



Marine Growth Anti-Fouling Systems

Cuprion™

SHIPS & MARINE VESSELS

REVISION 1

Bio-Fouling of seawater intakes on Ships & Marine Vessels can be a major problem, causing expensive equipment damage and pipework blockages, leading to shut down of vital seawater supplies.



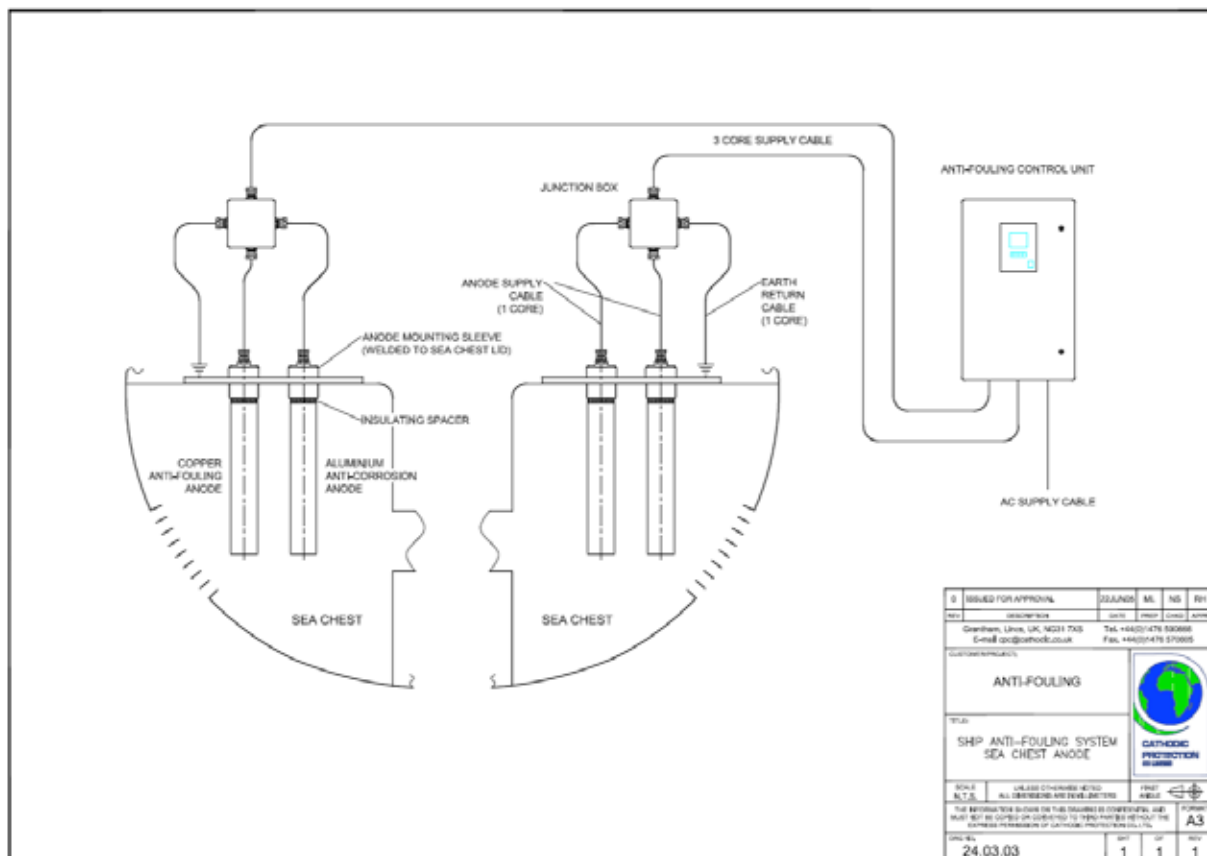
In the case of FW and FI FI systems Crew Safety and Activity Reliability must be considered. In addition, repairs to damaged pumps, valves and pipe work are both costly and time consuming.

Chief Engineers would consider any remedial actions involving pipe section removal, repair, cleaning and re-installation as major refurbishment work on any operating marine craft or vessel.

Cuprion™ - THE SOLUTION

Cathodic Protection Co. Limited has developed a range Cuprion™ anti-fouling systems to protect submerged pumps, seawater intakes and associated pipework against marine growth. Originally the Cuprion™ system was developed and utilised for application on Platforms in North Sea during the Early 1970's.

Developing the system for use on Ships and Marine Vessels involved changes to hardware and installation methods, Design requirements remained unchanged as Cuprion™ operates on proven electrolytic principles,





Marine Growth Anti-Fouling Systems

Cuprion™

FIREWATER PUMP FOULING PREVENTION

REVISION 1

Marine Growth Prevention is achieved by employing a small dc current flow (generally less than 0.5 Kw). This current flow energises copper and aluminium anodes to produce a fully effective, anti-foulant dosing solution. Selected dosing levels vary slightly to suit location and application, however maximum dosing limits utilised for design purposes are 25 µg/litre and 4 µg/litre for copper and aluminium respectively.

Copper is a natural biocide / algaecide and provides complete protection from marine growth with no adverse environmental impact.

Aluminium anodes produce aluminium hydroxide, which combines with the copper ions holding them in solution, keeping pipe work blockage free. Aluminium hydroxide also helps to arrest corrosion on internal pipe surfaces.



Where space or weight restrictions are design considerations, CPCL have developed systems that can be mounted above or below deck. These systems utilise an electrolysis tank or Dosing Spool.

The Cuprion™ anodes are simply mounted in the electrolysis tank or Candu™ dosing spool and energised to produce anti-foulant solution, which is delivered via suitably rated pipes or hoses. Several seawater intake systems can be Marine Growth Protected from a single source,



Electrolysis tanks are generally mounted on a steel plinth along with the dc power unit, making the complete system integral, ideal for maintenance operations.

The Candu™ dosing unit can be mounted vertically or horizontally in any accessible, convenient location.

Electrodes take around 30 minutes to replace whilst at sea or in a dry dock, on these easy to maintain and flexible Anti-Fouling systems.

Cuprion™ - IN THE MARINE INDUSTRY

Cuprion™ systems have been installed on all types of Ships & Marine Vessels indicative list below.

Vessel Details	Country	Client	Details
FPSO Support Vessels	UAE	Lamnalco	Engine Cooling and Fire Fighting Systems.
Curlew AHTS	UAE	Lamnalco	Engine Cooling and Fire Fighting Systems.
60 Metre AHTS	Thailand	Mermaid Maritime	Central Cooling System
40 Metre Ferry Boat	Croatia	Divcom d.o.o	Electrodes mounted in Fwd & Aft Sea Chests.