Extruded Rod Mag Anode

Magnesium anodes have the highest protection capability of any galvanic material. While these anodes are most commonly used in the cast form, certain structures can be more efficiently protected through the use of extruded magnesium configurations. Extruded magnesium anodes have high surface and length ratios in relation to cross sectional size. This allows these anodes to deliver a higher current per weight than standard cast magnesium anodes. By supplying more current, extruded anodes can deliver effective protection to structures buried in high resistivity soils.

MESA offers a full-line of extruded magnesium rod anodes. Rod anodes are available in an alloy providing 1.4-1.5 volts driving potential (Galvorod). They are furnished with a variety of connection options and offered in numerous diameters. Ribbon anodes are manufactured in 3/8" x 3/4" flexible coils which can be easily shaped for use on a multitude of protection applications.

Rod anodes are manufactured with a solid steel core in the center of the anode. This core distributes current uniformly through the anode to prevent excessive discharge near the connection end.

Typical Applications

Extruded magnesium anodes are most suitable for structures buried or submerged in high resistivity electrolytes. The rod shaped anodes, with their small diameters, are often used in commercial and industrial water heaters and storage tanks, or driven into the ground to protect gas service risers.

Composition

Anode rods are available as either the standard GALVOROD anode or the high current output GALVOMAG anode. In most environments, the oxidation potential 1.4 to 1.5 volts for GALVOROD and 1.6 to 1.7 volts for GALVOMAG (with respect to a copper-copper sulfate reference electrode). Because of its higher oxidation potential, GALVOMAG anodes of a given size deliver approximately 25% more current (millamperes) than GALVOROD anodes of the same size. As electrolyte resistivity increases, the need for GALVOMAG anodes increases.

Current capacities for GALVOMAG and GALVOROD anodes are similar and will range from 450 to 550 ampere hours per pound, depending primarily on the operating rate (anode current density).

Chemical Composition

Material	Mg %	Al %	Mn %	Zn %	Si % Max	Cu % Max	Ni % Max	Fe % Max	Other Imp. % Max	
									Each	Total
Galvorod Anode	Bal.	2.5-3.5	0.20 min	0.7-1.3	0.05	0.01	0.001	0.002	0.05	0.3
Galvomag Anode	Bal.	0.010 max	0.50-1.3	-	-	0.02	0.001	0.03	0.05	0.3

Sizes Available – Extruded Magnesium Anodes

Product ID	Diameter Approximate (inches)	Tolerance (inches)	Core Centering (within-inches)	Core Diameter (inches)	Straightness (inches)	Weight (lbs/ft)
GA-MG-R500	0.5	-0.02	0.04	0.135	0.060 in 2 ft	0.18
GA-MG-R625	0.625	-0.02	0.045	0.135	0.060 in 2 ft	0.216
GA-MG-R675	0.675	-0.02	0.05	0.135	0.060 in 2 ft	0.3
GA-MG-R700	0.7	-0.02	0.0625	0.135	0.040 in 2 ft	0.324
GA-MG-R750	0.75	-0.02	0.0625	0.135	0.040 in 2 ft	0.372
GA-MG-R800	0.8	-0.02	0.0625	0.135	0.040 in 2 ft	0.42
GA-MG-R840	0.84	-0.02	0.0625	0.135	0.040 in 2 ft	0.456
GA-MG-R900	0.9	-0.02	0.0625	0.135	0.040 in 2 ft	0.516
GA-MG-R1.050	1.05	-0.02	0.0625	0.135	0.040 in 2 ft	0.684
GA-MG-R1.315	1.315	-0.02	0.0625	0.135	0.040 in 2 ft	1.068
GA-MG-R1.561	1.561	+/- 0.016	0.0625	0.188	0.250 in 10 ft	1.5
GA-MG-R2.024	2.024	+/- 0.024	0.125	0.188	0.250 in 10 ft	2.5
GA-MG-R2.562	2.562	+/- 0.024	0.125	0.188	0.250 in 10 ft	4

Sizes Available – Water Heater Anodes

Water Heater Anode				*Welded screw-on caps*			
Anode Diameter (in)	CAP Part No.	Internal Thread	External Thread	A (in)	B (in)	C (in)	D (in)
0.5	GA-SW1	1/4 - 18 NPT	3/4-14 NPT	1.06	0.81	0.19	0.63
0.675, 0.700, 0.750	GA-SW2	3/8 - 18 NPT	3/4-14 NPT	1.06	0.87	0.19	0.63
0.840, 0.900	GA-SW3	1/2-14 NPT	3/4-14 NPT	1.06	0.87	0.19	0.63
1.05	GA-SW4	3/4-14 NPT	1-11 1/2 NPT	1.31	1.19	0.38	1
1.315	GA-SW5	1-11 1/2 NPT	1 1/4-11 1/2 NPT	1.813	1.19	0.44	1