CONTROL OF MARINE GROWTH AND CORROSION IN SHIPS AND INDUSTRIAL SEA WATER SYSTEMS

www.marelco.ca
CONTROL OF MARINE GROWTH AND CORROSION IN SHIPS AND INDUSTRIAL SEA WATER SYSTEMS

Seawater systems are susceptible to fouling by marine organisms (mussels, barnacles, etc.) If left unprotected, internal components may be damaged and operating costs will increase because more energy is required to pump the water. Ideal biofouling and corrosion control technologies must be capable of controlling primary fouling organism, have low solubility, reduce pitting, be compatible with existing equipment, and present no environmental hazards. MARELCO meets these requirements!

![Main suction valve without MARLECO protection](image1)

![Main suction valve of sister ship after 9 months with MARLECO protection](image2)

Principle of Operation

MARELCO Impressed Current Protection Technology uses specially alloyed aluminum and copper anodes to create an environment that is hostile to marine organisms and at the same time creates a protective barrier against corrosion.

A constant direct current is supplied through a control panel to the anodes that are immersed in the seawater system. The resulting electrochemical reaction at the aluminum anode produces aluminum hydroxide floc (a gelatinous substance) that settles onto all the surfaces inside the seawater system. A similar reaction at the other anode produces copper ions that become entrapped in the floc. The result is a very thin aluminum hydroxide film that protects the underlying metal against corrosion AND a highly effective bio-fouling solution provided by the high concentration of copper ions present in the floc.

Control Panel

The MARELCO constant current control panel is standard in all applications. One “meter” card controls all the “anode” cards. Each anode card drives a single aluminum or copper anode. The control panel is a high quality steel dust/splash proof cabinet that incorporates all solid state circuitry with heavy duty components. An internal transformer/rectifier converts AC power to low DC voltage. Any current voltage and frequency can be accommodated.

Anodes

- All of our Anodes are constructed of extremely high grade extruded materials.
- Anodes can be formed to various diameters and lengths allowing flexibility in positioning and arrangement of anode location.
- Our anodes are fabricated in house at our facility and engineered for the maximum possible life between replacements.
Typical Installations: Ships of all types • Super Yachts • Oil and Gas Platforms • Power Plants • Industrial Facilities

Custom Designed and Built: EMCS builds products to fit virtually any new or existing installation. We will engineer a solution specifically for you.

Sea Chest system: Installations that have a 'Sea Chest' or similar holding tank are suited to large ships.

Treatment Tank system

- Smaller sea chests or intake pipe applications
- No dry docking required to change anodes
Protection System for Intake Pipes and Submersible Pumps

ANODE CAGE

- Screen filters water so that only smaller particles can enter
- Cage protects anodes from exposed sea
- Impressed Anodes protect intake pipes and pumps from Bio-fouling and Corrosion

Experience and Reliability

MARELCO has been protecting seawater systems for over 50 years!

By working closely with our customers in the field we have developed and refined a product line that is second to none for reliability and durability. Our heavy duty systems are designed to provide maintenance-free service year after year in harsh marine environments.

MARELCO is certified by: Lloyds ◆ American Bureau of Shipping ◆ U.S. Coast Guard ◆ Transport Canada

MARELCO Benefits:

- environmentally safe
- reduces energy consumption
- maintains plant and equipment at high efficiency
- reduces cleaning costs of pumps, pipes, valves, sea chests, gratings, heat exchangers, etc.
- improved heat transfer in heat exchangers
- increases life span of plant and equipment
- provides continuous maintenance free protection for years
- meets all environmental protection standards
- lower capital and operating costs than any competing technology

A Short History

This revolutionary seawater system protection technology was invented by the Canadian, Frank Chappel, in the early 1950s. EMCS Industries was established by Mr. Chappel and the Ramsay Group to commercialize the invention.

The patented product was manufactured by EMCS and marketed worldwide for several decades under the trade name ‘Cathelco’. Since 1983, EMCS has marketed the system both globally and in North America under the trade name ‘MARELCO’. EMCS Industries Ltd. still owns the trademark name ‘Cathelco’ in North America.