#### HOME

SARGAM is one of India's oldest names in Marine Cathodic Protection with over two-and-a-half decades of CP experience.

Located in Chennai, India, it manufactures an entire range of Cathodic Protection products

- Sacrificial Anodes for a wide range of applications,
- Impressed Current Cathodic Protection Systems,
- Low Signature ICCP system for Naval applications,
- Active Shaft Grounding Systems for Naval applications,
- Pipeline Anti-fouling or Marine Growth Prevention Systems.

It has an experienced design team to help design the CP system, its own in-house manufacturing facility for producing all the above products and a well experienced service team for providing installation, commissioning and on-board service support making it a truly end-to-end Cathodic Protection provider.

Its products are sold internationally under the *Cuproban™* brand name through its Singapore based international marketing company Cuproban Systems Singapore Pte Ltd (<u>www.cuproban.com</u>)

Over 25 years hundreds of vessels – from tugs and fishing vessels to frigates, destroyers, air craft carriers and nuclear submarines to FPSOs and off-shore platforms and pipelines - have and are being protected by Sargam's CP products.

# PRODUCTS<sup>1</sup>

SARGAM has a wide range of products for a variety of applications:

# Sacrificial Anodes:

- Aluminium and Zinc sacrificial anodes for normal marine and oil and gas applications
- High purity, large weight Aluminium jacket anodes, bracelet anodes and segment bracelet anodes for offshore platform and pipeline applications
- Low potential Aluminium anodes for protecting high strength steels
- High temperature Zinc anodes that protect at elevated temperatures
- Sacrificial anodes for protecting water jet tunnels and propellers and rudders of small boats
- Normal and High potential Magnesium anodes for high resistivity environments including for protecting buried tanks and pipelines

# <u>Impressed Current Cathodic Protection Systems</u>

- Automatic control panels from 10 amps to 1200 amp capacity
- Zinc and Silver-Silver Chloride reference electrodes
- Platinized-Titanium and MMO-Ti anodes
- Diver replaceable anodes and REs
- Passive Propeller shaft grounding systems
- Complete ICCP systems for safely protecting Aluminium hull vessel

## Low Signature ICCP systems for front-line warships

- Specialized rugged ICCP systems with low Underwater Electric Potential, low ripple and low magnetic signature
- Proven systems with automatic data loggers and microprocessor controls offering excellent corrosion protection with low electrical signatures, especially for stealth vessels.

# Active Shaft Grounding Systems for front-line warships

 Active propeller shaft grounding systems to reduce ELFE signatures emanating from propeller shafts on vessels protected by ICCP systems

## Pipe-line Marine Growth Prevention Systems

• Complete pipe-line anti-fouling or marine growth prevention systems for all types of vessels from tugs to FPSOs.

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<sup>&</sup>lt;sup>1</sup> Use PRODUCTS instead of SERVIVES

#### WORK

Sargam has provided sacrificial anodes, impressed current systems and pipeline marine growth prevention systems to hundreds of vessels and structures directly and through its Singapore subsidiary Cuproban Systems. A sample of our work....

# Aluminium Sacrificial Anodes:

Sargam has supplied hundreds of MT of Aluminium Anodes to various vessels and projects all over the world.

## Zinc Sacrificial Anodes:

While Sargam has supplied hundreds of MT of Zinc anodes to various vessels and projects it is particularly proud to have developed special Zinc anodes for the Kalvari Class (Scorpene) submarines built by Mazagaon Docks, Mumbai in collaboration with DCNS of France.

## **PROJECTS**

## **ICCP Systems**

**Helix Q7000** is a DP Class 3 semi-submersible rig of Texas based Helix Energy Solutions capable of operating in water depths from 85m to 3000m. Sargam supplied the ICCP systems to protect the underwater structure of this rig through its Singapore subsidiary Cuproban Systems.



# Low Signature ICCP Systems

**Kolkata Class** stealth guided missile destroyers (Project 15A of the Indian Navy) – INS Kolkata, INS Kochi and INS Chennai are the largest destroyers in the Indian Navy, over a 160m long and capable of sailing at 30-knot speed. Sargam has supplied low signature ICCP system with micro-processor control and data logging capability for all the vessels.



ICCP Systems for Aluminium Hull Vessels

**L&T Class Fast Interceptor Boats** are state of the art aluminium hull fast Interceptor Boats built by L&T Shipbuilding for the Indian Coast Guard. Sargam, was the first Indian company to develop ICCP systems for protecting Aluminium hull vessels and had the privilege of supplying and now maintaining the systems on over 50 ships built by L&T



# Anti-fouling systems

FPSO Ningaloo Vision, an Aframax converted into a 150,000 barrels per day FPSO by Keppel Shipyard, Singapore has Sargam's pipeline anti-fouling system supplied through its Singapore subsidiary Cuproban Systems Singapore.



FPSO Lewek Emas, a Suezmax converted into a 150,000 barrels per day FPSO byu Keppel Shipyard, Singapore for EMAS has Sargam's pipeline anti-fouling system supplied through its Singapore subsidiary Cuproban Systems Singapore.

