

Aluminum Marine Structure Anodes

Aluminum anodes are typically used for cathodic protection of marine steel structures, for example hulls, wharfs, supporting piers, pilings, marine infrastructure, offshore platforms, bridges, sea water cooling systems or condensers.

Jennings Anodes has been casting anodes for 50 years with a yearly production capacity of 5,000 tons.

Aluminum alloy can be cast into a variety of different shape & sizes and so bespoke designs are available upon request.

Application Benefits

- Large current output: generally, more than 1,135 A.h/lb (2,500A.h/kg)
- Low consumption rate with longer life
- Good performance and stable current output in seawater / marine environments
- Low density, suitable for the structures that have strict load and weight limits
- Easy to install



Chemical Composition

Element	Type Galvalum 111	DNV-RP-B401-2011	GS EP COR 201
	Al-Zn-In-Si	Al-Zn-In	Al-Zn-In
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%
Cadmium (Cd)	/	0.002% Max.	0.002% Max.
Silicon (Si)	0.08~0.20%	0.12% Max.	0.06~0.12%
Iron (Fe)	0.13%	0.09% Max.	0.12% Max.
Copper (Cu)	0.006% Max.	0.003% Max.	0.003% Max.
Others Total	0.10% Max	0.10% Max.	0.10% Max.
Aluminum (Al)	Remainder	Remainder	Remainder

Indium-activated aluminum anodes provide cost effective approach for cathodic protection of offshore and marine structures.

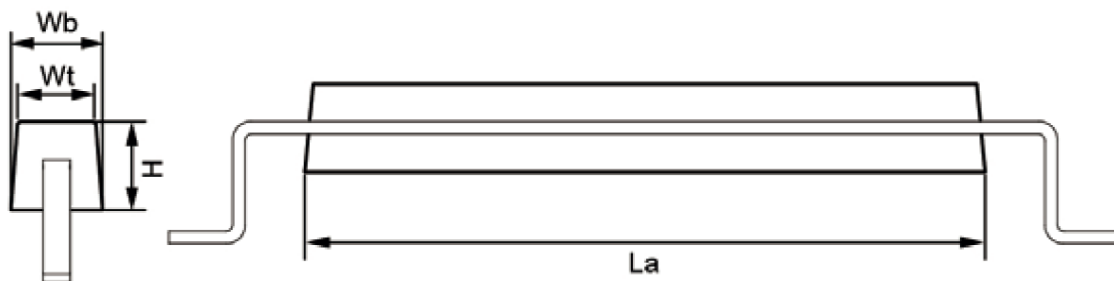
Electrochemical Properties

Operating Potential (-V)	Current Capacity	Consumption Rate	Current Efficiency	Solubility
1.05 - 1.10	1135A.h/lbs (2500A.h/kg)	7.6lbs/amp.yr	90% Min.	Solute Uniformly

Open / Close Circuit Potential is with respect to a Ag/AgCl Reference Electrode.

Specification

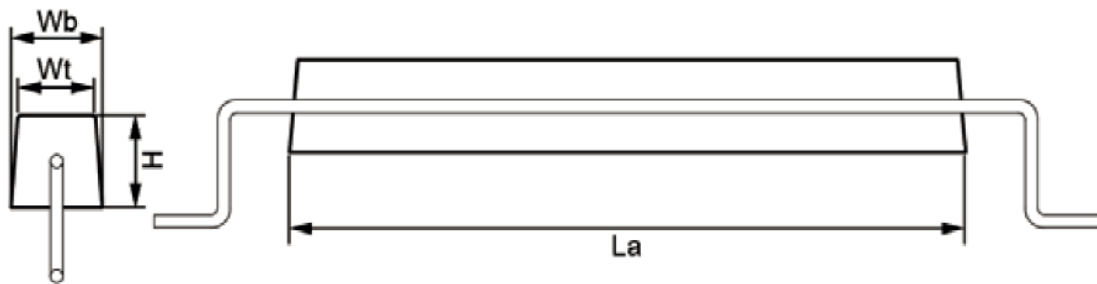
Slender anodes with stand-off support (**Steel Pipe Core**)



Anode Type	Weight		Size	Steel Core Insert		
	Anode	Core	$La \times (Wt + Wb) \times H$	Dia.	Lc	Pipe Specification
JA - AL - MSF1	56.5lbs (25.5kg)	10.5lbs (5.0kg)	354" × (59" + 67") × 63" 900 × (150 + 170) × 160cm	19.7" (50cm)	512" (1300cm)	Thickness 0.2" (5mm) SCH80
JA - AL - MSF2	126lbs (57kg)	14lbs (6.5kg)	591" × (67" + 79") × 71" 1500 × (170 + 200) × 180cm	19.7" (50cm)	748" (1900cm)	Thickness 0.2" (5mm) SCH80
JA - AL - MSF3	181.5lbs (82kg)	18.5lbs (8.5kg)	630" × (78" + 83") × 87" 1600 × (200 + 210) × 220cm	23.5" (60cm)	787" (2000cm)	Thickness 0.2" (5mm) SCH80
JA - AL - MSF4	289lbs (131kg)	35.5lbs (16kg)	905" × (87" + 95") × 91" (2300 × (220 + 240) × 230cm)	35" (89cm)	1102" (2800cm)	Thickness 0.2" (5mm) SCH80

- All weights and dimensions are nominal and subject to variation in material compositions and Jennings Foundry tolerance.

Slender anodes with stand-off support (Rod or Flat Steel Core)



Anode Type	Weight		Size	Steel Core Insert	
	Anode	Core	$La \times (Wt + Wb) \times H$	Flat Steel Core ($Lc \times Wc \times Hc$)	Pipe Steel Core (Dia. \times Lc)
JA - AL - MSR1	21.6lbs (9.8kg)	1.1lbs (0.5kg)	197" \times (45" + 53") \times 51" (500 \times (115 + 135) \times 130cm)	20" \times 1.6" \times 295" (50 \times 4 \times 750cm)	Φ 6.3" \times 295" (Φ 16 \times 750cm)
JA - AL - MSR2	32.5lbs (14.7kg)	1.5lbs (0.7kg)	295" \times (45" + 53") \times 51" (750 \times (115 + 135) \times 130cm)	20" \times 1.6" \times 394" (50 \times 4 \times 1000cm)	(Dia. \times Lc) Φ 6.3" \times 394" (Φ 16 \times 1000cm)
JA - AL - MSR3	43lbs (19.5kg)	3lbs (1.4kg)	394" \times (45" + 53") \times 51" (1000 \times (115 + 135) \times 130cm)	20" \times 2.4" \times 492" (50 \times 6 \times 1250cm)	Φ 7.85" \times 492" (Φ 20 \times 1250cm)
JA - AL - MSR4	53.7lbs (24.5kg)	3.6lbs (1.6kg)	492" \times (45" + 53") \times 51" (1250 \times (115 + 135) \times 130cm)	20" \times 2.4" \times 591" (50 \times 6 \times 1500cm)	Φ 7.85" \times 591" (Φ 20 \times 1500cm)
JA - AL - MSR5	63.8lbs (29kg)	2.8lbs (1.3kg)	276" \times (63" + 86.5") \times 71" (700 \times (160 + 220) \times 180cm)	20" \times 3" \times 374" (50 \times 8 \times 950cm)	Φ 8.65" \times 374" (Φ 22 \times 950cm)
JA - AL - MSR6	76.5lbs (34.7kg)	4lbs (1.8kg)	315" \times (78.5" + 110") \times 60" (800 \times (200 + 280) \times 150cm)	20" \times 4" \times 413.5" (50 \times 10 \times 1050cm)	Φ 10" \times 413.5" (Φ 25 \times 1050cm)
JA - AL - MSR7	81.5lbs (37kg)	4.2lbs (1.9kg)	335" \times (71" + 86.5") \times 71" (850 \times (180 + 220) \times 180cm)	20" \times 4" \times 433" (50 \times 10 \times 1100cm)	Φ 10" \times 433" (Φ 25 \times 1100cm)
JA - AL - MSR8	110lbs (50kg)	6.8lbs (3.1kg)	591" \times (58" + 70") \times 67" (1500 \times (148 + 178) \times 170cm)	20" \times 4" \times 709" (50 \times 10 \times 1800cm)	Φ 10" \times 709" (Φ 25 \times 1800cm)

All weights and dimensions are nominal and subject to variation in material compositions and Jennings Foundry tolerance.