



 EMCS INDUSTRIES LTD.
Marelco Product Catalogue



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ABOUT US

EMCS Industries, a beacon of innovation in the maritime sector for decades, excels in addressing the complex challenges of marine environments. Our groundbreaking development of the first Electrolytic Marine Growth Protection System (MGPS) demonstrates our unparalleled antifouling and corrosion protection expertise. We are committed to technological advancement and offer bespoke, productive solutions for managing biofouling and preventing corrosion.

Our deep-rooted manufacturing insights and comprehensive understanding of maritime needs enable us to deliver informed, forward-thinking advice and solutions. We are acutely aware of the operational, financial and environmental hurdles of biofouling and corrosion across various maritime domains—from shipping and leisure craft to service vessels and offshore operations.

At EMCS Industries, we pride ourselves on being more than manufacturers; we are proactive partners dedicated to guiding our clients through the intricacies of biofouling and corrosion.



ABOUT US

To reinforce this partnership, we make this **PROMISE** to you:

Lifetime warranty on parts, ensuring peace of mind and reliability over the long term. Adherence to industry-leading standards in manufacturing, product quality and service excellence.

A proactive partnership committed to delivering products on time, meeting project deadlines and guaranteeing successful outcomes between scheduled drydocks. Execution of all work by EMCS-certified technicians, ensuring the highest levels of expertise and quality.

Responsive technical support and access to experienced service technicians backed by a worldwide network, ready to meet your needs wherever you are.

A commitment to continued innovation to develop sustainable antifouling solutions aligning with our environmental stewardship goals.

Our comprehensive antifouling strategies and anticorrosion solutions facilitate compliance with IMO regulations, minimize vessel maintenance and support our clients in achieving their sustainability ambitions, underlining our dedication to crafting tailor-made solutions for your vessel or fleet.

Let EMCS Industries be your trusted ally in safeguarding maritime operations against biofouling and corrosion. Together, we'll ensure operational efficiency, regulatory compliance and a commitment to environmental responsibility.

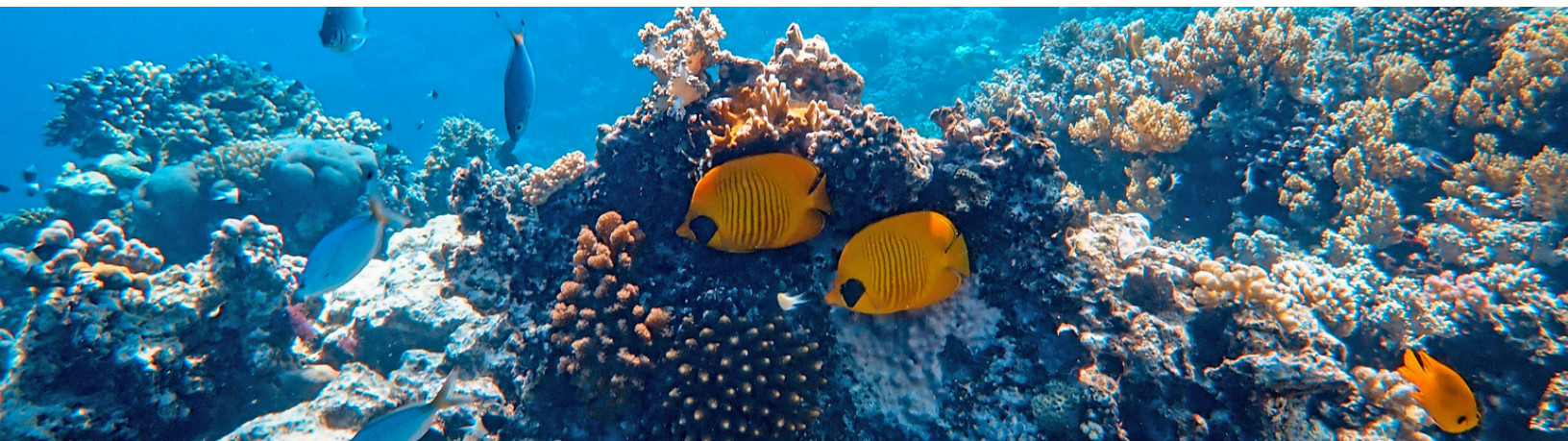
ABOUT US

MISSION STATEMENT

We are committed to Goal 14 (Life Below Water) of sustainable development by The United Nations Department of Economic and Social Affairs. We continue to invest in research and development to support our mandate to be accountable and respectful and look after the world's vulnerable ocean ecosystems while contributing to the Blue Economy.

VISION STATEMENT

We are innovators in antifouling and corrosion protection and will continue to pioneer solutions that reduce costs, improve performance and protect the marine environment. In addition, we will collaborate with like-minded businesses, create employment opportunities and contribute to the economy while preserving the oceans' resources.



MARELCO™ Difference

MARELCO™ antifouling and anticorrosion systems directly contribute to the longevity of a vessel's life and **REDUCE** the amount of scheduled, preventative and corrective maintenance required, as well as aid in limiting the transfer of Invasive Aquatic Species. Our customers understand that efficient planning and proper use of the equipment are the key to maintaining a ship.

USING MARELCO™ PARTS AND/OR SYSTEMS CONTRIBUTES TO:

- maintaining a vessel's value - protects, restores and enhances the life of a vessel
- maintaining and improving a vessel's productivity
- minimizing expenses for either replacement or repair
- protecting critical components - engines, fire suppression and scrubbers from failure
- reducing the vessel's weight in the water, resulting in less drag and reduced stress on engines, leading to a decrease in emissions
- clearing of sea chests, crossovers and strainers to ensure adequate sea water is always available and ensures the smooth running of a vessel

After installation, the MARELCO™ Liberator may be maintained **WITHOUT** a drydock or diver intervention.

Investing in preventative maintenance and/or fleet standardization is far less costly than reactive corrective maintenance and allows for simplified routine replacements.

Our intention is to remain a part of your proactive approach to vessel maintenance avoiding probable damages and adopting necessary reporting and practices to extend the vessel's life or even the frequency of a drydock.

ANODE TYPES

COPPER ANODE



Standard sizes include 3.5", 4" and 5" diameter with lengths from 12" to 36". We can also accommodate any custom size requirements. Proudly manufactured at our facility in Sidney, British Columbia, Canada and then crated carefully in our custom-made-to-size crates to be shipped worldwide.

ALUMINUM ANODE



Aluminum anodes assist in both the antifouling and anticorrosion of a vessel. The aluminum anode produces aluminum hydroxides to protect steel pipework while also making a cupro-aluminum film that acts as a floc for the copper anodes and an anticorrosive layer on pipes' internal surfaces.

DUAL-PURPOSE ANODE - SPIRAX/SUPERPLENTY



The dual-purpose, single assembly design provides an effective solution when there is a requirement for an antifouling and anticorrosion solution, but only space to fit one multipurpose anode in a strainer, or where piping is made of PVC or CPVC and other situations where a natural cathode is not available.

IRON (FERROUS) ANODE



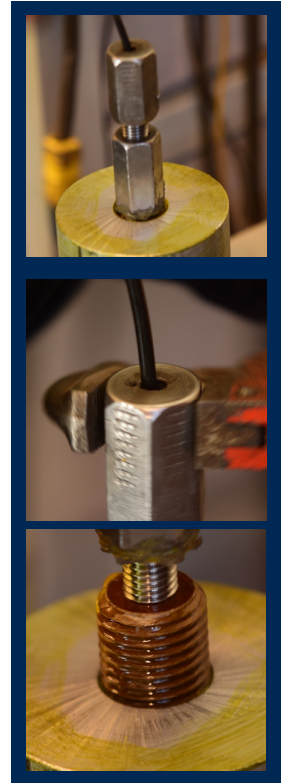
Used to protect cupro-nickel pipework, commonly found on naval vessels. The 'soft iron' anode helps to maintain a protective oxide layer on pipes' internal surfaces to suppress corrosion by producing ferrous ions. This anode has our safety cap flange attached.

SAFETY CAPS + STUDS

With the MARELCO™ anode, the wire exits on the side of the safety cap rather than the top, preventing the wire from being stepped on and damaged from exposure to the elements on board the ship.

Our Lloyds registered hanging assembly ensures the anode connection is fully protected, easily accessed and prevents electrical shorts.

In addition, we insulate our studs from the anode, therefore eliminating 'hot studs' and increasing worker safety and the anode's life.



MARELCO™ TAPE

Our innovative tape is attached directly to the anode with a water-resistant adhesive, ensuring that no seawater ingress occurs. The issue of anodes snapping off during operation is thus also eliminated.

MARELCO™ uses this type of tape rather than heat shrink rubber that is the industry norm. We have found that over time heat shrink rubber erodes, allowing seawater to creep under the rubber. This eventually erodes the anode to a point where it can snap off long before its life cycle expires.





As the inventors of the Marine Growth Protection System (MGPS), we are honoured to have established the benchmark in marine growth protection and biofouling management. Not only did we set the standard, but our innovation gave rise to many similar products influenced by our original design.

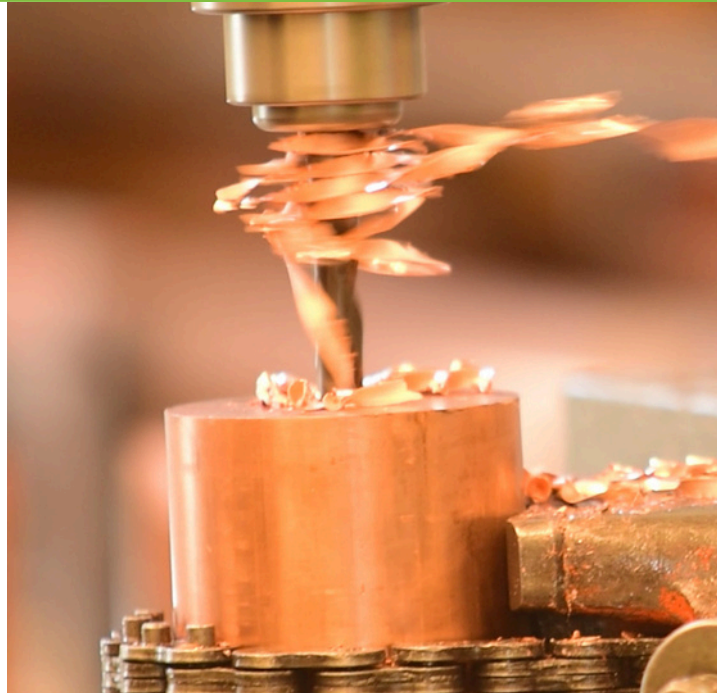
The MARELCO™ Guardian uses impressed current anodes and a control panel to create an electrolytic marine growth and corrosion protection system. Copper marine growth (MG) and aluminum trap corrosion (TC) anodes are located in the seawater system or the pipes.

A control panel sets the anode amperages for the desired dosage and time. Depending on the piping system's composition, an iron anode may increase effectiveness. The MARELCO™ Guardian system can be used with all pipe types, including PVC.



APPLICATIONS

- Marine vessels of all sizes and applications
- Sea chests
- Internal Piping Systems
- Niche Areas
- AAQS (Scrubber Systems)
- Fire Suppression
- Crossovers
- Heat Exchangers
- Box Coolers



BENEFITS

- Marine growth protection of sea chest
- Marine growth protection + corrosion control of internal seawater systems
- Uses copper and aluminum anodes to treat incoming seawater
- Maintains efficiency of the system/vessel
- Increases fuel efficiency of vessel
- Reduces vessel drag + weight
- Reduces carbon emissions due to fuel efficiency
- Reduces the translocation of invasive aquatic species
- Can be retrofitted or specified in design
- Control panel and relay for easy control
- Turnkey solution



MARELCO™ Liberator is a **game-changer** for vessels always in transit (i.e. ferries, tugs and cruise ships) and facing marine fouling problems.

Rather than in the sea chest itself, anodes are installed in the engine room in a fully accessible tank but provide the same protection against fouling and corrosion. The tank pulls seawater from the sea chest using a pump and delivers the treated water back into the sea chest or piping system. The anodes in the tank treat the sea chest water in the internal piping system with copper and aluminum ions, acting like anodes in the sea chest.

The tank is small enough to be located anywhere space is available for easy accessibility maintenance, which means that **NO DRYDOCK** is required for anode replacement. Once the tank has been installed, depleted anodes can be replaced and maintained 24/7, significantly extending drydock intervals. The Liberator is designed for various applications, including the protection of sea chests, scrubber systems, box coolers, piping systems and even land-based applications like desalination plants. It can provide fleet standardization when it comes to anode size. The MARELCO™ Liberator is a turnkey solution, including a control panel, MARELCO™ tank, pump and strainer.



APPLICATIONS

- Marine vessels of all sizes and applications
- HVAC
- Floating Production Storage + Offloading

BENEFITS

- Marine growth protection of sea chest
- Marine growth protection of internal seawater systems
- Maintains efficiency of the system/vessel
- Reduces carbon emissions due to fuel efficiency
- Reduces the translocation of invasive species
- Possibility of extended drydocking
- Can be retrofitted
- Can be specified in the design
- Reduced install time + labour costs



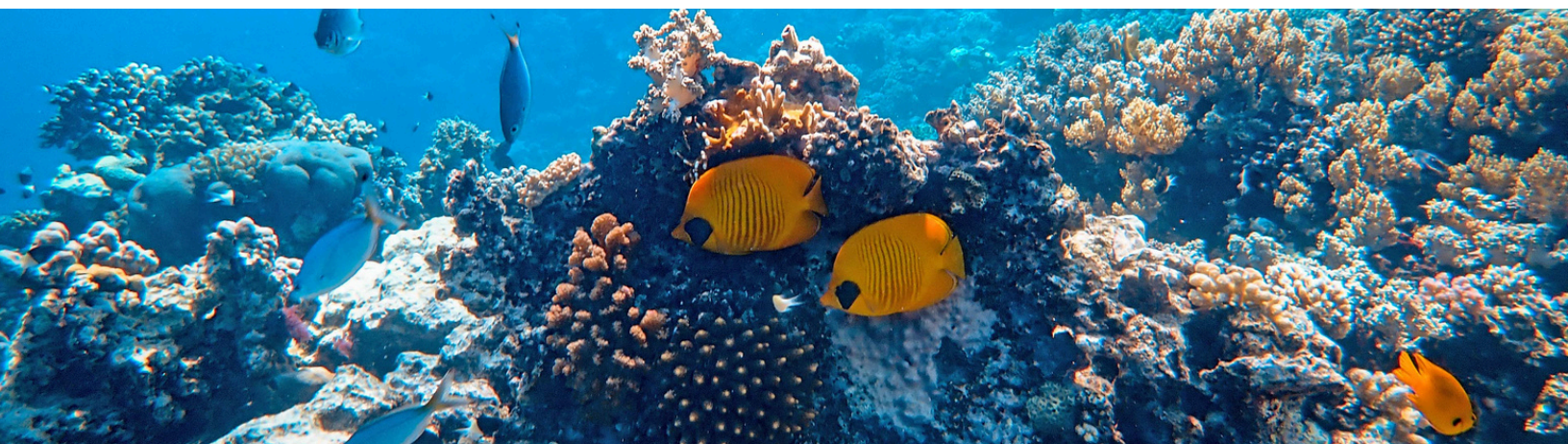


The MARELCO™ Deep is a custom-designed anode cage complete with copper and aluminum anodes. Designed for both new and existing systems and used for various applications.

The innovative cage design protects submersible pumps and intake pipes from blockage due to marine fouling. The system can also be configured to prevent corrosion. The treated water will also partially treat any internal piping system beyond the intake. These are most commonly used on offshore platforms, desalination plants, geothermal heating systems using salt water and hydroelectric plants with salt water intakes.

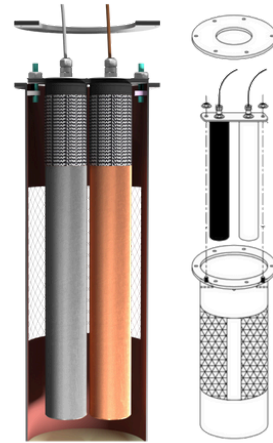
MARELCO™ Deep uses an electrolytic marine growth protection system that includes a control panel to impress DC current through antifouling and anticorrosion anodes in the specially designed anode cage, dissolving copper, aluminum and iron anodes in the seawater system. The anode dissolution prevents the settlement of organisms and the development of biofouling in both pumps and intake pipes and protects against corrosion.

The cage mounts at the pipe's intake using a flange fitting and guards the opening to the intake pipe from biofouling, thus improving pump's efficiency and protecting pipes and pumps from fouling and corrosion.



APPLICATIONS

- Floating Production Storage + Offloading
- Seawater Intake Pipes
- Desalination Plants
- Geothermal Systems
- Industrial Power Plants
- Pipelines
- Offshore Platforms



BENEFITS

- Maintains efficiency of the system
- Maintains optimal seawater circulation
- Multiple applications
- Improves pump efficiency
- Marine growth protection + corrosion control of internal seawater systems
- Uses copper and aluminum anodes to treat incoming seawater
- Lower voltages and currents mean that the risk of causing stray current interference on other structures is low

ICCP HULL PROTECTION Cathelco®

EMCS Industries Ltd is the **Exclusive Distributor** of
Cathelco ICCP Hull Protection in North America

Enhance the corrosion defence of your vessel, regardless of its size or hull material, with our advanced Impressed Current Cathodic Protection (ICCP) System. Specifically designed to integrate seamlessly with protective coatings, this system provides an exceptional safeguard against hull corrosion, promoting your ship's longevity and operational efficiency, from small leisure crafts to large commercial vessels and those with aluminum hulls.

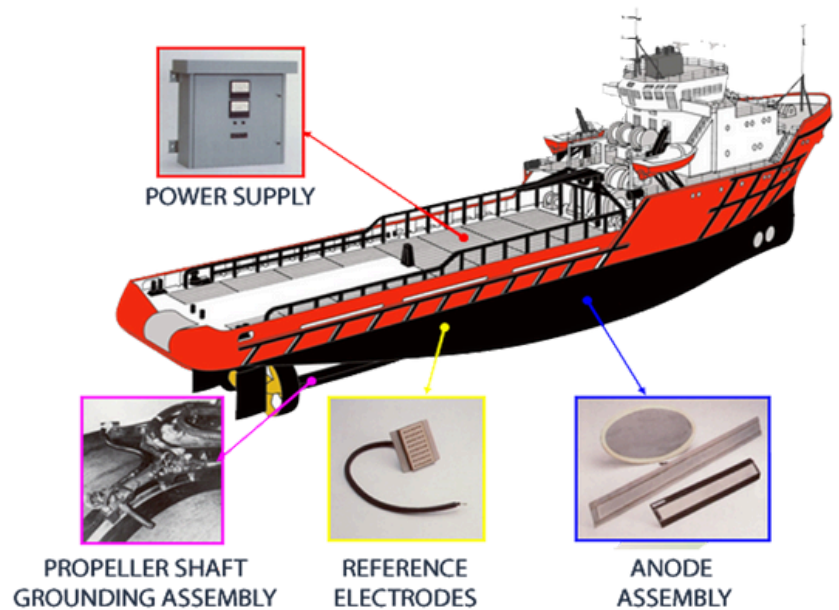
ICCP technology is renowned for evenly distributing impressed current across the ship's hull, adeptly covering complex structures and components, including shaft grounding systems. This strategic approach is instrumental in mitigating spark corrosion in bearings and gearboxes, which is crucial for maintaining the vessel's overall integrity and enhancing performance across various sizes and types.

Setting itself apart from conventional anode-based systems, which often fall short in offering uniform protection, our ICCP system leverages anodes connected to a sophisticated control panel. This arrangement ensures the delivery of precise DC power across the entire hull, guaranteeing comprehensive defence against corrosive forces. Although ICCP primarily focuses on corrosion prevention, it is thoughtfully designed to complement other strategies to address marine growth and biofouling, thus offering a holistic maintenance solution.

The ICCP system is equipped with custom cathodic protection reference electrodes strategically positioned along the hull to facilitate remote adjustments and monitoring of protection levels. This feature ensures optimal performance and is particularly beneficial for vessels of various sizes and those with aluminum hulls, where corrosion risks might differ. The design includes multiple independent zones of anodes, each with a dedicated cathodic reference electrode, allowing for optimized current output tailored to the specific needs of different hull areas.

APPLICATIONS

- Marine vessels of all sizes and applications
- Steel Hulls
- Aluminum Hulls
- Iron Hulls
- Composite Hulls



BENEFITS

- A long-term solution to corrosion problems
- Alternative to sacrificial anode systems, as they do not require frequent replacement
- Increased life of rudders, shafts, struts and propellers, as well as any other underwater parts affected by electrolysis
- Reduce fuel cost and maintenance



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