CORROSION TECHNOLOGY SERVICES

SACRIFICIAL ALUMINIUM ANODES FOR TANK APPLICATIONS

Application

Sacrificial anodes have been used to combat corrosion of metals in sea water for over 150 years. During this time, the name of Wilson Walton has become one of the best known in the marine industry.

Wilson Walton anodes are available in zinc or aluminium alloys for the protection of ships hulls, ballast tanks and other structures. If required, Wilson Walton engineering staff are available to calculate anode requirements for all types of structure.

Availability

Wilson Walton have developed a number of aluminium and zinc sacrificial anode alloys for marine use. Aloline is a range of indium activated aluminium-sinc alloys. Zincoline is the trademark for zinc alloy anodes conforming to US Mil Specifications. Other alloy formulations or modifications are available to the standard alloys to suit specific marine conditions.

Aloline 778

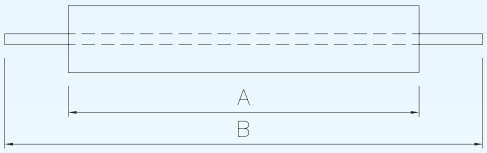
Originally developed in conjunction with British Aluminium to replace magnesium containing alloys for protection of crude carrier cargo/ballast tanks. Aloline 778 alloy is suitable for offshore applications and even operates at low anode current densities and elevated temperatures or if the alloy is buried in saline mud, although electrochemical capacity will reduce under these conditions. Aloline 778 is recommended for use on ships hulls and ballast tanks, buried pipelines, coated subsea structures, semi-submersible hulls, offshore jackets and general piled structures.

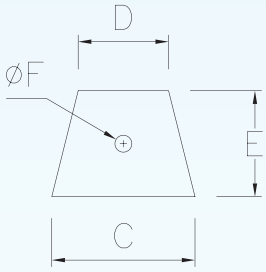
Aluminium alloy anodes should not be positioned in tanks carrying crude oil or other inflammable products. Certain classification societies have restrictions on the height at which these anodes can be installed due to the potential for sparking should an anode fall onto a rusted steel surface. Lloyds Register of Shipping, for example, rules that the potential energy of an aluminium alloy anode should not exceed 275kJ (28kg/m). Under these conditions, Zincoline anodes can be substituted.

ALUMINIUM TANK ANODES

Type	A (mm)	B (mm)	C & D (mm)	E (mm)	Core Dia. (F) (mm)	Net Weight (kg)	Gross Weight (kg)
W191	1524	1984	75 & 85	95	12	30.9	32.7
W192	1260	1720	75 & 85	85	12	25.4	26.9
W193	1005	1465	75 & 85	85	12	20.2	21.8
W194	750	1210	75 & 85	95	12	15.0	16.1
W195	600	1060	75 & 85	95	12	12.2	13.3
W156	305	765	50 & 75	76	12	3.3	3.8

* All weights in Kilograms. All dimensions in millimetres. All weight and dimensions are nominal.





Alloy specifications	Aloline 778
Aluminium	Balance
Zinc	3.5-5.0%
Copper	0.0006% max
Silicon	0.02% max
Iron	0.12% max
Titanium	0.02-0.05%
Bismuth	0.05-0.15%
Indium	0.02-0.05%
Lead	-
Cadmium	-
Nominal Open Circuit Potential wrt Ag/AgCl/seawater electrode	-1100 mV
Output Capacity	2700 Ah/kg max
Density (kg/m^3)	2710

Quality Assurance

Samples from each melt are analysed using Spectro Analysis equipment and Electrochemical capacity and potential are checked as routine on 15 tonne batched using DnV specifications. Tests to other specifications can be carried out upon request.
Random samples are subjected to dimensional/weight checks.

Disclaimer

The information provided in this document was accurate at the time it was published, however, we reserve the right to revise this document without prior warning.