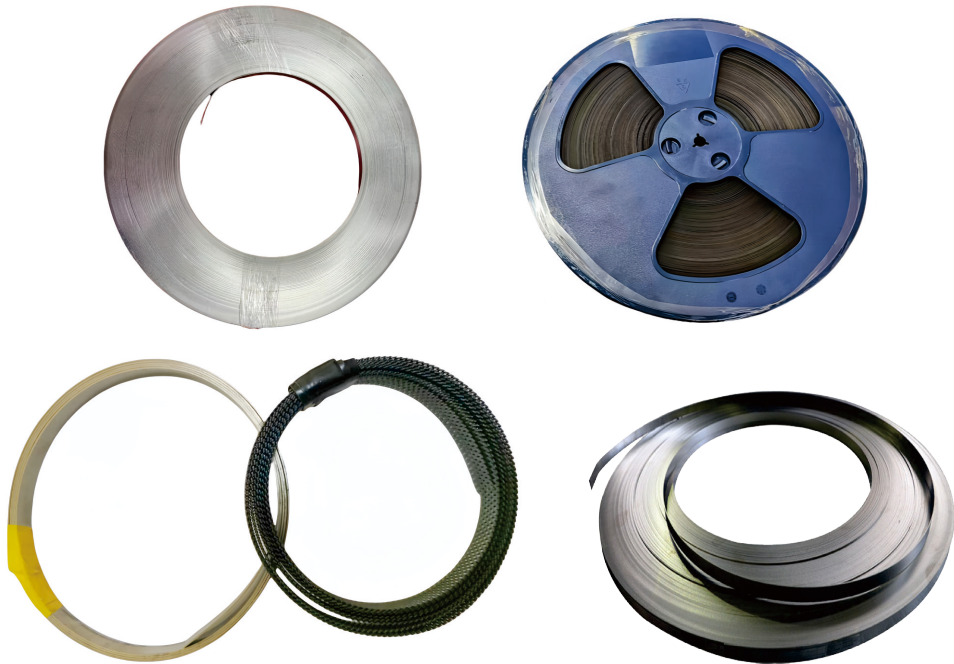
“S” indicates 1.5mm wire, “H” indicates 3mm



MMO Ribbon Anode

MMO ribbon anodes are used for cathodic protection applications where there is a high current demand in limited space. It can be directly buried into fine sand without any need for carbon backfill. Our mixed metal oxide ribbon anodes are suitable for use on both newly constructed above ground storage tanks with secondary containment liners, and existing tanks utilizing a double-bottom construction. Titanium conductor bars are usually used in conjunction with the MMO ribbon anode, acting as an inert conductor to evenly distribute the CP current throughout the system. MMO ribbon is often spot welded to the titanium conductor bar at the point of crossover, forming a grid arrangement, reducing attenuation losses. The anode is then connected to the positive cable through mechanical rod connectors.

Anode Dimensions &Properties		
Width		6.35mm(0.25")
Thickness		0.635mm(0.025")
Standard Coil Length		100m
Standard Coil Weight		1.82kg
Surface Area of Ribbon		0.014 m²/m
Fine Sand	Current output	42mA per m(12.8mAVft)*
	Expected life	50 years
Concrete	Current Output	1.5mA per m(0.45mA/ft)*
	Expected life	50 years
Titanium Conductor Bar Dimensions		
Width		12.7mm(0.50)
Thickness		0.9mm(0.035")
Standard Coil Length		100m
Standard Coil Weight		5.15kg



MMO Solid Rod Anode

MMO Rod anodes are designed for application in:

- Process vessels
- Water condenser boxes
- Heat exchangers
- Water intake structures
- Ground bed applications

Titanium Conductor Bar Dimensions			
Diameter(mm)	Length(mm)	Current Rating*(A)	Expected life(Y)
3.2	1000	1	20
6.4	1000	2	20
12.7	1000	4	20
19	1000	6	20
25	1000	7.8	20



MMO Disc Hull Anode

This MMO disc anode is generally used in impressed current cathodic protection system for ship hulls. Surrounded by a dielectric shield to distribute the current evenly across the ships’ hull, it is suitable for use in fresh, brackish, and seawater environments.

The current emitting face of the disc anode is made from titanium substrate coated with a mixed metal oxide catalyst. When applied on titanium, the mixed metal oxide coating has an extremely low consumption rate, measured in terms of milligrams per year. Direct current transfer is accomplished through the mixed metal oxide catalyst which is highly conductive, so that higher current outputs are achievable. As a result, the dimensions of disc anodes remain nearly constant throughout the design life.

Shaped as a round flat plate, this slim disc anode fits flush with the hull surface, minimizing the drag resistance and maintaining the flow dynamics during voyages. Its low profile also avoids the problem of rubbing by anchor chains.

Disc Anode Model	Anode Diameter(mm)	Curent Rating(A)
φ 25mm	25	0.3
φ 60mm	60	1.7
φ 100mm	100	4.7
φ 150mm	150	10.6
● This table is for estimating purposes only. Actual values will vary upon site conditions.		



● Flexible Linear Anode

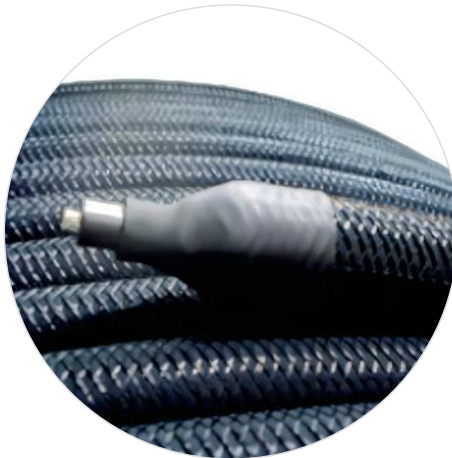
Linear anode, also called flexible anode, is a kind of anode which is prepackaged in a non-woven fabric “sock” filled with calcined petroleum coke breeze — enhancing the abrasion and damage resistance. It improves the current distribution efficiency and helps prevent over-voltage problems such as hydrogen generation and associated rapid coating disbondment.

Typical uses for this anode include the impressed current cathodic protection of in-plant piping, buried oil (gas) pipelines, petrochemical container, tank bottoms and other underground structures.

Polymer Flexible Anode

This continuous cable-like anode is an integrated auxiliary anode composed of a copper wire and a conductive polymer sheath. The copper core serves as a low resistance bus bar to deliver the required current over considerable distance without incurring substantial longitudinal voltage drop. And the extruded polymer layer seals the copper wire from chemical attack.

Anode Dimensions &Properties	
Max operating current(in soil)	52mA/m(No coke anode bed) 82mA/m(With coke anode bed)
Max operating current(in water)	10mA/m 7Mpa Constant water pressure
Min bend radius	500mm
Outer Dia.	38mm
Weight	1.5kg/m
Product length	500m or Customizable



MMO Linear Anode

MMO linear anodes, also known as flexible anodes, are an ideal product for use when a low-current, evenly distributed cathodic protection system is needed. The core of the anode is composed of high-grade, titanium wire with a Ir-Ta mixed metal oxide catalyst coating. The titanium wire is prepackaged in a porous, non-woven fabric “sock” that contains high conductivity calcined petroleum coke breeze — enhancing the anodes abrasion and damage resistance.

The power cable attached is #6 AWG stranded copper with either high molecular weight polyethylene (HMWPE) insulation or a dual insulation of Kynar/HMWPE. This cable has the capacity to maintain the required current over considerable distance without incurring substantial longitudinal voltage drop.

The MMO linear anode has the advantage of easy installation and handling as well being cost efficient. Typical uses for this anode include the impressed current cathodic protection of in-plant piping, buried oil (gas) pipelines, petrochemical containers, tank bottom and other underground structures.

Anode Dimensions &Properties		
Outer Dia.	38–40mm	38–40mm
MMO /Ti wire Dia	1.5mm	1.0mm
Current output max	52–300mA/m	52–300mA/m
Current density	100A/m2	100A/m2
Designed life	25 year	25 year
Contact resistance	≤0.0009 Ω	≤0.0009 Ω
Anode weight	1.3–1.6Kg/m	1.3–1.6kg/m
Length per roll	500M.1000M	500M.1000M



WATER HEATER ANODE

One of the most common killers of water heater is interior corrosion. The water inside the heater tank contains many destructive properties including heat and harsh minerals that can build up and eat away at the steel sidings, shortening the life of the electric water heater.

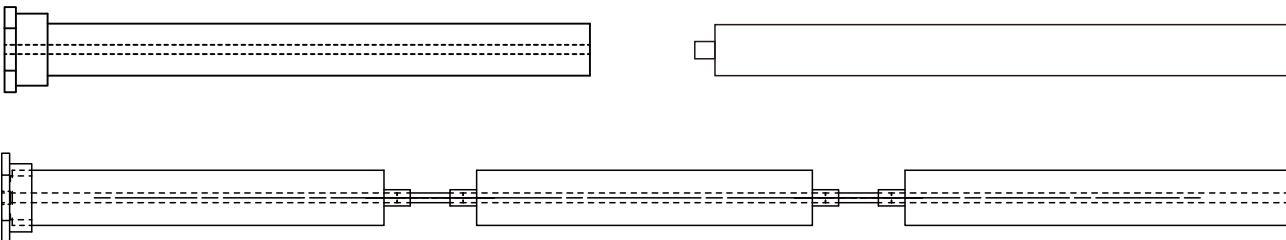
Anode rod is the most important factor in preventing corrosion and leaks in water heater. The anode rod delivers electrons into the water that helps to create an environment that diverts corrosive action away from the tank walls to the anode rod. Thus, it prolongs the service life of the inner tank and the heating pipe.

Water heater anode rod is typically made of either aluminum, magnesium or zinc.

● Magnesium Water Heater Anode Rod

Magnesium anode rods are an excellent anode to protect the inside metal surface of the water heater tank from rust by electro-chemical action. The sacrificial magnesium rod (the anodes) corrodes in place of the tank (the cathode). The lifetime of a water heater can be greatly extended when the anode rods are replaced at regular intervals. Although Magnesium anode rods tend to be consumed quicker than aluminum or zinc anode rods due to the higher voltage they create during the sacrificial process, but magnesium anodes can offer many health benefits in water ,so most people choose magnesium rod for their water heater .

Regular types are as following:



Alloy type	AZ63B	AZ31
Al	5.30–6.70%	2.5–3.5%
Zn	2.50–3.50%	0.6–1.4%
Mn	0.15–0.70%	0.2–1.0%
Si(max)	0.10%	0.01%
Cu(max)	0.02%	0.05%
Ni(max)	0.002%	0.005%
Fe(max)	0.003%	0.005%
Other(max)	0.30%	0.30%
Magnesium(Mg)	Balance	Balance

● Aluminum Water Heater Anode Rod

With the lowest voltage during the sacrificial process, aluminum anode rods usually corrode at a slower rate than magnesium rods. Thus, aluminum anode rods are the least expensive alternative, especially for water heater that heats up hard water.

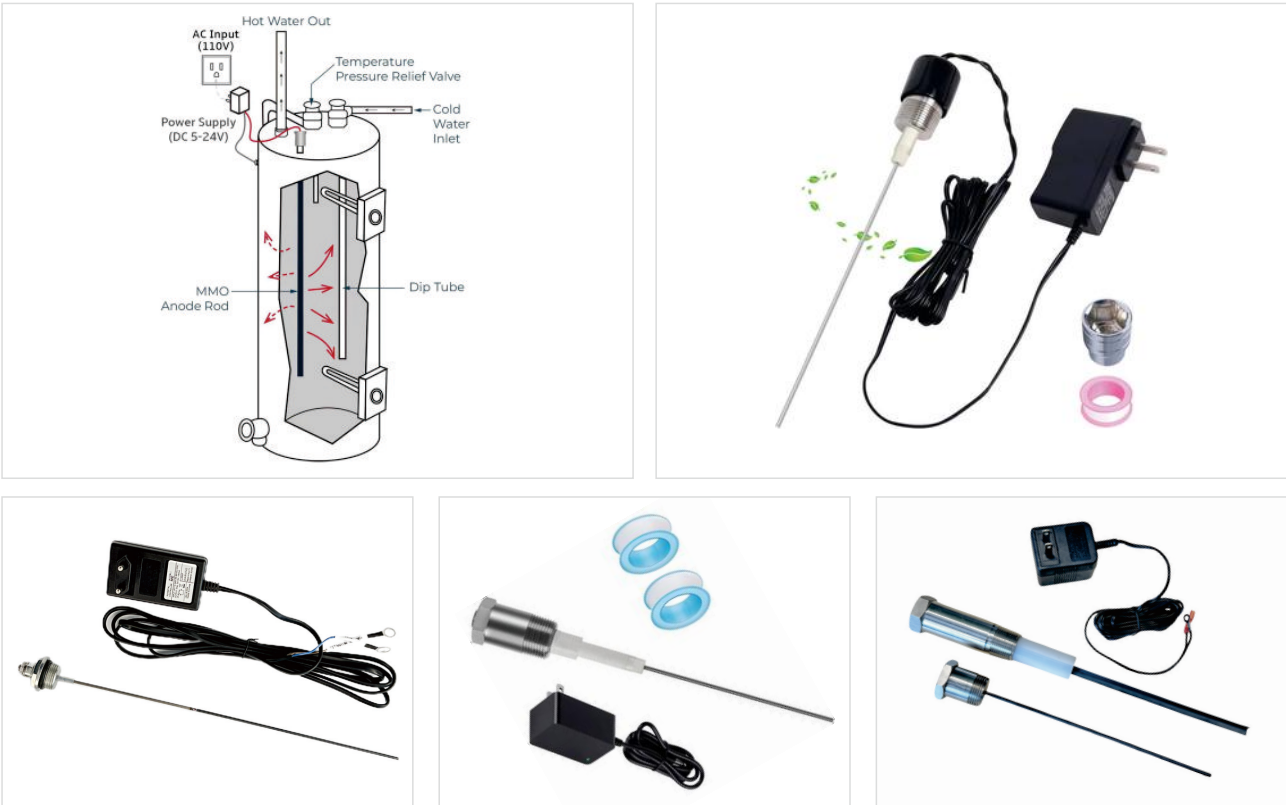
Element	AS2239–2003 A5
Zinc (Zn)	4~5%
indium (In)	---
Silicon (Si)	0.25% max.
Iron (Fe)	0.25% max.
Copper (Cu)	---
Stannum (Sn)	0.005%~0.25%
Cadmium (Cd)	---
Nickel (Ni)	---
Total Impurities	0.15% max.
Aluminum (Al)	Remainder

Product type display diagram



● MMO Powered Water Heater Anode Rod

MMO Powered Water Heater Anode Rod is made with high-tensile titanium coated with Ir-Ta mixed metal oxide catalyst. It is a stable material with low consumption rate, ensuring a lifespan in excess of 10 years. Activated by the electrical current, it provides sufficient electrons to protect the steel water heater tank steadily and continuously. These anodes do not need to be changed as frequently as traditional anode rods as the powered anode rod does not disintegrate. This also means no residue is left in the water heater tank. In addition, it is excellent at removing the sulfurous “rotten egg” smell from the water heater tank. Different from traditional sacrificial anodes, which degrade themselves to protect the water heater tank, this powered anode rod is a more economical and effective option for prolonging the life of water heater tank, as well as softening water and removing the dirt.



Customized Configurations
Custom-made sizes, special integration with individual power plugs are available upon request.

Anode Model	With no heat transfer coils inside, tank volume Liter (Gallons).			To be chosen by end user
				Anode Screw Thread
Ti 200	50(13)	~	200(52)	3/4"-14 NPT, G3/4", other types
Ti 400	200(52)	~	500(132)	
Ti 800	500(132)	~	1000(264)	

WATER TREATMENT ANODE

● MMO Anode Group

Our MMO (Mixed Metal Oxide) anode group is meticulously engineered to excel in a wide range of industrial applications. Made from premium-grade titanium and coated with MMO, these anodes offer superior durability, corrosion resistance, and electrical conductivity. Designed for longevity and reliable performance, the MMO anode group is ideal for harsh operating environments such as water treatment, chemical processing, and electroplating. Engineered with precision and adherence to international standards, our MMO anodes provide unmatched performance and durability.



Item	Parameter
Material	Titanium
Electrode Type	Oxygen-evolving
Coating	IrO2 or RuO2 or platinum
Thickness	Customizable
Dimension	Customizable
Surface Finish	Smooth
Operating Temperature	Up to 50℃
PH Range	0-14



Product Attributes:

- High-purity titanium ensures long-term stability.
- Superior corrosion resistance extends electrode lifespan.
- Optimized structure enhances oxygen evolution efficiency.
- Customizable dimensions and coatings to fit specific applications.

● Sodium Hypochlorite Generator

Sodium hypochlorite generator produces sodium hypochlorite solution through water electrolysis for disinfection purposes.

In a saline solution containing ions such as Na+ and H-, inserting electrodes and applying a certain voltage causes electrolysis. This process involves ion movement and electrode reactions, where Cl- and OH- ions move towards the anode, and Na+ and H+ ions move towards the cathode. The ions discharge at their respective electrodes, leading to redox reactions and the production of specific substances.

Electrode reactions:

Anode: $2\text{Cl}^- - 2\text{e}^- \rightarrow \text{Cl}_2$

Cathode: $2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$

The overall reaction:

$\text{NaCl} + \text{H}_2\text{O} + \text{DC} \rightarrow \text{NaClO} + \text{H}_2$

Product Information:

Casing: PVC

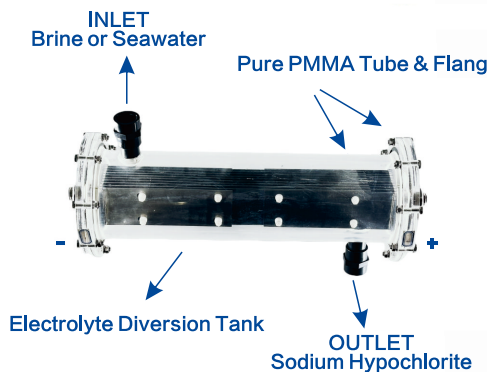
Coating: Ruthenium-iridium coating

Saline Concentration: 3%-5%

Specifications:

Sodium Hypochlorite Production: 50-10000g/h

Solution Concentration: 6000-8000 PPM



KIG Sodium Hypochlorite Generator Catalogue									
Model	Production Capacity(g/h)	Size(Calibre* Lengths/mm)	Flow(L/h)	salt consumption (Kg/Kg Cl)	DC power consumption (kw · h/Kg · Cl)	Power Supply Parameters	Effective Chlorine Concentration (mg/L)	Anode Life(y)	Cathode Life(y)
KIG-50	50	100*476	8	≤3.5	≤3.7	12V/30A	6000-8000	≥3	≥5
KIG-100	100	150*476	16	≤3.5	≤3.7	12V/60A	6000-8000		
KIG-200	200	170*476	33	≤3.5	≤3.7	12V/120A	6000-8000		
KIG-300	300	185*454	50	≤3.5	≤3.7	20V/92A	6000-8000		
KIG-500	500	200-554	83	≤3.5	≤3.7	20V/151A	6000-8000		
KIG-1000	1000	200*1190	166	≤3.5	≤3.7	30V/151A	6000-8000		
KIG-2000	2000	250*1460	332	≤3.5	≤3.7	30V/302A	6000-8000		
KIG-5000	5000	365*1660	625	≤3.5	≤3.7	30V/755A	6000-8000		
KIG-10000	10000	320*1800	1250	≤3.5	≤3.7	30V/2000A	6000-8000		

● PEM Electrolyzer

The H2 electrolyze is consist of electrode assemblies, membrane electrodes, sealing components, etc., with the membrane electrode being the core component. The KIG PEM electrolyze membrane electrode utilizes DuPont Nafion N-117 proton exchange membrane electrode, ensuring the electrolyze produces safe, stable, and high-purity hydrogen and oxygen gases.



PEM Hydrogen Electrolysis Cell Catalogue								
Model	Hydrogen production (ml/min)	Constant current power supply(A)	Highest voltage(V)	Circulating water volume (ml/min)	Circulating water temperature(C)	Hydropen Purity	Maximum pressure (Mpa)	TDS Anode water (mg/L)
CH-100	100	15	1.8-2.8	≤20	35-45	99.999%	0.5	≤1
CH-150	150	15	3.0-5.0	≤20	35-45	99.999%	0.5	≤1
CH-200	200	22	3	≤40	35-45	99.999%	0.5	≤1
CH-300	300	22	3.6-5.5	≤80	35-45	99.999%	0.5	≤1
CH-600	600	22	7.2-11	≤150	35-45	99.999%	0.5	≤1
CH-1000	1000	25	12-18	≤150	35-45	99.999%	0.5	≤1
CH-2000	2000	55	12	≤500	35-45	99.999%	0.5	≤1
CH-3000	3000	55	38	≤800	35-45	99.999%	0.5	≤1
CH-6000	6000	55	20	≤500	35-45	99.999%	0.5	≤1
CH-10000	10000	100	30	≤500	35-45	99.999%	0.5	≤1
Comment: 1.Circulating water need pure water or deionized water. 2.Circulation method: The water inlet faces downwards and the return water inlet faces upwards. The water tank must be more than 10 cm higher than the hydrogen production electrolyzer. It is recommended to install a one-way valve on the water inlet pipe. 3.Before passing circulating water into the electrolyzer,it is recommended to instal ion exchange resin in the circulating water to filter the impuritie again.								

● Alkaline Electrolytic Cell

The alkaline electrolytic cell is consist of a tank, an anode, and a cathode, with a diaphragm separating the anode chamber from the cathode chamber. The anode is made of MMO-coated titanium plates, and the cathode is made of titanium plates. The electrolytic cell works by altering the pH of the water through electrolysis. For tap water, the electrolytic cell is available in configurations with 3, 5, 7, or 11 plates. Additionally, there are electrolytic cells designed for RO water, with options for PT coatings.



Specifications

Electrolytic cell instructions – XY-RO-4. 5. 7		Electrolytic cell instructions – Ordinary water	
Water intake requirements: RO water		Water intake requirements: Tap water	
a.	Conductivity RO pure water standard	a.	TDS 80–150
b.	Water pressure 0.2mpa	b.	Water pressure 0.2mpa
c.	Water intake 60L/H 90L/H(5 PLATES) 120L/H	c.	Water intake 60L/H 90L/H(5 PLATES) 120L/H
Technical parameter		Technical parameter	
a.	Voltage < DC36V (adjusted according to pH of alkaline water outlet value)	a.	
b.	Current 3A 5A 6A	b.	Current 3A 5A 6A
c.	Physical and chemical index PH≥8.5	c.	Physical and chemical index Ph≥7
d.	Effluent ratio (acid water to alkali water) 1:3	d.	Effluent ratio (acid water to alkali water) 1:3

CP ACCESSORIES

● Transformer Rectifiers

The KIG Oil/Air-Cooled Transformer Rectifier is a robust power supply designed for impressed current cathodic protection, ideal for extreme environments like deserts, offshore, and hazardous locations. Utilizing natural oil convection for cooling, it ensures reliable operation in harsh conditions. Customizable features include DC supply, circuit breaker, and surge protection.

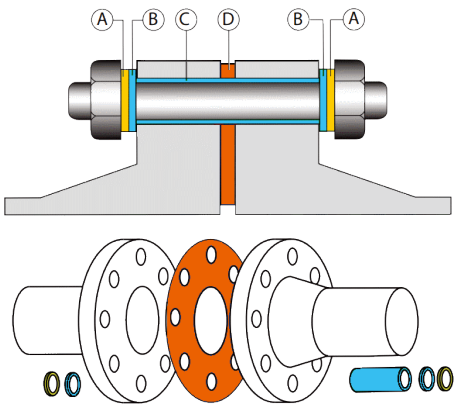
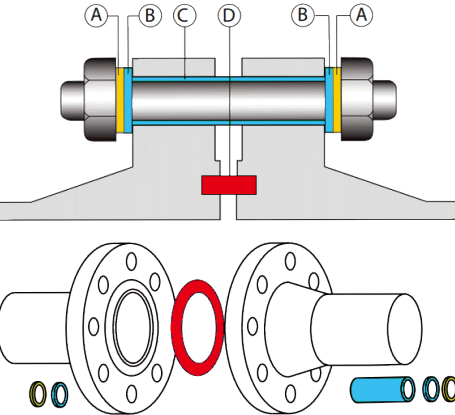
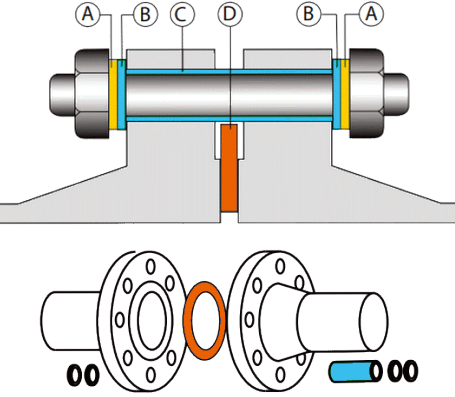


Specification

Classify	Item	SCR type
Essential data	Whole structure	Single Machine
	Texture	Carbon Steel
	Size	H1350 × W900 × D900mm
	Installation site	Outdoor
	Way to install	Installed base
	level of protection	Ip65
	Cooling method	Oil Cooling
	Operating Temperature Range	–25℃~+55℃
	AC Power	Single-phase 230V 50HZ
	Ripple factor	5%
	Noise	50db
	LCD display screen	Chinese or English
	Running mode	Constant potential, constant current, constant voltage, intermittent
	Communication interface	RS–485
Data allocation	Number of reference electrodes	1 Way
	Rated Output Voltage	50V
	rated output current	20A
	Potential range	+1000~–3000mV
	Fan starting temperature	45℃
	Superheat protection temperature	75℃
	Overvoltage alarm value	55V
	Limit of voltage	50V
	Over current alarm value	22A
	Limiting current value	20A
	Potential ultra high alarm value	–3000mV
	Ultra low potential alarm value	+1000mV
	Potential error alarm value	± 200mV
	Potential error alarm delay	90min
	Potential error alarm conversion	Switch to constant current
	Mailing address	1

● Insulating Flange Kit

The Insulating Flange Kit ensures reliable pipeline sealing and corrosion protection by eliminating metal-to-metal contact. It provides excellent electrical insulation with high-quality materials like Phenolic and Neoprene. Available in DIN, ASME, and API classes, the kit includes gaskets, insulating sleeves, and washers, suitable for various flange types and sizes.

Type E		
Type D		
Type F		

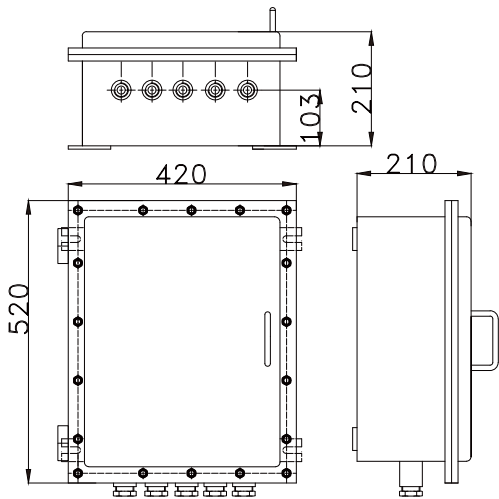
● KIG Rheostat

Rheostat provides precision resistance control for high-power applications. Built with chromium-alloy wire and high-temperature resin coating, it offers safety, durability, and a wide resistance range. Supporting up to 1000V operating voltage and 2500V insulation, it's ideal for industrial environment with excellent humidity resistance.



● Junction Boxes

Junction boxes are used to connect all the equipment in a cathodic protection system and provide a means for easy inspection of individual anode currents. Choose from sheet steel, stainless steel, aluminium, glass reinforced plastic (GRP) and plastic, we can provide a range of junction boxes for all types of application.



● Portable Copper/Copper Sulphate Reference Electrode

Portable Copper/Copper Sulphate Reference Electrode is composed of a copper rod, immersed in a saturated solution of copper sulfate, contained within a non-conducting cylinder with a porous plug at the bottom. The copper ions in the saturated solution prevent corrosion of the copper rod and stabilize the reference electrode.

Copper sulfate reference electrodes are the most commonly used reference electrodes for measuring the electrical potential of underground structures and structures exposed to a freshwater environment. It is not suitable for use in a chloride electrolyte as the chloride ions will migrate through the porous plug and contaminate the Copper Sulphate Reference Electrode.



Date Sheet of Cu/CuSO4 Reference Electrode

Main technical parameter of Cu/CuSO4 Reference Electrodes	
Critical current density:	+ 38~ -10uA/cm2
Potential accuracy:	≤ ± 10mV
Electrode design life	>10 year
Open circuit potential:	+316 mV (vs, SHE)
Rod material:	Copper
Electrode body: unscrew able, partially transparent (to check solution level) with connection plug	

● Permanent buried Copper Sulphate Reference Electrode

Permanent buried Copper Sulphate Reference Electrode provides accurate and reliable electrical potential measurements on buried metallic structures.



	Dimension(mm)	Weight(KG)	Cable
Un-prepackaged	100*200	3KG	5m PV1-F-0.6/1kV-1*4
Prepackaged	200*300	10KG	5m PV1-F-0.6/1kV-1*4

● Portable Silver/Silver Chloride Reference Electrode

The silver-silver chloride (Ag/AgCL) electrode, is a type of reference electrode, commonly used for testing cathodic protection corrosion control systems in sea water environments. This Ag/AgCl reference electrode can be exposed to seawater or immersed in a silver chloride solution contained in a gas cylinder.

A reference electrode is used to measure the potential of seawater structures and concrete structures. The electrode is composed of silver powder/silver, silver nitrate, hydrochloric acid, and silver chloride with a porous plug at the bottom.

Portable silver/silver chloride reference electrodes for temporary measurement of structure-environment potential; stationary silver/silver chloride reference electrodes for long-term structure-environment potential detection.



● Test Stations

Measurement of potential between buried structure and a reference electrode is the most frequently used test performed in the operation of a cathodic protection system. Test station is a simple method to monitor this potential in order to ensure that adequate current is being supplied to buried metallic structures.

KIG produce a range of test stations with numerous colors, shapes and test lead configurations. They can be made from high impact strength molded plastic, cast iron and concrete. Often, the test stations are installed in remote fields, therefore its reliability and maintenance is a critical factor to a high performance cathodic protection system.



● Joint Splicing Kit

This splicing kit is the proven way to protect wire splices from moisture and corrosion. It is ideal for impressed current cathodic protection systems which anode cables need to be connected and sealed.



● LSD-50/200 Solid State De-coupler

The Solid State Decoupler is an advanced solution for protecting buried steel pipelines from electromagnetic interference (EMI). It effectively mitigates high-voltage fault currents, stray currents, and lightning-induced ground currents, ensuring stable cathodic protection. This device safeguards against over-voltage and over-current, enhancing pipeline integrity and preventing accelerated corrosion.



● Thermal Welding Kit

1.Product Description

KIG Aluminum Hot Flux is a specialized product designed for enhancing cathodic protection applications. This flux improves the bonding quality between aluminum and other metals, ensuring optimal conductivity and corrosion resistance. Ideal for welding and repair work, it facilitates strong, durable connections, making



● Spark Gap

Spark gap is a protective device used to shield electrical equipment from high-voltage surges. It operates by conducting excess current to the ground when voltage exceeds a preset level, ensuring the safety of connected devices. Spark gaps are widely utilized in power systems and various electrical applications.



● Calcined Petroleum Coke

Calcined petroleum coke breeze is a high-purity carbonaceous backfill material used in underground cathodic protection systems. Processed through calcination at 1300–1400°C, it eliminates volatile matter, ensuring excellent conductivity. This granular carbon enhances current flow, providing an efficient electrical pathway for optimal electronic current transfer and improved anode performance.



● CPC Metallurgy Coke

CPC Metallurgy Coke is a specialized carbon backfill used in anode ground beds to enhance performance and longevity. It reduces anode-soil contact resistance, improves electrical conductivity, and facilitates gas escape, preventing blockages. Its properties support the electrode reactions, ensure effective current transfer and prolong the anode's service life.



● Anti-Corrosion Tape

KIG polyethylene corrosion-resistant tape is expertly engineered for protecting metal structures in harsh environments. This cold-applied tape is designed for application over an inner corrosion-resistant layer, either by hand or with a wrapping machine. It provides robust anti-corrosion protection for oil, natural gas, and water pipelines, ensuring long-lasting durability and reliability.



● Heat Shrink Tubing

Our heat shrink tubing, made from radiation-crosslinked polyolefin, is engineered for durability and versatility. Designed to protect electrical cable terminals and diameter transition areas, it offers superior insulation, UV resistance, and a 2:1 to 3:1 shrink ratio for a secure, custom fit.



● Handy Cap

The KIG HANDY CAP is designed to repair damaged polyethylene pipe coatings. It combines a radiation cross-linked polyethylene substrate with hot melt adhesive, ensuring strong adhesion and seamless integration with the original pipe's protective layer. This patch offers excellent sealing, chemical resistance, and long-term protection, ideal for repairing oil, gas, water, and chemical pipelines.



● Sulfate Polarized Probes

The Cathodic Protection Polarized Probe is a crucial tool for monitoring corrosion in buried or submerged metal structures. It provides accurate potential measurements and long-term stability, ensuring effective cathodic protection. Made with durable materials, the probe offers reliable performance, making it ideal for various industrial applications.



● Corrosion Coupon

CP (Cathodic Protection) coupons measure the effectiveness of cathodic protection systems for buried or submerged metal structures. Installed near the structure, they simulate a bare metal surface, providing accurate potential readings without interrupting multiple CP sources. These coupons reduce IR drop errors, improve testing accuracy, and support efficient data collection.



● Monolithic Insulating Joint

Monolithic insulating joints are essential components in cathodic protection systems, ensuring electrical isolation in pipelines and preventing stray current corrosion. Designed for high-pressure applications, these joints eliminate the need for field assembly and minimize leakage risks. Manufactured to industry standards, they provide long-term durability and reliability in oil, gas, and water pipeline systems.



● Cathodic Protection Cable

Cathodic protection cables are specially designed for corrosion control systems in pipelines, tanks, and marine structures. They feature high-quality insulation and conductors for optimal performance in harsh environments. Common specifications include:

Cable Type	Conductor Material	Insulation Material	Common Specifications
Copper Conductor Cable	Copper	XLPE / PVC	10 MM², 16 MM², 25 MM²
HMWPE/Kynar Insulated Cable	Copper	HMWPE / Kynar	AWG 12, AWG 10, AWG 8, AWG 2

Other cables can also be customized according to customer needs

CP PROJECT CASE



KIG Oil Storage Tank CP Design Project



KIG Bridges And Offshore Platforms CP Project



KIG Ship CP Project



KIG Pipe ICCP Project



KIG Transformer Rectifier Installation



Kig Iccp Testing Station Installation



KIG Tank CP Project