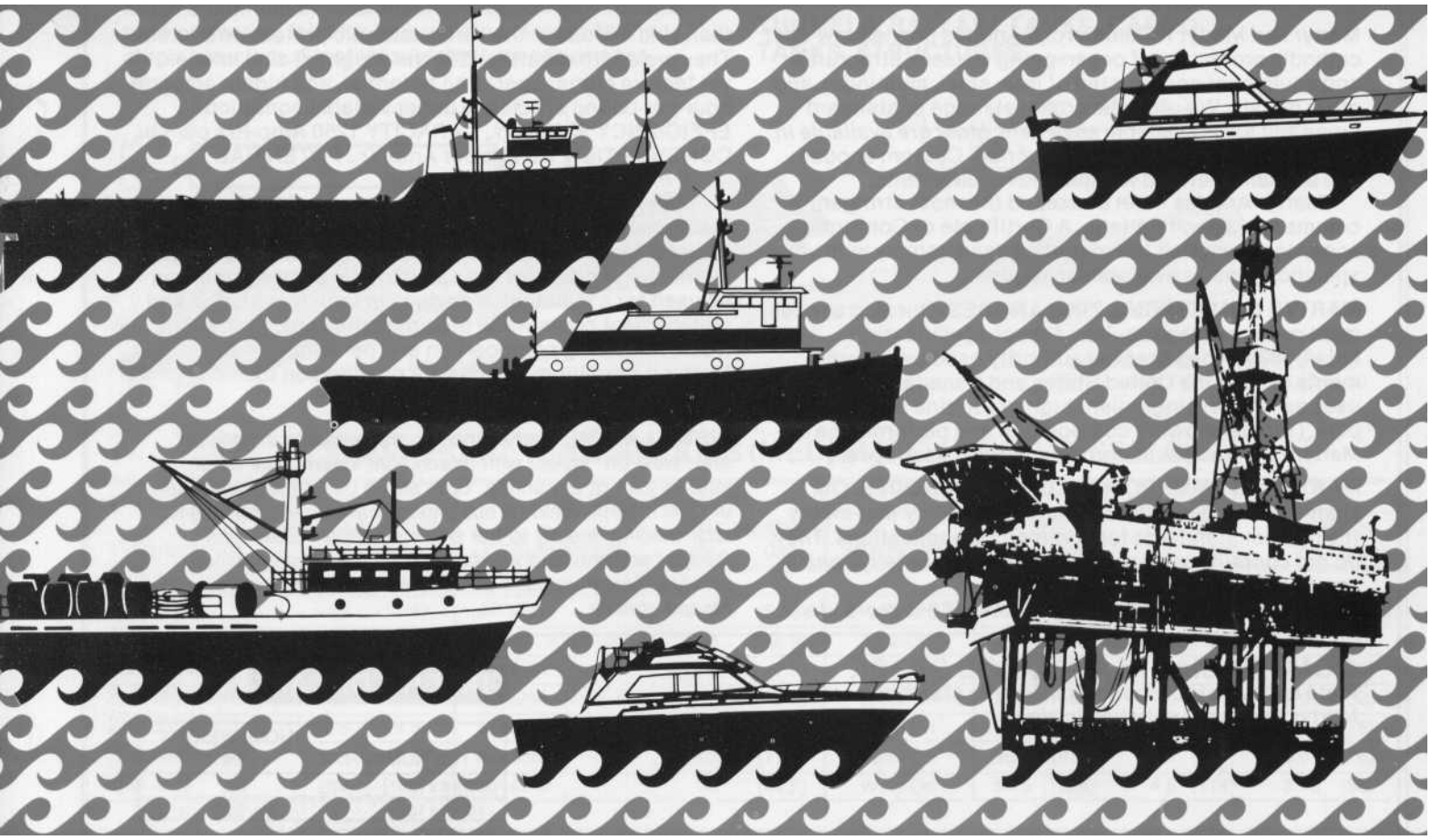
Martyr™
COMMERCIAL ANODES



Cathodic Protection of Commercial Vessels, Pleasure Craft, Piers, Off-Shore Drilling Platforms, Drydocks, Retaining Walls & Oceanographic Equipment.

Martyr Zinc Anodes are engineered to meet or exceed the most stringent commercial and military specifications, including MIL-A-18001, the accepted authority used by governments of both Canada and the United States. These anodes, when properly selected and installed, ensure complete and economical cathodic protection from electrolytic corrosion.

Type-for type, size-for-size, Martyr II Aluminum Anodes provide better performance and 52% more life than zinc anodes in the same cathodic protection system. Martyr II Aluminum Anodes feature: Less Weight (58% less), Higher Operating Potential, Higher Efficiency (greater ampere-hour-per-pound efficiency under variable conditions), Longer Effective Life (52% better), and Lower Installation & Maintenance Costs.

Martyr COMMERCIAL ANODES

YOUR CHOICE OF ZINC OR ALUMINUM ANODES

MARTYR & MARTYR II COMMERCIAL ANODES ENSURE COMPLETE AND ECONOMICAL CATHODIC PROTECTION FROM ELECTROLYTIC CORROSION.

Martyr and Martyr II Commercial Anodes provide low-cost cathodic protection of ocean-going vessels, structures and equipment constructed of iron, steel, aluminum, and other metals. We offer the broadest range of standard types and sizes available anywhere. Most are available *in both zinc and aluminum construction.* Custom anodes can be manufactured for specific requirements.

Martyr Anodes meet or exceed the most stringent commercial specifications. A Certificate of Conformance, declaring that the materials used comply with your specifications, is available on request.

MARTYR COMMERCIAL ZINC ANODES. Our zinc anodes meet or exceed the requirements of specification MIL-A-18001, the accepted authority used by governments of both the United States and Canada. Our alloy uses as its basic ingredient high-grade zinc 99.995% + pure. (Tables showing composition and performance of MartyrZinc Anodes are provided on the back cover.)

MARTYR II COMMERCIAL ALUMINUM ANODES. Our aluminum anodes use a new aluminum alloy that meets the highest standards for commercial applications. They *do not contain* mercury or other *environmentally controversial elements.*

Martyr II Aluminum Anodes provide 52% more life than zinc anodes in the same cathodic protection system. They are approximately 42% the weight of zinc anodes, yet feature higher operating potential, and higher ampere-hour-per-pound efficiency under variable conditions. EFFICIENCY 95% Min., CAPACITY 1250 Amp-Hrs per Lb., CONSUMPTION 7.6 Lbs per Amp-Yr., POTENTIAL -1150 mV (reference to Cu/CUS04).

Martyr II Aluminum Anodes save on installation and maintenance costs because: (1) they last 52% longer for a cost-effective savings of one-third; (2) fewer, but larger aluminum anodes (for the same total weight as zinc) can be used for a substantial savings in both installation and replacement costs while providing the same protection. (Tables showing composition and performance of Martyr II Aluminum Anodes are provided on the back cover.)

INSTALLATION. Martyr Anodes are available in "bolt-on" and "weld-on" styles, with attachment inserts cast as an integral part of the anode. Both styles use either aluminum or steel inserts. Weld-on hull anodes have projecting tabs for tack welding directly to the ship's structure. *Steel tabs (straps) are provided as standard on zinc and aluminum anodes. Aluminum tabs are available on most anodes. Please specify.*

COMMERCIAL PLATE & ROD STOCK

Plate and rod stock meeting the same standards as Martyr Anodes is supplied in zinc.

MATERIAL ZINC	MATERIAL ALUMINUM	DIMENSIONS in(mm)	lbs(kg)	DIMENSIONS in(mm)	lbs(kg)	DIMENSIONS in(mm)	lbs(kg)
PLATE STOCK							
X	X	0.5x3x3 (i3x76x76)	1.25 (.57)	0.75x3x3 (19x76x76)	1.75 (.79)	1x3x3 (25x76x76)	2.25 (1.01)
X	X	0.5x3x6 (13x76x152)	2.2 (1.0)	0.75x3x6 (19x76x152)	3.5 (1.59)	1x3x6 (25x76x152)	4.5 (2.04)
X	X	0.5x6x6 (13x152x152)	4.75 (2.15)	0.75x6x6 (19x152x152)	6.55 (2.97)	1x6x6 (25x152x152)	9.0 (4.08)
X	X	0.5x6xl2 (13x152x305)	9.5 (4.31)	0.75x6xl2 (19x152x305)	4.0 (6.35)	1x6x12 (25x152x305)	18.0 (8.16)
ROD STOCK							
X	X	.375DIAx6' (10Dx1.83M)	2.0 (.91)	.5DIAx6' (13Dx1.83M)	3.6 (1.63)	.625DIAx6' (16Dx1.83M)	5.8 (2.63)
X	X	.75Dx6' (19Dx1.83M)	8.3 (3.76)	1.ODx6' (25Dx1.83M)	4.6 (6.62)	1.25Dx6' (32Dx1.83M)	22.0 (9.98)
X	X	1.5Dx2" (38Dx.61 M)	11 (5)	2.ODx2' (51 Dx.61 M)	9.8 (9.0)	3.ODx2' (76Dx.61 M)	43.0 (19.50)
X	X	3.75Dx2' (95Dx.61 M)	73.0 (34.0)				

CAN BE SUPPLIED WITH COPPER WIRE IF SPECIFIED
MARTYR 11 ALLOY AVAILABLE UPON REQUEST

DIVERS DREAM

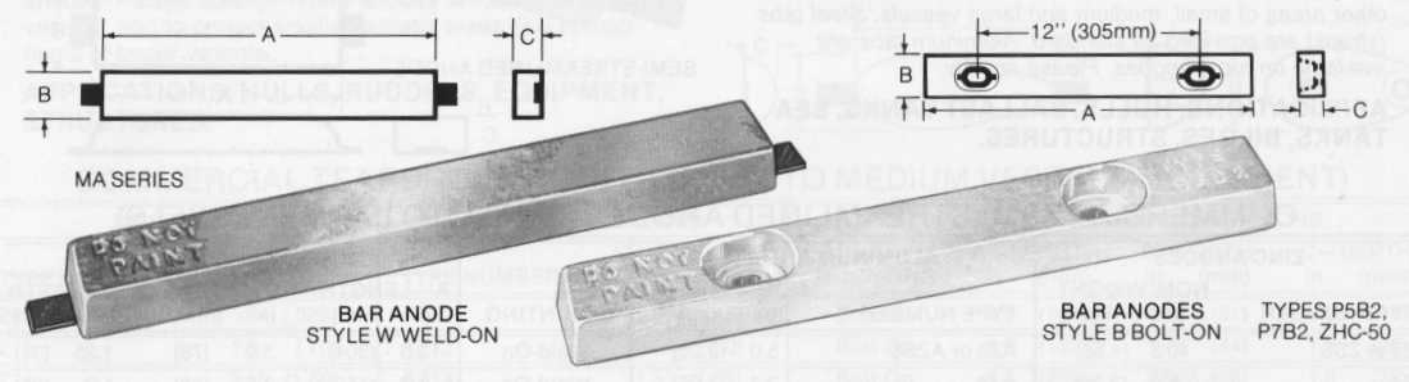
TYPE NUMBER	NOM. WEIGHT lbs.
1/2x6x12	8.2
1/2x6x12	3.25

' MARTYR II ALLOY

COMMERCIAL HULL ANODES

These bar and plate anodes are used to protect the hull and other large areas of medium and large vessels. Available in "bolt-on" and "weld-on" styles. Both use either aluminum or steel inserts. Weld-on hull anodes have projecting tabs for tack welding directly to the ship's structure. *Steel tabs (straps) are provided as standard. Aluminum tabs are available on most anodes. Please specify.*

APPLICATIONS: HULLS, SEA TANKS, BILGES, BOTTOM PLATES, KEELS, RUDDERS, SHAFT TUNNELS, BALLAST TANKS, CARGO TANKS, STRUCTURES.

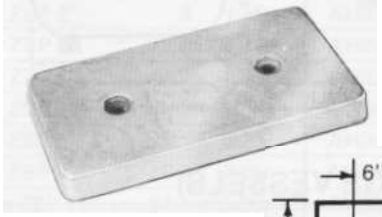


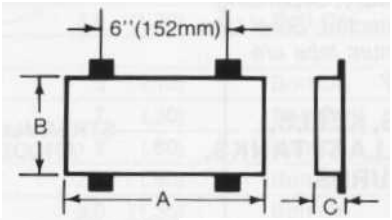
COMMERCIAL HULL ANODES (MEDIUM TO LARGE VESSELS)

	ZINC ANODES		ALUMINUM ANODES				NOMINAL DIMENSIONS					
	NOM. WEIGHT			NOM. WEIGHT			A-LENGTH		B-WIDTH		C-DEPTH	
TYPE NUMBER	lbs	(kg)	TYPE NUMBER	lbs	(kg)	MOUNTING	in	(mm)	in	(mm)	in	(mm)
BAR ANODES												
P5B2	25	(11.4)	AP5B2	11.8	(5.36)	Bolt-On	24.0	(609)	3.0	(76)	1.25	(31)
P7B2, ZHC-50	45	(20.5)	AP7B2, AZHC-50	19.8	(8.9)	Bolt-On	24.0	(609)	4.0	(101)	2.0	(50)
ZMA 2204	36.5	(16.5)	MA 2204	16.0	(7.3)	Weld-On	20.0	(508)	4.0	(101)	2.0	(50)
ZMA 2244, ZHS-50	47	(21)	MA2244, AZHS-50	19.7	(8.75)	' Weld-On	24.0	(609)	4.0	(101)	2.0	(50)
ZMA 3305	86.5	(39.3)	MA 3305	32.1	(14.56)	Weld-On	30.0	(762)	5.0	(127)	3.0	(76)
ZMA 3365	103	(46.8)	MA 3365	38.3	(17.4)	Weld-On	36.0	(914)	5.0	(127)	3.0	(76)
ZMA 4545	264	(120)	MA 4545	98	(44.5)	Weld-On	54.5	(1384)	4.5	(114)	3.75	(95)
PLATE ANODES												
ZHC-2	2.5	(1.1)	AZHC-2	1.1	(0.5)	Bolt-On	5.75	(146)	2.75	(70)	.75	(19)
Z1, ZHC-23	23.0	(10.4)	AZ1, AZHC-23	10.6	(4.82)	Bolt-On	12.0	(304)	6.0	(152)	1.25	(31)
Z2, ZHS-23, ZMA 1126	23.5	(10.6)	AZ2, AZHS-23, MA 1126	11.1	(5.05)	' Weld-On	12.0	(304)	6.0	(152)	1.25	(31)
ZHC-47	45	(20.5)	AZHC-47	18.1	(8.23)	Bolt-On	12.0	(304)	6.0	(152)	2.5	(64)
ZHS-47	45	(20.5)	AZHS-47	18.1	(8.23)	` Weld-On	12.0	(304)	6.0	(152)	2.5	(64)

CUSTOM SIZING AVAILABLE

' DENOTES CROSS STRAP MOUNTING





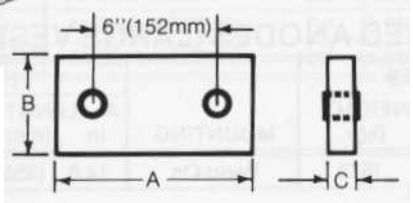


PLATE ANODE
STYLE B BOLT-ON

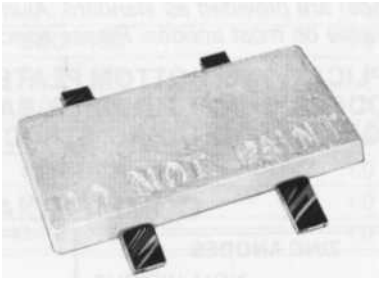
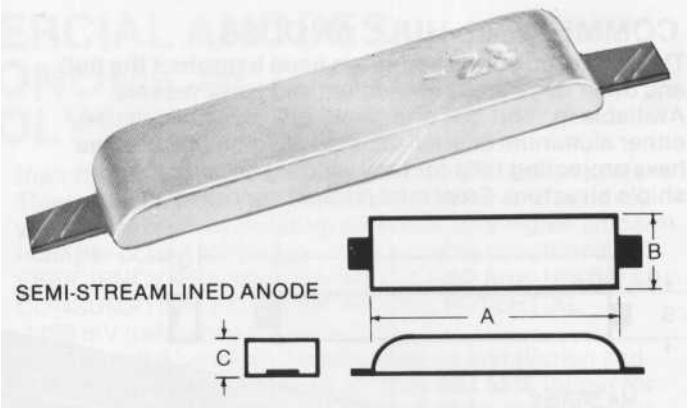


PLATE ANODE
STYLE W WELD-ON

COMMERCIAL SEMI-STREAMLINED ANODES

Semi-Streamlined Anodes are used to protect the hull and other areas of small, medium and large vessels. *Steel tabs (straps) are provided as standard. Aluminum tabs are available on most anodes. Please specify.*

APPLICATIONS: HULLS, BALLAST TANKS, SEA TANKS, BILGES, STRUCTURES.



COMMERCIAL SEMI-STREAMLINED ANODES (SMALL TO LARGE VESSELS)

ZINC ANODES			ALUMINUM ANODES				NOMINAL DIMENSIONS					
	NOM. WEIGHT			NOM. WEIGHT			A-LENGTH		B-WIDTH		C-DEPTH	
TYPE NUMBER	lbs	(kg)	TYPE NUMBER	lbs	(kg)	MOUNTING	in	(mm)	in	(mm)	in	(mm)
Z3 or ZSS	10.3	(4.68)	AZ3 or AZSS	5.0	(2.25)	Weld-On	12.0	(304)	3.0	(76)	1.25	(31)
Z4	5.0	(2.25)	AZ4	2.1	(.95)	Weld-On	6.0	(152)	3.5	(88)	1.0	(25)
Z6	3.0	(1.35)	AZ6	1.3	(.60)	Weld-On	5.0	(127)	2.5	(63)	1.0	(25)
Z19	22.2	(10.0)	AZ19	10.0	(4.55)	Weld-On	25.0	(635)	3.125	(79)	1.25	(31)
ZC-5	5.0	(2.25)	AZC-5	1.8	(.82)	Weld-On	9.0	(228)	2.25	(57)	1.25	(31)
ZC-7	7.0	(3.15)	AZC-7	3.0	(1.35)	Weld-On	9.0	(228)	2.25	(57)	1.625	(41)
"Z3B	10.3	(4.68)	AZ313	5.0	(2.25)	Bolt-On	12.0	(304)	3.0	(76)	1.25	(31)
* Z15B	15.1	(6.85)	AZ15B	6.1	(2.76)	Bolt-On	18.0	(457)	3.0	(76)	1.5	(38)
	5.0	(2.27)	AHT1	2.3	(1.04)	Combination	6.0	(152)	3.0	(76)	1.5	(38)
Z26	26.0	(11.79)	AZ26	10.8	(4.90)	Weld-On	13.5	(343)	4.5	(114)	2.25	(57)

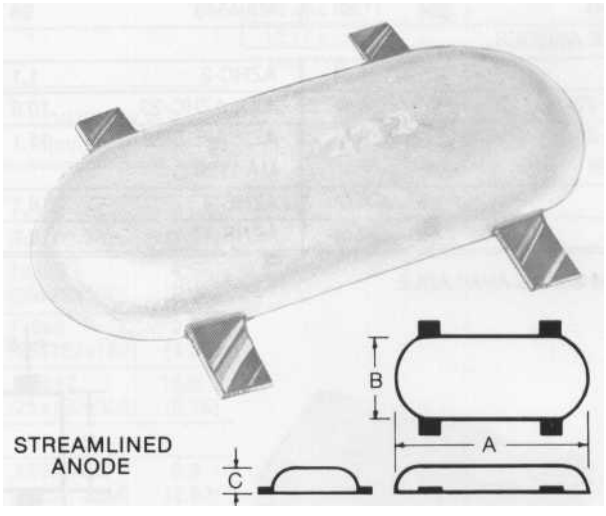
Z3B, HT1 Centre / Centre Bolt = 7.875 in. (200mm)

* Z15B Centre / Centre Bolt = 8,850 in. (225mm)

COMMERCIAL STREAMLINED ANODES

Streamlined Anodes are used to protect the hull and other areas of large vessels. These anodes are designed to be mounted in either linear arrays or individually, depending upon the requirement and area to be protected. *Steel tabs (straps) are provided as standard. Aluminum tabs are available on most anodes. Please specify.*

APPLICATIONS: BOTTOM PLATES, KEELS, RUDDERS, SHAFT TUNNELS, BALLAST TANKS, BILGES, CARGO TANKS, STRUCTURES.



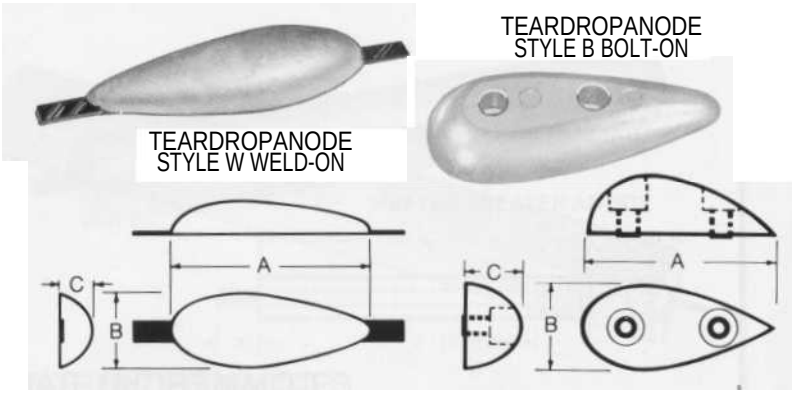
COMMERCIAL STREAMLINED ANODES (LARGE VESSELS)

ZINC ANODES			ALUMINUM ANODES				NOMINAL DIMENSIONS					
	NOM. WEIGHT			NOM. WEIGHT			A-LENGTH		B-WIDTH		C-DEPTH	
TYPE NUMBER	lbs	(kg)	TYPE NUMBER	lbs	(kg)	MOUNTING	in	(mm)	in	(mm)	in	(mm)
Z22	23.5	(10.65)	AZ22	11.0	(5.0)	Weld-On	14.0	(355)	6.5	(165)	1.5	(38)

COMMERCIAL TEARD NODES

Teardrop Anodes are available in "bolt-on" and weld-on" styles. *Steel tabs (straps) are provided as standard for weld-on anodes. Aluminum tabs are available on most anodes. Please specify.* These anodes are used for small vessels, and to protect smaller surface areas and components of larger vessels.

APPLICATIONS: HULLS, RUDDERS, EQUIPMENT, STRUCTURES.



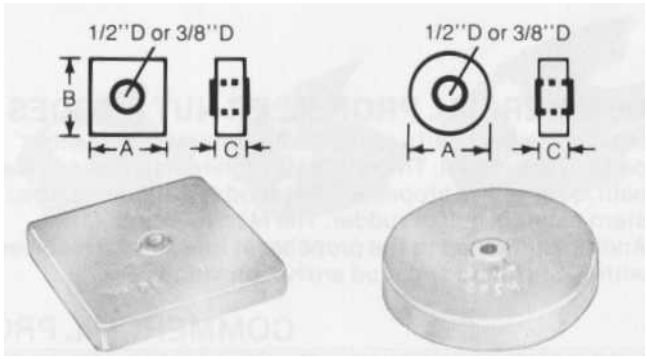
COMMERCIAL TEARDROP ANODES (SMALL TO MEDIUM VESSELS, EQUIPMENT)

ZINC ANODES			ALUMINUM ANODES			NOMINAL DIMENSIONS					
	NOM. WEIGHT			NOM. WEIGHT			A-LENGTH		B-WIDTH		C-DEPTH	
TYPE NUMBER	lbs	(kg)	TYPE NUMBER	lbs	(kg)	MOUNTING	in	(mm)	in	(mm)	in	(mm)
Z12	.64	(.029)	AZ12	.3	(.15)	Bolt-On	4.0	(101)	1.25	(31)	.75	(19)
Z13	1.5	(.70)	AZ13	.65	(.30)	Bolt-On	6.0	(152)	1.75	(44)	1.0	(25)
Z14	3.65	(1.66)	AZ14	1.5	(.68)	Bolt-On	8.0	(203)	2.625	(66)	1.5	(38)
ZTS	5.0	(2.25)	AZTS	2.1	(.95)	Weld-On	9.0	(228)	3.0	(76)	1.375	(34)

COMMERCIAL HEAT EXCHANGER ANODE!

These Anodes are used on vessels of all sizes for protection of heat exchangers and other areas where space is a limiting factor. Style A Anodes are square, while Style B Anodes are cast in a circular configuration. Both have steel inserts cast integrally. SPECIFY HOLE SIZE: 1/2" or 3/8".

APPLICATIONS: HEAT EXCHANGERS, EVAPORATORS, CONDENSERS, SEA CHESTS, WATER CIRCULATING SYSTEMS, PROCESS EQUIPMENT, SMALL HULLS, STRUCTURES.

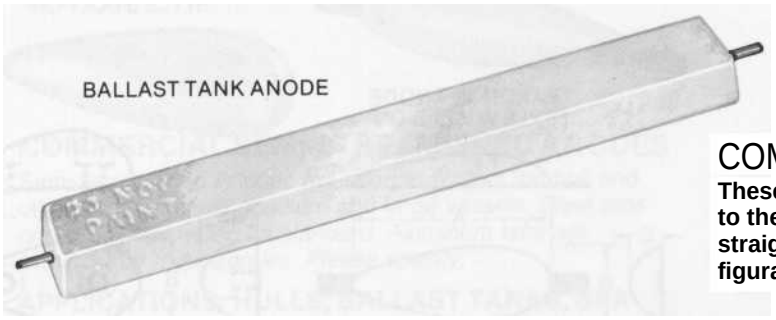


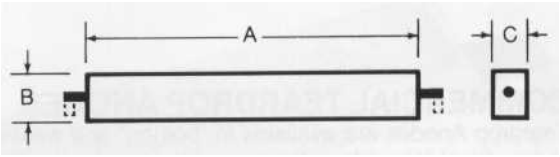
HEAT EXCHANGER ANODE STYLE A, SQUARE

HEAT EXCHANGER ANODE STYLE B, CIRCULAR

COMMERCIAL HEAT EXCHANGER ANODES (SMALL TO LARGE VESSELS)

ZINC ANODES			ALUMINUM ANODES			NOMINAL DIMENSIONS					
	NOM. WEIGHT			NOM. WEIGHT			A-LENGTH		B-WIDTH		C-DEPTH	
TYPE NUMBER	lbs	(kg)	TYPE NUMBER	lbs	(kg)	MOUNTING	in	(mm)	in	(mm)	in	(mm)
STYLE A - SQUARE												
H1 B6 or ZEP	9.0	(4.10)	AH1 B6, AZEP	3.8	(1.70)	Bolt-On	6.0	(152)	6.0	(152)	1.0	(25)
STYLE B - CIRCULAR												
H2B2 or ZEP 2"	.8	(.35)	AH2B2, AZEP 2"	.3	(.15)	Bolt-On	2.01)	(50)	---	---		
H2B3 or ZEP 3"	2.1	(.95)	AH2B3, AZEP 3"	.7	(.30)	Bolt-On	3.01)	(76)	---	---	1.0	(25)
H2B4 or ZEP 4"	3.2	(1.45)	AH2B4, AZEP 4"	1.3	(.60)	Bolt-On	4.01)	(101)	---	---	1.0	(25)
H2B5 or ZEP 5"	5.6	(2.55)	AH2B5, AZEP 5"	2.0	(.90)	Bolt-On	5.01)	(127)	---	---	1.0	(25)
H2B6 or ZEP 6"	7.1	(3.20)	AH2B6, AZEP 6"	3.0	(1.35)	Bolt-On	6.OD	(152)	---	---	1.0	(25)
H2B9 or ZEP 9"	16.	(7.25)	AH2B9, AZEP 9"	6.7	(3.05)	Bolt-On	9.01)	(229)	---	---	1.0	(25)
H2B11 or ZEP 11"	24.0	(10.90)	AH2B11, AZEP 11"	10.1	(4.60)	Bolt-On	11.OD	(279)	---	---	1.0	(25)





COMMERCIAL BALLAST TANK ANODES

These Ballast Tank Anodes are available in any length up to the maximum shown in the table. Supplied with straight or bent rod extensions. Other rod sizes and configurations may be specified by purchaser.

COMMERCIAL BALLAST TANK ANODES

ZINC ANODES			ALUMINUM ANODES				NOMINAL DIMENSIONS					
	NOM. WEIGHT			NOM. WEIGHT			A-LENGTH		B-WIDTH		C-DEPTH	
TYPE NUMBER	lbs	(kg)	TYPE NUMBER	lbs	(kg)	MOUNTING	in	(mm)	in	(mm)	in	(mm)
ZMA 2601	55.0'	(25.0)	MA 2602	25.0'	(11.5)	Weld-On	60.0'	(1524)	2.0	(50)	2.0	(50)
ZMA 3602	85.0'	(38.5)	MA 3602	35.0'	(16.0)	Weld-On	60.0'	(1524)	2.5	(64)	3.0	(76)
ZMA 31003	280.0'	(127.0)	MA 31003	115.0'	(52.0)	Weld-On	100.0'	(2540)	3.5	(89)	3.25	(83)
ZMA 41004	335.0'	(152.0)	MA 41004	140.0'	(63.5)	Weld-On		(2540)	4.0	(102)	3.75	(95)

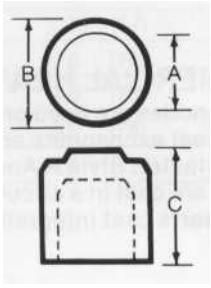
'AVAILABLE IN ANY LENGTH & WEIGHT UP TO THE MAXIMUM SIZE SHOWN.

1. MA 2602 & MA 3602 use 0.5" rod, MA 31003 uses 0.75" rod.
Other rod sizes and configurations may be specified by purchaser.

COMMERCIAL PROPELLER NUT ANODES

Most propeller shafts are partially insulated from other parts of the vessel. The relatively high-resistant electrical path isolates the propeller from anodes attached to the stern bearing, hull or rudder. The Martyr Propeller Nut Anode is attached to the propeller at its axis and revolves with it. Stud hole and stud are not provided.

PROPELLER NUT ANODE

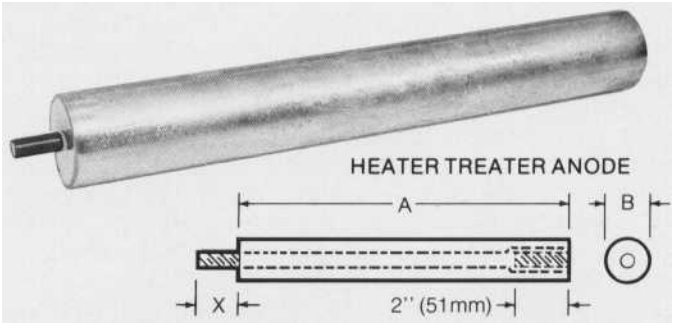


COMMERCIAL PROPELLER NUT ANODES

ZINC ANODES			ALUMINUM ANODES			NOMINAL DIMENSIONS					
	NOM. WEIGHT			NOM. WEIGHT		A-DIA(ID)		B-DIA(OD)		C-DEPTH	
TYPE NUMBER	lbs	(kg)	TYPE NUMBER	lbs	(kg)	in	(mm)	in	(mm)	in	(mm)
A	2.0	(.90)	AA	.8	(.35)	2.0	(50)	2.75	(69)	2.875	(73)
B	2.5	(1.15)	AB	1.1	(.50)	2.25	(57)	3.0	(76)	3.0	(76)
1	4.0	(1.80)	A1	1.7	(.75)	2.5	(63)	3.375	(85)	3.625	(92)
2	4.9	(2.23)	A2	2.3	(1.05)	2.875	(73)	3.75	(95)	4.0	(101)
3	6.0	(2.70)	A3	2.5	(1.15)	3.25	(82)	4.125	(104)	4.0	(101)
4	7.5	(3.40)	A4	3.2	(1.45)	3.75	(95)	4.625	(117)	4.5	(114)
5	11.0	(5.00)	A5	4.6	(2.10)	4.25	(107)	5.25	(133)	5.0	(127)
6	11.5	(5.20)	A6	4.8	(2.20)	4.625	(117)	5.625	(142)	5.5	(139)
7	13.0	(5.90)	A7	5.5	(2.50)	5.0	(127)	6.0	(152)	6.0	(152)
8	17.4	(7.90)	A8	7.0	(3.20)	5.5	(139)	6.625	(168)	6.375	(161)
9	19.5	(8.85)	A9	8.2	(3.70)	6.0	(152)	7.125	(180)	6.75	(171)
10	25.0	(11.35)	A10	10.5	(4.75)	6.5	(165)	7.75	(196)	7.0	(177)
11	28.0	(12.70)	A11	11.8	(5.35)	7.0	(177)	8.125	(206)	8.125	(206)
12	38.5	(17.50)	A12	15.9	(7.20)	7.5	(190)	8.75	(222)	9.0	(228)

COMMERCIAL HEATER TREATER ANODES

These Heater Treater Anodes are available in both zinc and aluminum. Aluminum is recommended for temperatures above 140°F (60°C), as the characteristics of zinc are degraded at elevated temperatures. Other rod sizes and extended lengths, not shown in the table, may be specified by purchaser.



COMMERCIAL HEATER TREATER ANODES

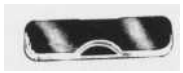
ZINC ANODES			ALUMINUM ANODES				NOMINAL DIMENSIONS		
TYPE NUMBER	NOM. WEIGHT lbs	(kg)	TYPE NUMBER	NOM. WEIGHT lbs	(kg)	MOUNTING	A-LENGTH in (mm)	B-DIAMETER in (mm)	X-DIMEN in
Treater Z321	39.0	(17.7)	Treater 321	16.5	(7.5)	Threaded	21.5 (546)	3.0 (76)	1.0, 1.5
Treater Z330	56.0	(25.4)	Treater 330	23.5	(10.7)	Threaded	30.0 (762)	3.0 (76)	1.0, 1.5

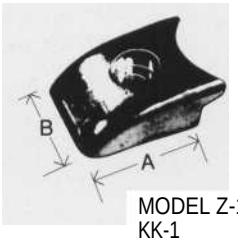
1. Types 321 & 330 use .625" NF rod.
Other rod sizes and extended lengths may be specified by purchaser.

WALTER KEEL COOLER ANODES

Martyr Anodes for Walter Keel Coolers are designed to provide maximum protection to your fresh water cooling system, by protecting the heat exchanger from salt water galvanic corrosion. Available in both zinc and aluminum.

MODEL X-47-3 MODEL X-58


MODEL X-45-3



MODEL Z-1
KK-1

MODEL Z-2
KK-2

MODEL Z-3
KK-3

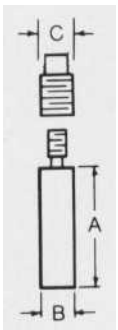
MARINE ENGINE ANODES

Martyr CME Series Marine Anodes consist of a brass plug with anode attached. These anodes meet or exceed the specifications of anodes supplied as original equipment.

ZINC ANODES		NOMINAL DIMENSIONS		
TYPE NUMBER	NOM. WEIGHT lbs	DIMENSION A in	DIMENSION B in	DIMENSION C in
CME SERIES & CATERPILLAR MARINE ENGINES				
CME-00	.044	2-0	1/4	1/8
CME-0.	.10	1-3/4	3/8	1/4
CME-1	172	2-0	1/2	3/8
CME-1 D'	21	1-3/4	112	3/8
CME-1 E'	18	1-1/2	1/2	3/8
CME-1 F`	.15	1-1/4	1/2	3/8
CME-1 G`	.10	1-0	1/2	3/8
CME-1 H"	125	2-0	3/8	3/8
CME-2	30	2-0	5/8	1/2
CME-3	.5	2-0	3/4	3/4
CME-4	.562	3-3/8	3/4	3/4
CME-5	.675	3-5/8	3/4	3/4
C272100-200300"'	. 159			

` SPECIAL SIZE - RECOMMEND CME-1 "' SAN JUAN HEAT EXCHANGER "' YANMAR ONLY

C272100-200300



EFFECTS AND PREVENTION OF GALVANIC CORROSION

Galvanic corrosion causes metal parts to decompose. This destructive process is caused by electrolysis, an electrical current set up between the metal parts of the ship, with salt water as the electrolyte. Corrosion is greater where dissimilar metals are used, for example, a steel hull and a bronze propeller. The results are unattractive, affect operating performance, and cause excessive maintenance of hull, propellers, engine, accessories and fittings.

The technique of providing cathodic protection for ships, piers and other structures is a refined science. This electro-chemical process involves preferential galvanic action through use of Martyr and Martyr II sacrificial anodes to avoid corrosion of other metals. The process supplies enough electrons from the sacrificial anodes to the atoms of the submerged surfaces of other metals to stop them from losing sufficient electrons, losing bond, and going into solution in the salt water electrolytic as ions.

Metals are rated according to their voltage potential beginning with the Anodic, least noble, through the Cathodic, or most noble. Electrical current flows from the more active metal, the "positive anode", to the less active metal, the "negative cathode". The closer metals are to each other in this series, the lower the tendency to produce galvanic corrosion from one to the other.

Martyr anodes are highly active and provide long-term galvanic performance characteristics, even consumption, and longer active life. Cathodic protection is achieved by electrically and physically attaching zinc anodes to the metal surfaces. The number, size and style of anodes required will depend on the specific application. Anodes are low-cost replacement parts and should be inspected and replaced as required during regular maintenance.

PERFORMANCE - MARTYR & MARTYR II ANODES

SPECIFICATIONS	MARTYR ZINC ANODES	MARTYR II ALUMINUM ANODES
CAPACITY, ampere-hours per pound	355	1250
EFFICIENCY (test)	95%	92.4%
CONSUMPTION, pound per ampere-year	24.5 lbs	7.6 lbs
POTENTIAL (reference $Cu/CuSO_4$)	-1100 mV	-1150 mV

All figures are nominal.

COMPOSITION - MARTYR & MARTYR II ANODES

Composition	U.S. Military Specification* MIL-A-18001	MARTYR ZINC ANODES	MARTYR II ALUMINUM ANODES
CADMIUM	0.025%-0.150%	0.025%-0.150%	-----
COPPER	0.005% MAX.	-----	0.002% MAX.
IRON	0.005% MAX.	0.005% MAX.	0.080% MAX.
INDIUM	-----	-----	0.020%-0.040%
LEAD	0.006% MAX.	0.006% MAX.	-----
MERCURY	-----	-----	-----
SILICON	0.125% MAX.	-----	0.050% MAX.
ALUMINUM	0.100%-0.500%	0.100%-0.500%	REMAINDER
ZINC**	REMAINDER	REMAINDER	3.000%-6.000%

'Latest revision. "Martyr anodes have a zinc purity 99.995%.

DESIGN YOUR MARINE ANTI-CORROSION SYSTEM AROUND MARTYR ANODES FOR EFFECTIVE, LONG-TERM PROTECTION.

The efficiency of each cathodic protection system is predicated on a careful evaluation of the total protection requirement. Consult your local distributor for complete information.

Martyr
It Gives...So Your Boat Lives.

THE CANADA METAL COMPANY LIMITED