

# Marine Pipeline Bracelet Zinc Anodes

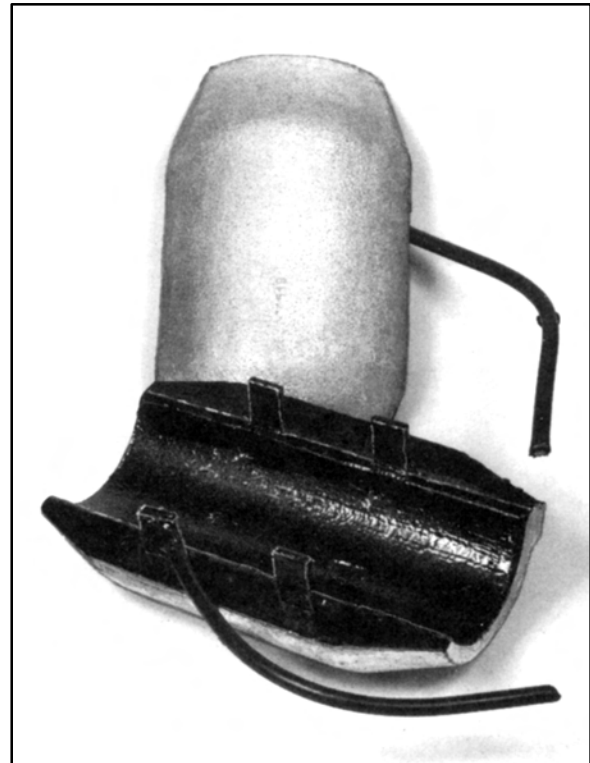
## For Reliable Protection

Zinc anodes have a proven track record for delivering long-life protection in marine environments. This is especially true for marine pipelines found in both fresh and saline mud, where effective protection can be provided by Corrpro's zinc bracelet anodes. These anodes are cast to meet military specification MIL-A-18001. They produce an open circuit voltage of 1.05 (with respect to an Ag/AgCl reference cell), and possess a 90% current capacity. Although zinc has a lower per-pound current capacity (354 amp.-hrs./lb.) than most conventional aluminum anodes, zinc and aluminum bracelet anodes of identical size will deliver very similar protection, due to the fact that zinc is 2.6 times more dense than aluminum. The chemical composition of Corrpro's bracelet anodes also allows for better protection against the formation of passivating films, which can restrict current flow.

To better address a wide variety of installation possibilities, Corrpro manufactures two types of bracelet anodes: semi-cylindrical and multi-segmented. Semi-cylindrical anodes are most often installed on smaller-diameter pipe, while multi-segmented anodes are typically used on larger pipe. Both types are manufactured with welded galvanized steel cores, and are coated on the pipe side of the anode with a coal tar epoxy to enhance performance.

## CHEMICAL COMPOSITION

Element	Content %
Al	0.1-0.5
Cd	0.02-0.07
Fe	0.005 max.
Pb	0.006 max.
Cu	0.005 max
Zinc	Remainder



## Typical Applications

Corrpro zinc bracelet anodes are designed for use on all types of pipelines in fresh, brackish, and saltwater environments. On pipe installations where a concrete covers is to be employed, square-ended bracelet anodes are recommended for the creation of a plane surface. Tapered anodes should be used on all other pipeline installations to minimize problems with offloading by barge rollers. Zinc anodes should not be used in areas where the temperature may exceed 140°F.



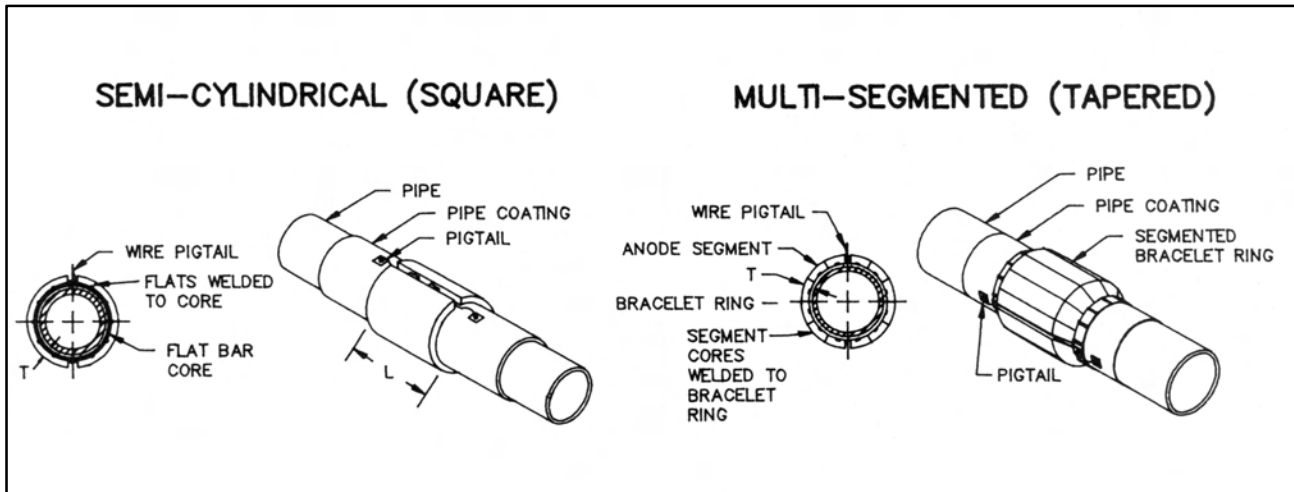
**Corrpro Companies Europe Limited**

Adam Street, Bowesfield Lane, Stockton on Tees, TS18 3HQ

Telephone: (01642) 614106 (8 lines) Telex: 587388

Fax: (01642) 614100 E-mail: ccel@corrpro.co.uk

## Marine Pipeline Bracelet Zinc Anodes



### Ordering Procedure

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

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

### Semi-Cylindrical Std. Dimensions and Shipping Weights

PIPE O.D. in.	"L" LENGTH in.	(mm)	"T" THICKNESS in.	(mm)	NET WT. ZINC lbs.	(kg)	COATING THICKNESS in.	(mm)
<i>SQUARE ENDED</i>								
6.63	13	(330)	1.5	(38.1)	104	(47.1)	0.16	(3.9)
10.75	20.62	(523)	1	(25.4)	153	(69.4)	0.16	(3.9)
12.75	18	(457)	1.5	(38.1)	245	(111.1)	0.16	(3.9)
14	24.63	(625)	1	(25.4)	255	(115.6)	0.16	(3.9)
16	16	(406)	1.63	(41.4)	311	(141.0)	0.16	(3.9)
18	15.5	(393)	3	(76.2)	689	(312.5)	0.16	(3.9)
20	16	(406)	1.63	(41.4)	401	(181.8)	0.16	(3.9)
20	16.25	(413)	1.63	(41.4)	383	(173.7)	0.16	(3.9)
20	15.75	(400)	1.75	(44.5)	411	(186.4)	0.16	(3.9)
20	19.5	(495)	1.63	(41.4)	482	(218.6)	0.16	(3.9)
24	14.25	(362)	1.75	(44.5)	452	(205.0)	0.16	(3.9)
24	13	(330)	2	(50.8)	452	(205.0)	0.16	(3.9)
24	13.38	(340)	2.06	(52.3)	493	(223.6)	0.16	(3.9)
24	11.31	(287)	3	(76.2)	508	(230.4)	0.16	(3.9)
<i>TAPERED ENDED</i>								
2.38	15.23	(387)	1	(25.4)	23	(10.4)	0.004	(0.1)
3.5	12	(305)	1.5	(38.1)	41	(18.6)	0.004	(0.1)
4.5	12	(305)	1.5	(38.1)	62.5	(28.3)	0.004	(0.1)
6.63	12	(305)	1.5	(38.1)	88	(39.9)	0.004	(0.1)
8.63	11.25	(286)	1.5	(38.1)	93	(42.2)	0.004	(0.1)
10.75	11.5	(292)	1.5	(38.1)	127	(57.6)	0.004	(0.1)
12.75	13.38	(340)	2	(50.8)	186	(84.3)	0.004	(0.1)
14	19	(482)	2	(50.8)	280	(127.0)	0.004	(0.1)
16	17.5	(444)	1.5	(38.1)	268	(121.5)	0.004	(0.1)
16	17.88	(454)	2	(50.8)	385	(174.6)	0.16	(3.9)

*Multi-segmented anodes are made to customer specifications.*



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