YUXI
CORROSION CONTROL

BARE MAGNESIUM ANODES

PRODUCT DATA SHEET

AMPP CORPORATE MEMBER

www.yuxi-anode.com

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Bare Magnesium Anodes

Having the highest driving voltage (most negative electropotential) of all the materials used for sacrificial anodes, magnesium anode is an economical and effective sacrificial anode used primarily in soil with medium to high resistivity (1,000 – 10,000 Ω.cm).

By creating an easier and more attractive source of oxidation, magnesium anodes prevent or slow down the rusting of steel structures that they are connected to. Our bare magnesium anodes are widely used for cathodic protection of buried pipelines, underground tanks, external tank bottom, etc.

Our magnesium anode is casted from high-purity magnesium ingot and advanced technology. There are two alloy types with different electro-potential as below:

1. Standard Potential (H-1)

Standard potential anode is manufactured in accordance with ASTM B843-AZ63B standard, containing 90% magnesium, 6% aluminum and 3% zinc. The zinc and aluminum elements lower the cost of the anode, but they also lower the driving potential to about -1.55 volts w.r.t. Cu/CuSO4 reference electrode. It is ideal for soil conditions where resistivity is under 20 Ω.m.

2. High Potential (HP)

High potential anode is manufactured from 99% pure magnesium, according to ASTM B843-M1C standard. Its open circuit potential is as high as -1.7 volts, which is 20~30% greater than standard potential anodes. The high driving voltage means greater protection can be delivered from fewer anodes. Therefore, it is capable to be used in dry or sandy areas where resistivities exceeding 2,000 Ω.cm, or for structures containing numerous corrosion hot-spots.

CHEMICAL COMPOSITION

High Potential

Element		Content (%)
Aluminum	(Al)	0.010 max.
Manganese	(Mn)	0.500 ~ 1.300
Zinc	(Zn)	—
Silicon	(Si)	0.050 max.
Copper	(Cu)	0.020 max.
Iron	(Fe)	0.030 max.
Nickel	(Ni)	0.001 max.
Single Impurity	(Each)	0.050 max.
Other Impurities	(Total)	0.300 max.
Magnesium	(Mg)	Remainder

Standard Potential

Element		Content (%)
Aluminum	(Al)	5.300 ~ 6.700
Manganese	(Mn)	0.150 ~ 0.700
Zinc	(Zn)	2.500 ~ 3.500
Silicon	(Si)	0.100 max.
Copper	(Cu)	0.020 max.
Iron	(Fe)	0.003 max.
Nickel	(Ni)	0.002 max.
Single Impurity	(Each)	0.050 max.
Other Impurities	(Total)	0.300 max.
Magnesium	(Mg)	Remainder

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ELECTROCHEMICAL PROPERTIES

YUXI casts magnesium anodes strictly conform to ASTM stardards to make sure the current efficiency exceed 50%.

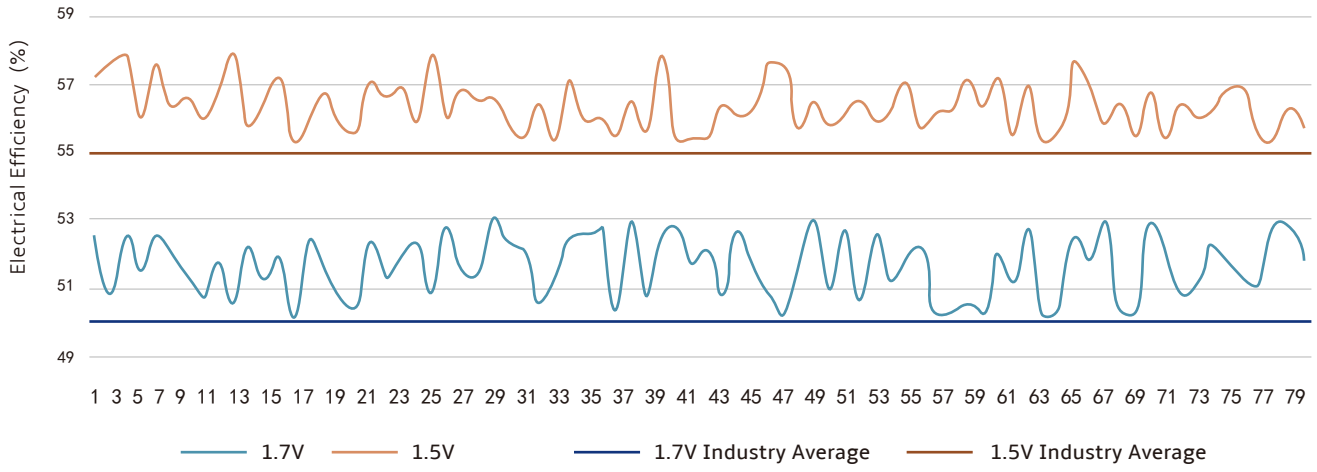
High Potential

Technical Measurement	Performance
Open Circuit Voltage (-V)	1.70 ~ 1.75
Closed Circuit Voltage (-V)	1.58 ~ 1.62
Current Capacity	1100 A.h/kg (500 A.h/lbs)
Current Efficiency	50% min.

Standard Potential

Technical Measurement	Performance
Open Circuit Voltage (-V)	1.50 ~ 1.55
Closed Circuit Voltage (-V)	1.45 ~ 1.50
Current Capacity	1230 A.h/kg (550 A.h/lbs)
Current Efficiency	55% min.

* The open/closed circuit voltage is with respect to a saturated calomel electrode.



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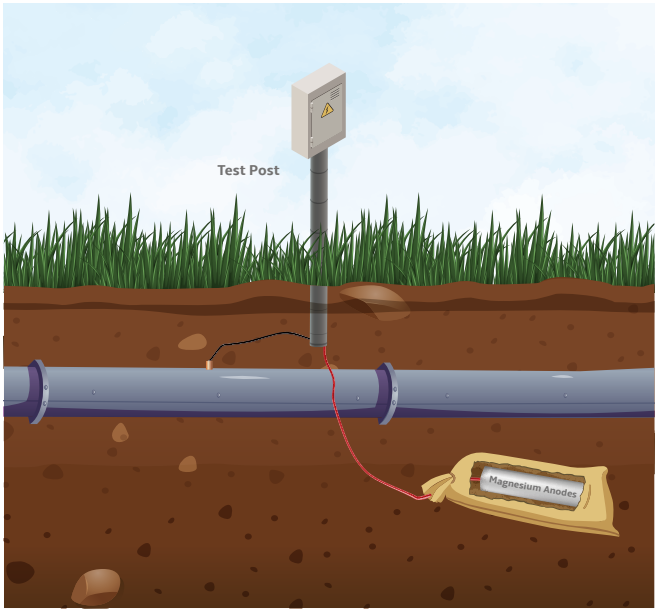
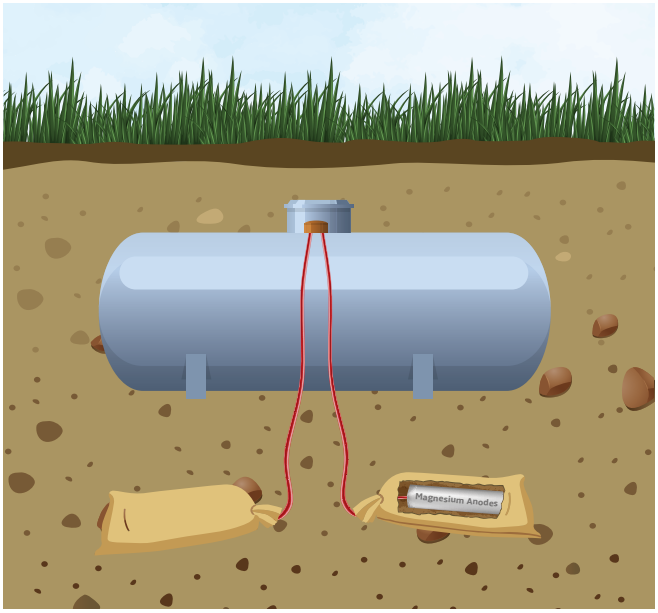
PRACTICAL APPLICATION

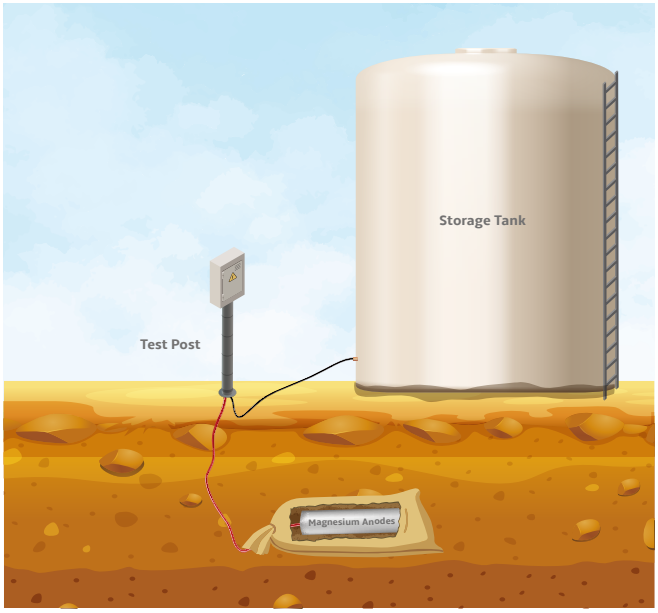
Magnesium anodes are economical solutions that can be used for land application, especially for buried structures with high resistivity of environment. They are generally applied in the sacrificial anode cathodic protection (SACP) system of onshore pipelines, underground storage tanks (USTs), external bottom of aboveground tanks, etc. Bare magnesium anode is usually comes in copper cable with certain type of insulation and prepacked in a linen bag containing a rapid wetting, moisture-retaining backfill, which reduces the electrolyte resistively adjacent to the anode for improved performance.



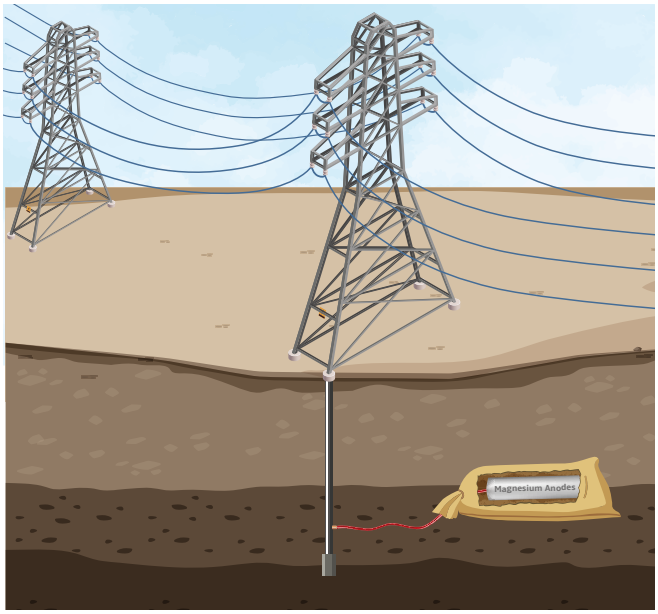
Protect the external surface of buried metallic transmission pipelines



Protect the external surface of underground steel propane tank



Protect the outer surface of aboveground storage tank floor



Protect the steel pylon foundations which are in direct contact with the soil

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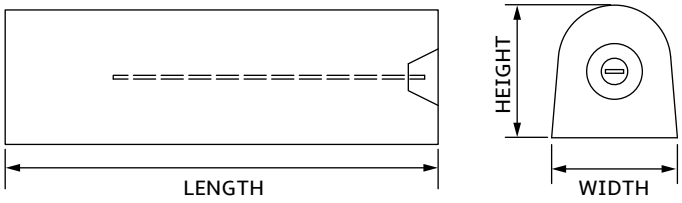
SPECIFICATIONS

Designed to meet the fast-paced requirements of engineering construction, we offer D-shape, round shape and square shape anode as standard. Other configurations are available upon request.

D-Shape Anode



Item No.	Weight	Width	Height	Length(-1.7V / -1.5V)	Core Size(WxT)
YX-MG-3D3	1.36kg (3 lbs)	89mm (3.5")	95mm (3.7")	115/105mm (4.5"/4.1")	14x1.5mm (0.6"x0.06")
YX-MG-5D2	2.3kg (5 lbs)	70mm (2.8")	76mm (3.0")	310/300mm (12.2"/11.8")	14x1.5mm (0.6"x0.06")
YX-MG-5D3	2.3kg (5 lbs)	89mm (3.5")	95mm (3.7")	189/175mm (7.4"/6.9")	14x1.5mm (0.6"x0.06")
YX-MG-9D2-1	4.1kg (9 lbs)	63mm (2.5")	67mm (2.6")	650/640mm (25.6"/25.2")	14x1.5mm (0.6"x0.06")
YX-MG-9D2	4.1kg (9 lbs)	70mm (2.8")	76mm (3.0")	565/545mm (22.2"/21.5")	14x1.5mm (0.6"x0.06")
YX-MG-9D3	4.1kg (9 lbs)	89mm (3.5")	95mm (3.7")	340/320mm (13.4"/12.6")	14x1.5mm (0.6"x0.06")
YX-MG-14D2	6.35kg (14 lbs)	63mm (2.5")	66mm (2.6")	1010/985mm (39.8"/38.8")	14x1.5mm (0.6"x0.06")
YX-MG-17D2	7.7kg (17 lbs)	63mm (2.5")	66mm (2.6")	1215/1185mm (47.8"/46.7")	14x1.5mm (0.6"x0.06")
YX-MG-17D3	7.7kg (17 lbs)	89mm (3.5")	95mm (3.7")	635/605mm (25.0"/23.8")	14x1.5mm (0.6"x0.06")
YX-MG-17D4	7.7kg (17 lbs)	108mm (4.3")	102mm (4.0")	430/410mm (16.9"/16.1")	20x3.0mm (0.8"x0.1")
YX-MG-20D2	9.1kg (20 lbs)	70mm (2.8")	76mm (3.0")	1524/1495mm (60.0"/58.9")	14x1.5mm (0.6"x0.06")
YX-MG-20D2-1	9.1kg (20 lbs)	63mm (2.5")	67mm (2.6")	1435/1405mm (56.5"/55.3")	14x1.5mm (0.6"x0.06")
YX-MG-32D5	14.5kg (32 lbs)	140mm (5.5")	146mm (5.7")	495/470mm (19.5"/18.5")	20x2.0mm (0.8"x0.08")
YX-MG-40D3	18.2kg (40 lbs)	103mm (4.1")	90mm (3.5")	1480/1450mm (58.3"/57.1")	20x2.0mm (0.8"x0.08")
YX-MG-48D5	21.8kg (48 lbs)	140mm (5.5")	146mm (5.7")	735/700mm (28.9"/27.6")	20x2.0mm (0.8"x0.08")
YX-MG-50D5	22.7kg (50 lbs)	140mm (5.5")	146mm (5.7")	765/735mm (30.1"/28.9")	20x2.0mm (0.8"x0.08")
YX-MG-60D4	27.3kg (60 lbs)	112mm (4.4")	112mm (4.4")	1520/1470mm (59.8"/57.9")	20x2.0mm (0.8"x0.08")

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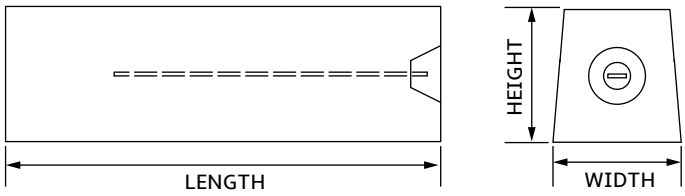
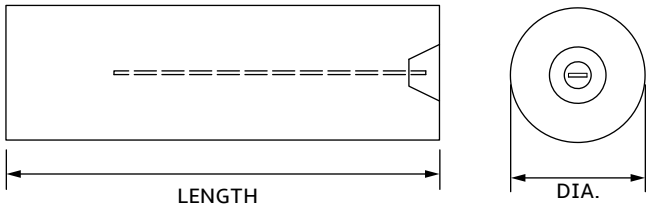
Square Shape Anode



Item No.	Weight	Width	Height	Length(-1.7V / -1.5V)	Core Size(WxT)
YX-MG-3S3	1.36kg (3 lbs)	97mm (3.8")	76mm (3.0")	120/115mm (4.7"/4.5")	14x1.5mm (0.6"x0.06")
YX-MG-5S3	2.3kg (5 lbs)	97mm (3.8")	76mm (3.0")	205/195mm (8.1"/7.7")	14x1.5mm (0.6"x0.06")
YX-MG-9S2	4.1kg (9 lbs)	71mm (2.8")	51mm (2.0")	750/710mm (29.5"/28.0")	14x1.5mm (0.6"x0.06")
YX-MG-9S3	4.1kg (9 lbs)	97mm (3.8")	76mm (3.0")	365/345mm (14.4"/13.6")	14x1.5mm (0.6"x0.06")
YX-MG-17S3	7.7kg (17 lbs)	97mm (3.8")	76mm (3.0")	675/650mm (26.6"/25.6")	14x1.5mm (0.6"x0.06")
YX-MG-17S4	7.7kg (17 lbs)	106mm (4.2")	102mm (4.0")	432/408mm (17.0"/16.1")	14x1.5mm (0.6"x0.06")
YX-MG-32S5	14.5kg (32 lbs)	127mm (5.0")	127mm (5.0")	560/535mm (22.0"/21.0")	20x2.0mm (0.8"x0.08")
YX-MG-48S5	21.8kg (48 lbs)	127mm (5.0")	127mm (5.0")	830/795mm (32.7"/31.3")	20x2.0mm (0.8"x0.08")
YX-MG-60S4	27.3kg (60 lbs)	106mm (4.2")	102mm (4.0")	1515/1485mm (59.6"/58.4")	20x3.0mm (0.8"x0.1")

Circular Shape Anode



Item No.	Weight	Diameter	Length(-1.7V / -1.5V)	Core Size(WxT)
YX-MG-1R8	0.45kg (1 lbs)	41mm (1.6")	200/190mm (7.9"/7.5")	14x1.0mm (0.6"x0.04")
YX-MG-R36	3.6kg (7.9 lbs)	114mm (4.5")	198/187mm (7.8"/7.4")	25x2.0mm (1.0"x0.08")
YX-MG-R41	4.1kg (9 lbs)	114mm (4.5")	243/213mm (9.6"/8.4")	25x2.0mm (1.0"x0.08")
YX-MG-R50	5.0kg (11 lbs)	114mm (4.5")	283/269mm (11.1"/10.6")	25x2.0mm (1.0"x0.08")
YX-MG-R77	7.7kg (17 lbs)	114mm (4.5")	436/415mm (17.2"/16.3")	25x2.0mm (1.0"x0.08")
YX-MG-R100	10.0kg (22 lbs)	114mm (4.5")	570/545mm (22.4"/21.5")	25x2.0mm (1.0"x0.08")
YX-MG-R145	14.5kg (32 lbs)	146mm (5.75")	500/470mm (19.7"/18.5")	25x2.0mm (1.0"x0.08")
YX-MG-50R8	22.7kg (50 lbs)	203mm (8.0")	406/395mm (16.0"/15.6")	25x2.0mm (1.0"x0.08")
YX-MG-60R7	27.3kg (60 lbs)	178mm (7.0")	635/600mm (25.0"/23.6")	25x2.0mm (1.0"x0.08")
YX-MG-R273	27.3kg (60 lbs)	114mm (4.5")	1510/1460mm (59.4"/57.5")	25x2.0mm (1.0"x0.08")
YX-MG-100R8	45.5kg (100 lbs)	203mm (8.0")	820/780mm (32.3"/30.7")	25x3.0mm (1.0"x0.1")

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 sheeps 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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