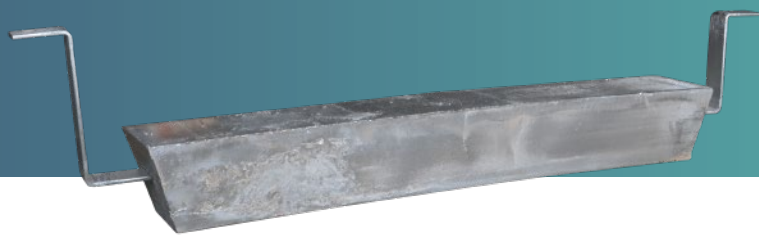




STAND-OFF ALUMINUM ANODES



50 YEARS EXPERIENCE IN CATHODIC PROTECTION



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Aluminum anode is primarily used to prevent corrosion of steel structures in seawater and brackish water environments. Our slender stand-off aluminium anode with trapezoidal cross-section is cast on a galvanized steel insert. The cast-in steel core can be directly welded to the surface of protected steel structure, ensuring a reliable connection.

As the stand-off anode protrudes from the surface installed, so the anode material is not in direct contact with the surface to be protected. Thus, the stand-off anode is better utilized over their lifetime — its anode utilization factor can reach up to 85 to 90%.

■ Quality Substrate Material

Casted in low-iron, high-purity alloys, our indium-activated aluminum anode is designed to meet the standard of ISO, NACE, DNV.

Standard Element	GALVALUM III	DNV-RP-B401-2011	GS EP COR 201
Zinc (Zn)	2.0% ~ 6.0%	2.5% ~ 5.75%	4.75% ~ 5.75%
Indium (In)	0.01% ~ 0.02%	0.015% ~ 0.04%	0.015% ~ 0.02%
Silicon (Si)	0.08% ~ 0.2%	0.12% max.	0.06% ~ 0.12%
Iron (Fe)	0.13% max.	0.09% max.	0.12% max.
Copper (Cu)	0.006% max.	0.003% max.	0.003% max.
Cadmium (Cd)	—	0.002% max.	0.002% max.
Total Impurities	0.1% max.	0.1% max.	0.1% max.
Aluminum (Al)	Remainder	Remainder	Remainder

■ Low Driving Voltage

This aluminium anode provides a stable performance in seawater and electrolytes containing chloride ions as its operating potential is kept between -1.05 to -1.10 volts.

Technical Measurement	Performance
Open Circuit Voltage (-V)	1.10 min.
Closed Circuit Voltage (-V)	1.05 min.
Current Capacity	1135 A.h/lbs (2500 A.h/kg)
Current Efficiency	90% min.
Consumption Rate	7.6 lbs/A.y (3.4 kg/A.y)

* The open/closed circuit voltage is with respect to a Ag/AgCl reference electrode.

■ Much Lighter in Weight

The aluminium stand-off anode is less dense than zinc, making it lighter and easier for handling when fitting.



APPLICATIONS

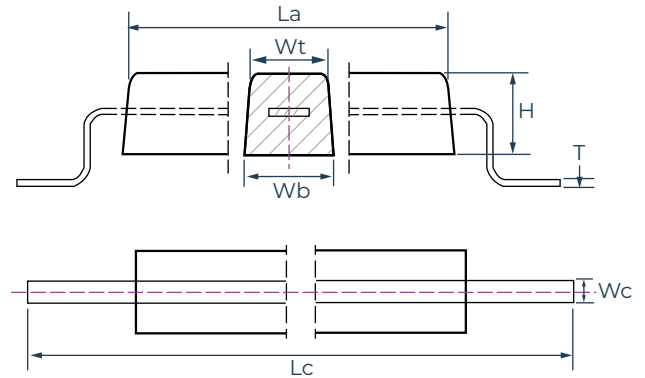
Our stand-off aluminium anodes are widely used for the cathodic protection of inshore structures or marine engineering facilities, including offshore platform jackets, drilling rigs, harbour walls and jetties, wind farms, reclamation's pile, sheet pile, etc.

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SPECIFICATIONS

- Anode with Cranked Flat Bar Insert Protruding from Both Ends

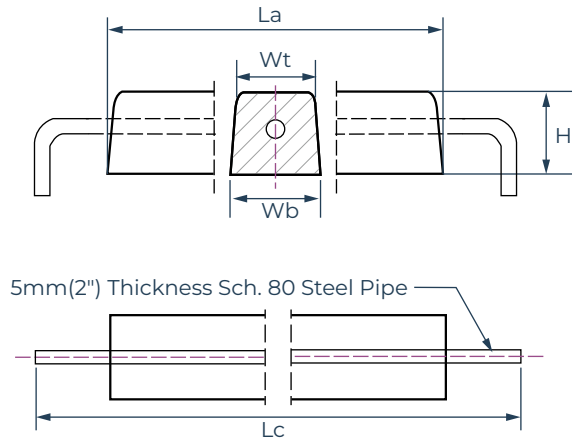
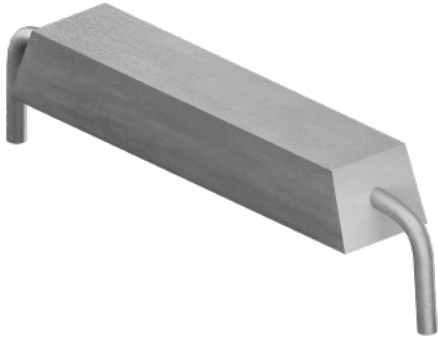


Item No.	Anode Dimensions				Insert Dimensions		Weight	
	Wt	Wb	H	La	Wc x T	Lc	N.W	G.W
JA-AL-MSF1	4.5" (115 mm)	5.3" (135 mm)	5.1" (130 mm)	19.7" (500 mm)	2.0"x0.16" (50x4 mm)	29.5" (750 mm)	47.6 lbs (21.6 kg)	50.0 lbs (22.7 kg)
JA-AL-MSF2	4.5" (115 mm)	5.3" (135 mm)	5.1" (130 mm)	29.5" (750 mm)	2.0"x0.16" (50x4 mm)	39.4" (1000 mm)	71.7 lbs (32.5 kg)	75.0 lbs (34 kg)
JA-AL-MSF3	4.5" (115 mm)	5.3" (135 mm)	5.1" (130 mm)	39.4" (1000 mm)	2.0"x0.2" (50x6 mm)	49.2" (1250 mm)	94.8 lbs (43.0 kg)	101.4 lbs (46 kg)
JA-AL-MSF4	4.5" (115 mm)	5.3" (135 mm)	5.1" (130 mm)	49.2" (1250 mm)	2.0"x0.2" (50x6 mm)	59.1" (1500 mm)	118.4 lbs (53.7 kg)	126.3 lbs (57.3 kg)
JA-AL-MSF5	6.3" (160 mm)	8.7" (220 mm)	7.1" (180 mm)	27.6" (700 mm)	2.0"x0.3" (50x8 mm)	37.4" (950 mm)	140.7 lbs (63.8 kg)	146.8 lbs (66.6 kg)
JA-AL-MSF6	7.9" (200 mm)	11.0" (280 mm)	5.9" (150 mm)	31.5" (800 mm)	2.0"x0.4" (50x10 mm)	41.3" (1050 mm)	168.7 lbs (76.5 kg)	177.5 lbs (80.5 kg)
JA-AL-MSF7	7.1" (180 mm)	8.7" (220 mm)	7.1" (180 mm)	33.5" (850 mm)	2.0"x0.4" (50x10 mm)	43.3" (1100 mm)	179.7 lbs (81.5 kg)	188.9 lbs (85.7 kg)
JA-AL-MSF8	5.8" (148 mm)	7.0" (178 mm)	6.7" (170 mm)	59.1" (1500 mm)	2.0"x0.4" (50x10 mm)	70.9" (1800 mm)	242.5 lbs (110 kg)	257.5 lbs (116.8 kg)

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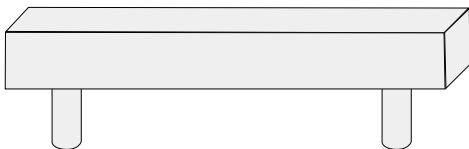
■ Anode with Cow Horn Tubular Insert Protruding from Both Ends



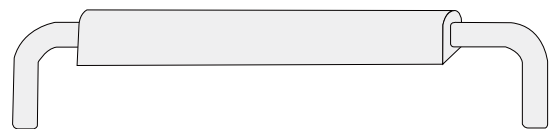
Item No.	Anode Dimensions				Insert Dimensions		Weight	
	Wt	Wb	H	La	Dia.	Lc	N.W	G.W
JA-AL-MST1	5.9" (150 mm)	6.7" (170 mm)	6.3" (160 mm)	35.4" (900 mm)	2.0" (50 mm)	51.2" (1300 mm)	124.6 lbs (56.5 kg)	147.7 lbs (67 kg)
JA-AL-MST2	6.7" (170 mm)	7.9" (200 mm)	7.1" (180 mm)	59.1" (1500 mm)	2.0" (50 mm)	74.8" (1900 mm)	277.8 lbs (126 kg)	308.6 lbs (140 kg)
JA-AL-MST3	7.9" (200 mm)	8.3" (210 mm)	8.7" (220 mm)	63.0" (1600 mm)	2.4" (60 mm)	78.7" (2000 mm)	400.1 lbs (181.5 kg)	440.9 lbs (200 kg)
JA-AL-MST4	8.7" (220 mm)	9.4" (240 mm)	9.1" (230 mm)	90.6" (2300 mm)	3.5" (89 mm)	110.2" (2800 mm)	637.1 lbs (289 kg)	715.4 lbs (324.5 kg)

MORE CONFIGURATION OPTIONS

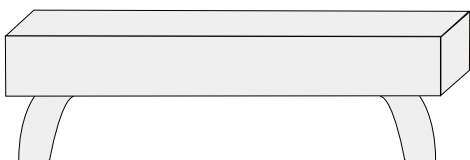
■ Anode with Goal Post Tubular Insert Protruding from Back Face



■ D-section Anode with Cow Horn Tubular Insert Protruding from Both Ends



■ Trapezoidal Anode with Cow Horn Tubular Insert Protruding from Back Face



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TESTING DETAILS

We employ ISO 9001:2015 quality management system and rigorous internal testing standards to ensure the optimum lifespan and performance of our anodes. Each anode is labelled with a unique serial number for quality tracking.

Technical Measurement	Chemical Composition	Electrochemical Performance	Physical Properties
Testing Standard	DNV-RP-B401	NACE TM0190	Foundry ITP
Testing Content	Chemical Analysis	Circuit Potential Current Capacity Current Efficiency Electrical Resistance	Dimension & Weight Surface Finish Steel Insert
Equipment	Optical Emission Spectrometer OBLF QSN 750	Electrochemical Analyzer EPI 200	Calibrated Digital Measuring Devices

* Third party testing is conducted by customer's special request at extra charge.



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