MME Impressed Current Anti-Fouling Systems (ICAF)

“A Longer Life”
Marine growth in sea chests, box coolers and seawater piping systems is a potential threat for the performance and condition of your ship or installation. Blockages caused by barnacles and mussels are expensive and time consuming to remove and can have serious consequences. Engines will run at abnormally high temperatures, resulting in unnecessary increased fuel consumption and lower performance. To combat this risk the MME Marine Growth Prevention System (MGPS) was developed. Once installed it provides low maintenance and continuous (dual) protection against most hard and soft foulings as well as corrosion.

The MME Marine Growth Prevention System utilizes an impressed current, employing sacrificial anodes and steel cathodes, and consists of specially alloyed anodes which are connected electrically to a small digital controller transformer rectifier. The system generates mainly copper ions by electrolysis in seawater, these ions will flow through the system creating an environment which prevents micro-organisms to settle. The use of Aluminium or Ferro anodes for corrosion prevention of the sea chest/ box coolers/ piping systems is selected and based on the used materials. The anodes can be replaced normally during dry-docking or, depending on the design, whilst the vessel is afloat.

The effectiveness of the fouling prevention mainly depends upon the conditions of the water and its flow. Because the latest MME Marine Growth Prevention System (MGPS) can communicate with pumps, PC and Vessel Management Systems, it offers an intelligent solution for fouling and corrosion problems that occur in (cooling) water systems. By constantly monitoring the flow rate and conditions the MME system always offers an optimal protection.

Key Benefits of the MME ICAF System:
- Efficient operation of cooling water and fire fighting system.
- Dual action function; anti-fouling prevention and corrosion protection.
- Easy to install at retrofit or during new-construction.
- Removal of calcareous deposit.
- Easy to maintain as of automatic operation.
- Cost effective, elimination of pipework cleaning.
- Several ranges to suit vessels of every size.
- "Spike and Boost-function" for box cooler systems (Copper reduction of 40%).
- Better protection against fouling because of regular boost.
The MME Anti-Growth & Impressed Current system, or MAGIC for short, is designed to give a continuous and reliable combined corrosion protection for hulls and piping as well as fouling prevention for cooling water systems. The huge advantage of this system is that both ICCP and ICAF functions are controlled at the same time with only one Power Controller Unit.

The Impressed Current Anodes, made from titanium with a solid Mixed Metal Oxide coating, cast in high impact resistant epoxy, provides a life time protection against corrosion under extreme conditions. Controlled by MME reference cells the system always provides the correct level of protection.

A most efficient method of overcoming the marine fouling together with reduction of corrosion in seawater circulating systems, is combined in the proven performance of the MAGIC systems.
Design and Engineering
The design and engineering of sophisticated systems for corrosion and fouling prevention, and subsequent remote condition monitoring, for complex situations is one of the core competences of MME.

One of the latest design and engineering project which was done including complete delivery by MME, was for an offshore platform which was installed using suction pile technology. The design featured an innovative anode layout combined with optimised sacrificial anode placement. Also the demanding requirements during transportation and placement of the platform were a major factor. With extensive monitoring options condition assessment can be done through the LAN-connection, which makes it possible to check and control the level of corrosion protection of each protected section at long distance.

The effectiveness of the designs and reliability of the MME equipment has been proven over the years on various types of ships: from patrol vessel to VLCC, from super yachts to cruise vessels.

Besides configurations using standards components, MME also supplies specialised systems for the protection of dredgers, offshore installations, offshore wind turbine foundations and harbour quays.

The design and manufacturing of electrical systems for impressed current cathodic protection and corrosion monitoring is carried out in the well-equipped MME electrical factory in The Netherlands.

One of our most recent developments are our high frequency controlled ICCP electric power units. The use of big and expensive tranformers is not required anymore. Hence, much smaller and lighter power control boxes can be offered at a even more competitive prices.

Own R&D facilities guarantee that the latest technologies are used and where possible improved.