MAGNESIUM ANODES

Thanks to their particularly high natural potential, **magnesium alloy anodes** find optimal application in the **cathodic protection of buried metallic structures**.

These anodes are available in both "bare" versions and pre-packaged in a cotton bag containing a special mixture of elements (a "backfill") formulated to retain moisture, ensure better current output, and prevent anode passivation.

Our standard backfill consists of Gypsum (75%), Bentonite (20%), and Sodium Sulfate (5%), but different formulations are available upon client request.

Our company can supply a vast range of magnesium alloy galvanic anodes suitable for the most diverse application conditions.

The use of these anodes is very widespread, and typical situations where they are recommended include:

- Buried pipelines in low and medium-low resistivity soils.
- Cogeneration plants, gas distribution, and pumping stations.
- Buried and mounded tanks.
- Steel grounding grids.
- Temporary Cathodic Protection systems.
- Internal surfaces of water tanks.
- Protection of metal hulls in fresh water.
- Pre-polarization of marine structures.

To guarantee a superior quality product, we start with high-purity raw material (ensured by daily chemical analyses performed in our laboratories).

The "standard" alloys we offer, whose quality is proven by extensive global experience, comply with the International Standard **ASTM B843** (designated as **AZ63** due to approximately 6% Aluminum and 3% Zinc percentages). They are suitable for application in fresh water and low to medium-low resistivity soils ($\rho < 20\ \Omega \cdot m$).

For more resistive soils, we offer a special alloy, designated **HP1**, characterized by a higher electrochemical potential (a "high potential" alloy).

The anodes are supplied with a standard XLPE/PVC connection cable, 1x6 mm^2 in cross-section and 10 meters in length.

		ASTM B843 - AZ63			HP-1
Element	**U.m.**	**Grado A**	**Grado B**	**Grado C**	
Aluminum	(%)	5.3 – 6.7	5.3 – 6.7	5.0 – 7.0	0.01 max
Zinc	(%)	2.5 – 3.5	2.5 – 3.5	2.0 – 4.0	---
Manganese	(%)	0.15 min	0.15 min	0.15 min	0.50 - 1.30
Silicon	(%)	0.10 max	0.30 max	0.30 max	0.05 max
Copper	(%)	0.02 max	0.05 max	0.10 max	0.02 max
Nichel	(%)	0.002 max	0.003 max	0.003 max	0.001 max
Iron	(%)	0.003 max	0.003 max	0.003 max	0.03 max
Others	(%)	0.30 max	0.30 max	0.30 max	0.30 max
Magnesium	(%)	Remaining al 100%			
Electrochemical Properties					
Open Circuit Potential*	(V)	-1.77/-1.82			
Closed Circuit Potential*	(V)	-1.45/-1.50			
Typical Anode Capacity	(A·h/kg)	1100			
Typical Specific Consumption	(kg/A·y)	7.9			
Efficiency	(-)	55 %			50 %

* Typical potentials measured with respect to a Copper-Copper Sulfate electrode