

SACRIFICIAL ANODES

Marine Pipeline Bracelet Aluminum Anodes

Long-Life Protection For Offshore Piping

Surrounded by saline mud and often operating at elevated temperatures, offshore pipelines face severely corrosive conditions. To combat these forces Corrpro offers numerous types of aluminum bracelet anodes cast to alloying standards to deliver superior protection to steel structures in saltwater or saline mud. Under these conditions the anode material can deliver a voltage ranging between 1.05-1.09 and a current capacity of 750-980 amp-hrs./lb.

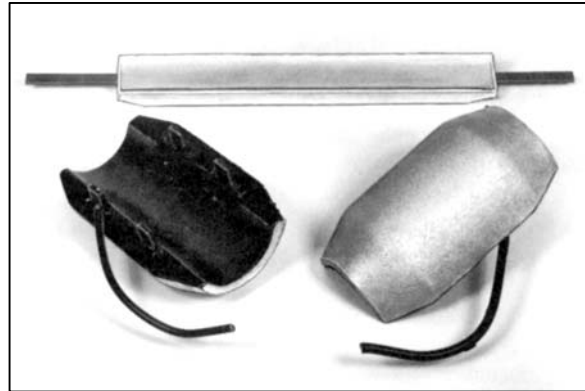
Corrpro bracelet anodes are cast in two types: semi-cylindrical and multi-segmented. Both types of Corrpro bracelet anodes are manufactured with welded steel cores and are coated on the pipe side of the anode with a coal tar epoxy coating to enhance performance.

CHEMICAL COMPOSITION

Element	Content %
Zn	2.8-3.5
Si	0.08-0.2 max
In	0.01-0.02
Aluminum	Remainder

Typical Applications

Corrpro bracelet anodes are designed for use on all types of pipelines found in the saltwater environments. On pipe installations where a concrete weight coat



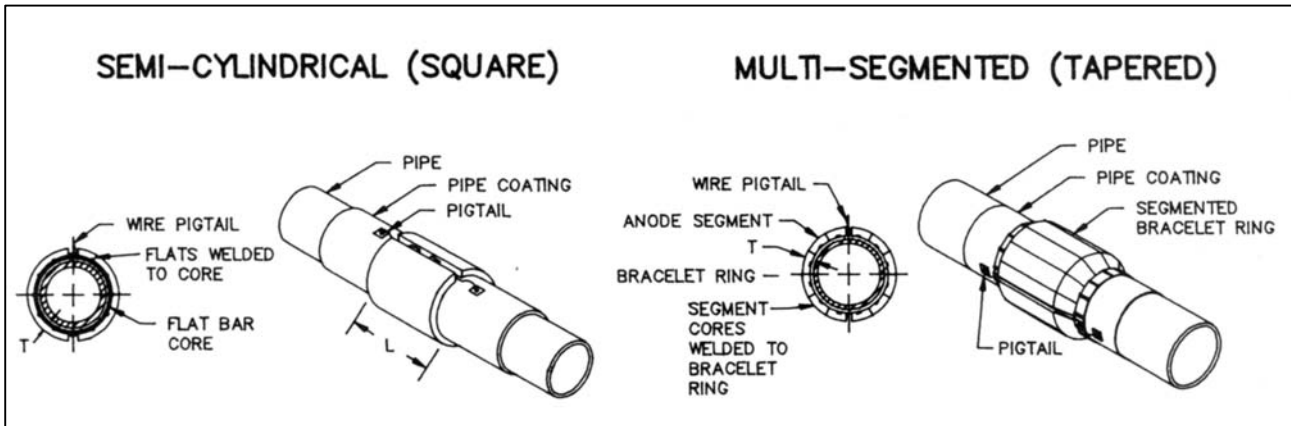
is to be employed, square ended bracelet anodes are recommended at the same thickness as the weight coat. Tapered anodes should be used on all other pipeline installations to minimize problems during installation from the lay barge.

Ordering Procedure

Bracelet anodes from Corrpro are manufactured in both multi-segmented and semi-cylindrical styles. Multi-segmented anodes are custom made for each pipe application. To order these bracelet anodes specify the pipe diameter and indicate whether the anode segments should be tapered or square. To order semi-cylindrical anodes, indicate the quantity desired, pipe diameter, anode dimensions, and whether they should be tapered or square ended. An example is provided to help illustrate this process.



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Ordering Procedure Example	
ITEM	EXAMPLE
Quantity	200
Anode Material	Aluminum Bracelet Semi-Cylindrical
Pipe O.D.	18 in.
Anode Dimensions	15.5 x 3 in.
End Configuration (Square or Tapered)	Square

Multi-segmented anodes are made to customer specifications.

Semi-Cylindrical Standard Dimensions and Shipping Weights

PIPE O.D. in.	"L" LENGTH in. (mm)	"T" THICKNESS in. (mm)	NET WT. ALUMINUM lbs. (kg)	COATING THICKNESS in. (mm)
<i>SQUARE ENDED</i>				
6.63	13 (330)	1.5 (38.1)	41 (18.5)	0.16 (3.9)
10.75	20.62 (523)	1 (25.4)	60 (27.2)	0.16 (3.9)
12.75	18 (457)	1.5 (38.1)	96 (43.5)	0.16 (3.9)
14	24.63 (625)	1 (25.4)	100 (45.3)	0.16 (3.9)
16	16 (406)	1.63 (41.4)	122 (55.3)	0.16 (3.9)
18	15.5 (393)	3 (76.2)	270 (122.4)	0.16 (3.9)
20	16 (406)	1.63 (41.4)	157 (71.2)	0.16 (3.9)
20	16.25 (413)	1.63 (41.4)	150 (68.0)	0.16 (3.9)
20	15.75 (400)	1.75 (44.5)	161 (73.0)	0.16 (3.9)
20	19.5 (495)	1.63 (41.4)	189 (85.7)	0.16 (3.9)
24	14.25 (362)	1.75 (44.5)	177 (80.2)	0.16 (3.9)
24	13 (330)	2 (50.8)	177 (80.2)	0.16 (3.9)
24	13.38 (340)	2.06 (52.3)	193 (87.5)	0.16 (3.9)
24	11.31 (287)	3 (76.2)	199 (90.2)	0.16 (3.9)
<i>TAPERED ENDED</i>				
2.38	15.23 (387)	1 (25.4)	9 (4.0)	.004 (0.1)
3.5	12 (305)	1.5 (38.1)	16 (7.2)	.004 (0.1)
4.5	12 (305)	1.5 (38.1)	24.5 (11.1)	.004 (0.1)
6.63	12 (305)	1.5 (38.1)	34.5 (15.6)	.004 (0.1)
8.63	11.25 (286)	1.5 (38.1)	40 (18.1)	.004 (0.1)
10.75	11.5 (292)	1.5 (38.1)	50 (22.6)	.004 (0.1)
12.75	13.38 (340)	2 (50.8)	73 (33.1)	.004 (0.1)
14	19 (482)	2 (50.8)	110 (49.8)	.004 (0.1)
16	17.5 (444)	1.5 (38.1)	105 (47.6)	.004 (0.1)
16	17.88 (454)	2 (50.8)	151 (68.4)	0.16 (3.9)

