

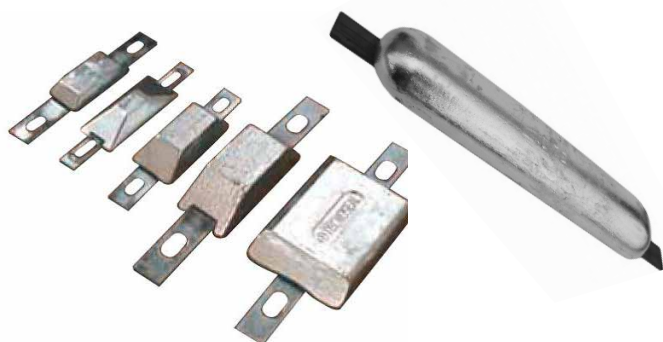
high-temperature zinc anodes

Datasheet DS 0017
Rev.00

Zinc alloy sacrificial anodes are widely used all over the world to protect steel structures from galvanic corrosion.

Being less noble than steel, when coupled to steel zinc forms a galvanic cell in which steel represents the cathode, and is protected against corrosion, and zinc represent the anode, corroding at increased rate.

Zinc anodes are widely used with great success for the cathodic protection of steel in salt water, brackish water, saline mud environments and for underground structures and pipelines.



Despite all these goals, some problems may arise when zinc anodes are used in fresh water and especially in high-temperature applications. Since 1939 it is known that common zinc alloys tends to fail at temperature above 60°C. In these situations, anode suffers passivation and may give rise to the phenomenon of polarity reversal, a dangerous condition in which zinc and steel reverse their natural polarity and steel becomes anodic to zinc, corroding itself to protect the anode.

For these reasons, standard zinc sacrificial anodes may become ineffective or even detrimental in applications such as heat exchangers or hot subsea piping Cathodic protection.



For all these situations, Tecnoseal Industry S.r.l. has developed a special alloy that is effective even at high temperature and does not suffer polarity reversal.

We can provide a wide range of different High-temperature zinc anodes according to customer requirements, selecting weight, dimensions and inserts to best fit your requirements.

Please contact our technical department for more information about our High-temperature zinc anodes and submit your requests.

Chemical analysis

Element	Analysis (by weight)
Aluminum	0.10 - 0.25 %
Magnesium	0.05 - 0.15 %
Cadmium	0.001 % max
Iron	0.002 % max
Copper	0.001 % max
Lead	0.006 % max
Others	0.10 % max
Zinc	Remainder at 100%

Electrochemical properties in sea water

Property	20°C	45°C	60°C	80°C
Capacity (A-h/kg)	780	750	690	670
Consumption rate (kg/A-y)	11.2	11.7	12.7	13.1
Typ. Closed circuit potential (V vs Ag/AgCl)	-1.03	-1.03	-0.97	-0.95

high silicon cast iron anodes solid rod & canister

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