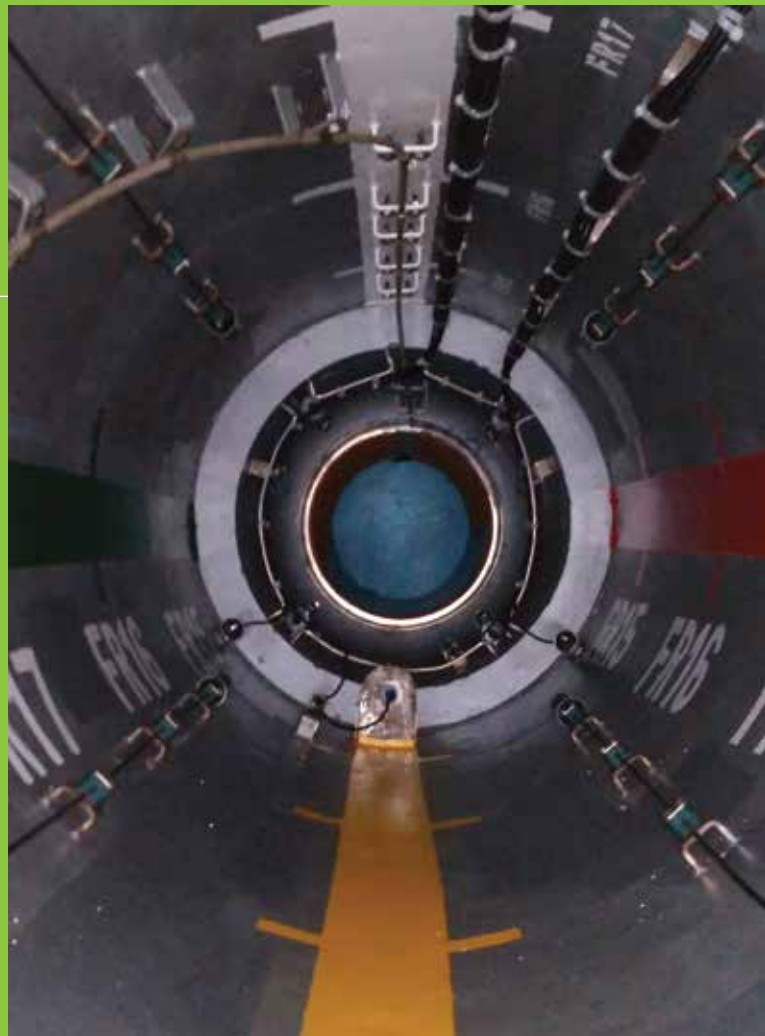


# EIMag

your stern  
tube corrosion  
control solution



**semb-eco**

a Sembcorp Marine Company

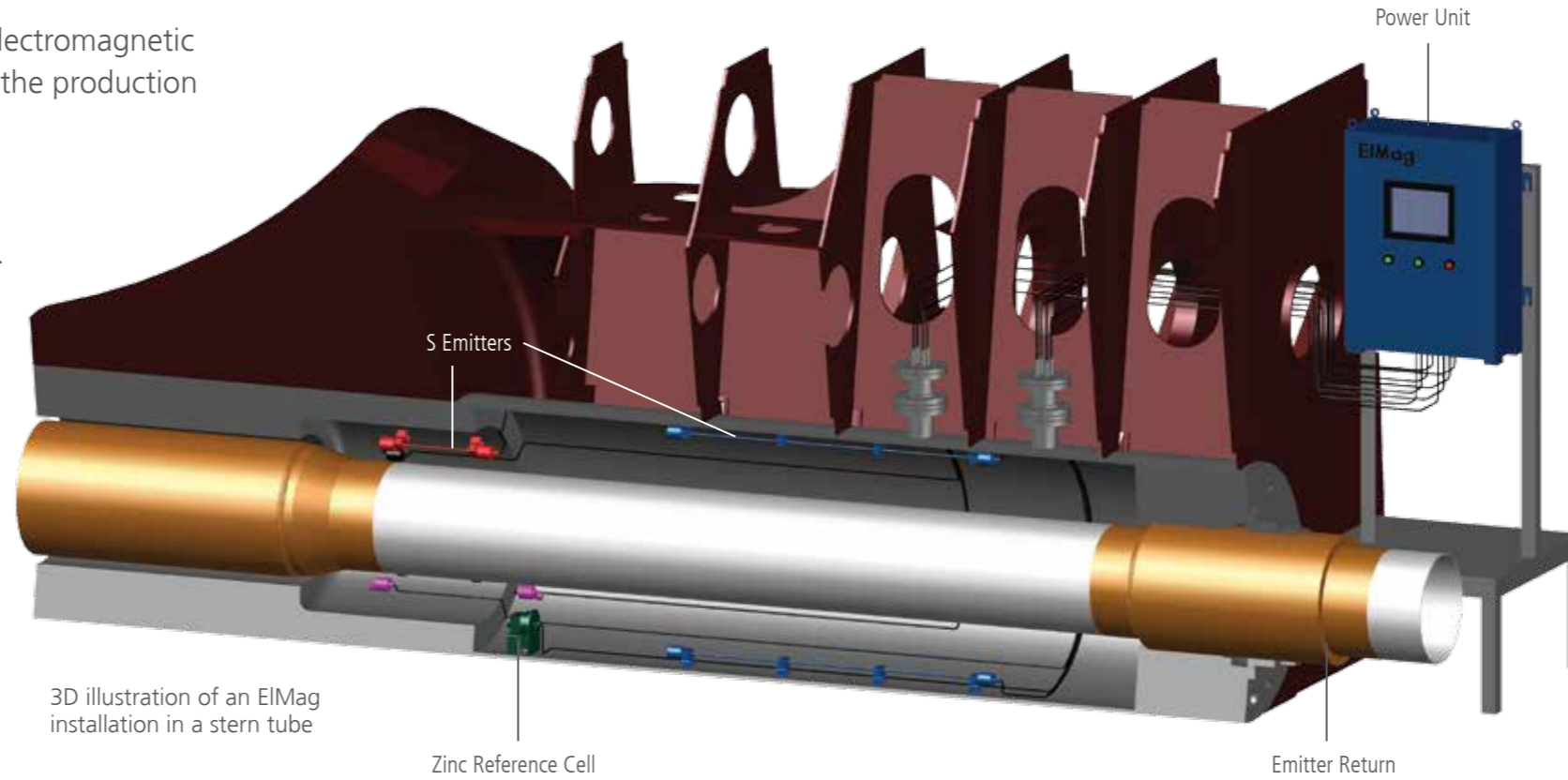
## EIMag - ADVANCED CORROSION CONTROL

The EIMag System utilizes Ultra-Low Frequency (ULF) electromagnetic waves to protect the steel structure from corrosion via the production of a protective layer.

The ULF waves excite the steel structure and form a protective Magnetite layer ( $Fe_3O_4$ ) on the steel surface. This Magnetite layer protects the steel structure from corrosion. No harmful metal or chemical is discharged into the water thereby not causing any negative impact to the environment.

This Magnetite protective layer can form in areas inaccessible to the current produced by conventional cathodic protection systems.

EIMag's unrivalled self-repairing characteristic offers continuous corrosion protection.



3D illustration of an EIMag installation in a stern tube

## WHY SELECT EIMag?



- Able to penetrate areas inaccessible by conventional systems
- Self-repairing protective layer
- Not affected by interference current
- Excellent in controlling dissimilar metal corrosion
- Non-consumable emitters
- Low power consumption
- Low maintenance

## COMPONENTS

### ULF Generator (Power Unit)

The EIMag ULF Server (Power Unit) generates ULF signal from normal incoming AC power supply to be delivered to the Emitters. The Unit is incorporated with potential monitoring that shows the steel potential shift. This reading indicates if the surface is under protection or otherwise. The unit also comes with standard features such as on/off status and alarms. The alarm gives an indication of the working condition of the EIMag system.

### ULF/S Emitter

The Emitter produces the ULF wave which transmits energy through the water clusters when the water flows through. The ULF wave energy transferred to the steel body creates the direct excitation effect. This excitation produces the Magnetite layer.

### Emitter Return/Receiver

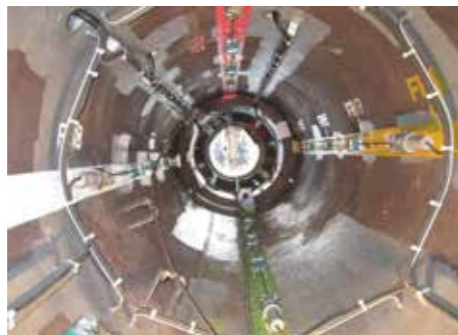
The Receiver is welded to the steel surface to form a closed circuit with the Emitter and the ULF Server (Power Unit). The Receiver behaves like the anode of an ICCP system suppressing the corrosion current from leaving the steel surface.

## PROVEN PERFORMANCE OF ELMAG

### Condition of vessel stern tube cavity at various stages through continuous EIMag Operations



Condition prior blasting, application of coatings and installation of EIMag



Condition after blasting, application of coatings and installation of EIMag



Condition after 5 years with EIMag in continuous operations



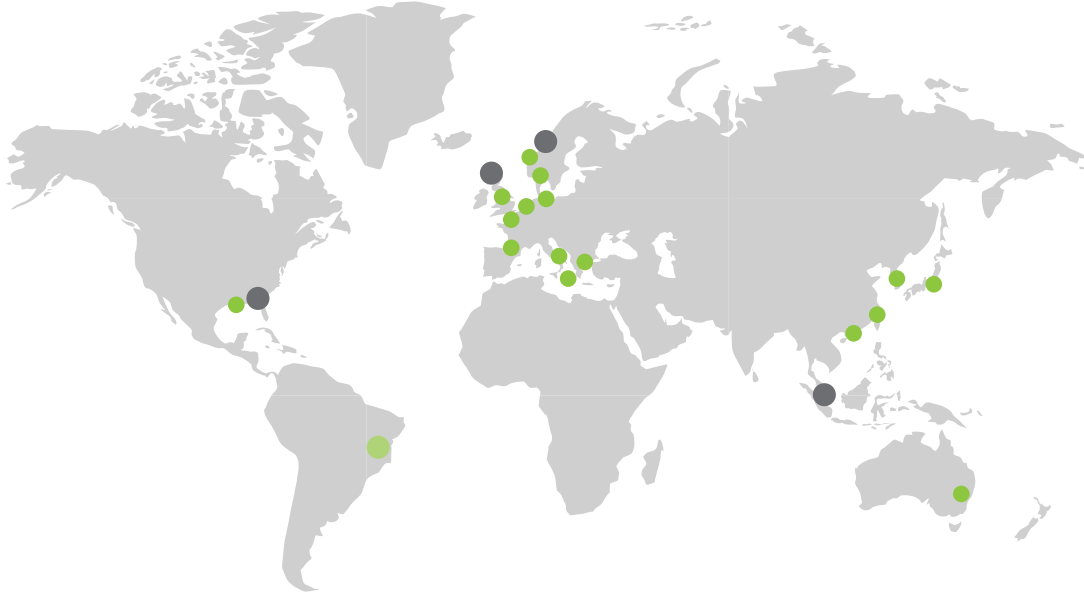
Shipboard installation



## WORLDWIDE NETWORK

SALES | AFTER SALES | SERVICE SUPPORT | MAINTENANCE

Semb-Eco leverages on the extensive worldwide representation of Sembcorp Marine, as well as shipyards and facilities in Singapore, Indonesia, the United Kingdom, Norway and Brazil.



## WHO ARE WE?

Semb-Eco is a wholly owned subsidiary of Sembcorp Marine that promotes novel, viable, cost-effective sustainable and solutions developed by the Group, to help our partners and customers meet environmental challenges in the Marine & Offshore industry.

Together with our products, we also provide complete solutions including integrated engineering and installation.

### Our product range includes:

- Semb-Eco LUV Ballast Water Management System (BWMS)
- SembSOx Hybrid Exhaust Gas Cleaning System (EGCS)
- ELMag corrosion protection system for seawater cooled stern tubes



## FOR FURTHER INFORMATION, PLEASE CONTACT:

### Prakash B.

Assistant Vice President (R&D)  
Email: prakash@sembmarine.com

### Tany Tay

Business Manager  
Email: siokfuen.tay@sembmarine.com

### (For Retrofit Solutions)

### Kevin Lim

Sales & Operations Manager  
Email: kevin.lim@sembmarine.com

<https://www.sembmarine.com>

