

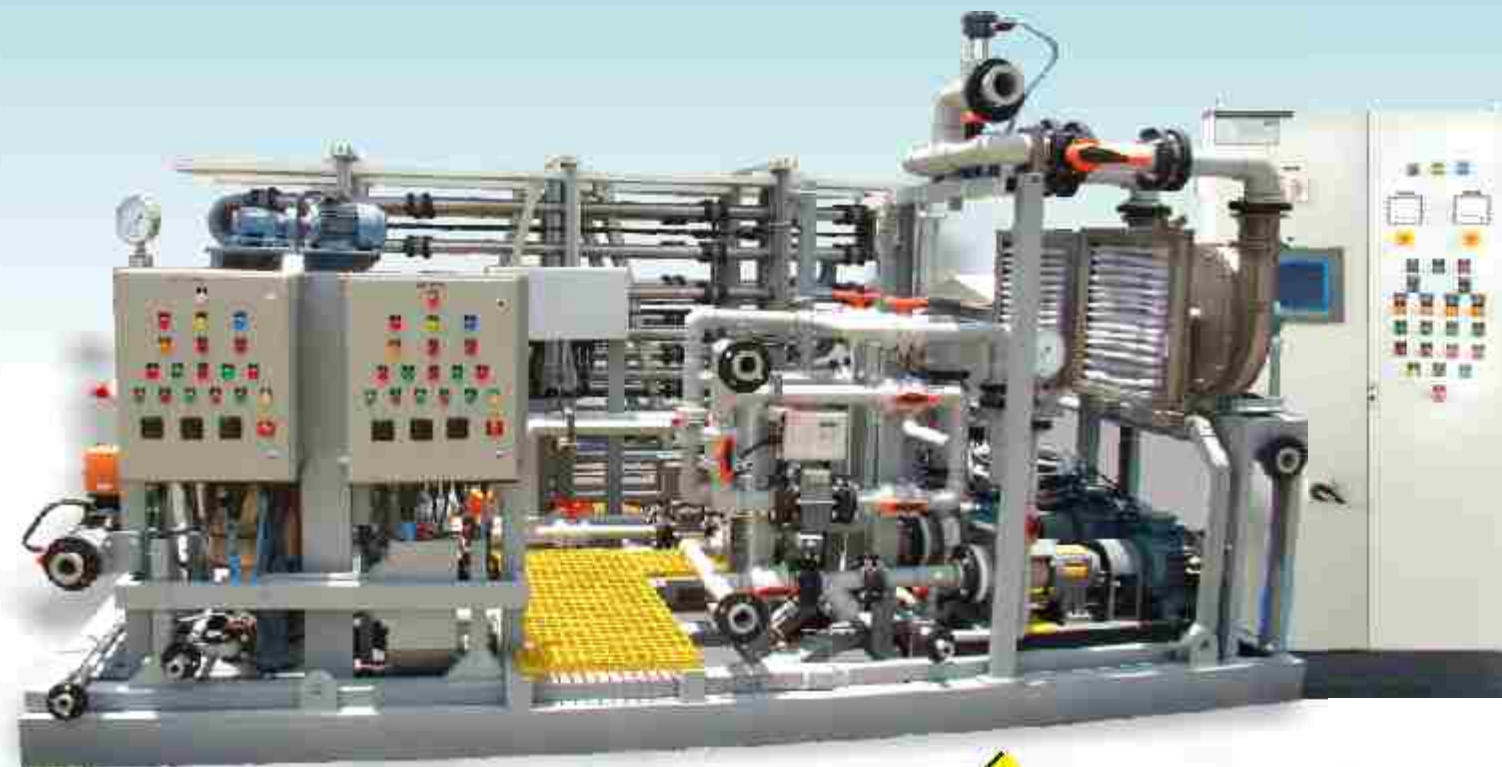
Marine Growth Prevention System

Biofouling in sea water lines are a perennial problem caused due to the barnacles, mussels and other forms of marine life in the sea water. For marine & offshore world such as Offshore platforms, FPSO, Naval vessels, Cruise ship, cargo ships, Oil rigs etc seawater is the only source for cooling and fire water.

In such sensitive applications biofouling or the marine growth in the seawater line is a huge concern as it restricts cooling water flow in piping systems thus affecting the heat-transfer in the heatexchangers and condensers (clogging).

TiTaN's RT Marine™ Series of Marine growth Prevention System (MGPS) when fitted, generates various oxidants and radicals by sea water electrolysis including sodium hypochlorite onsite which in turn can be used to disinfect sea water thus preventing marine growth.

RT Marine™ MGPS incorporates TiTaN's state of art bipolar Chloromarine® disc electrolyzer or Hypopac® concentric tubular electrolyzer for generating free radicals. TiTaN 's electrolyzer design incorporates free removal of hydrogen and also prevents scaling due to its ingenious design. These self cleaning design ensures near maintainace free operation without any acid cleaning, ensuring the system to perform consistently for years together.



RT Marine™ Marine Growth Prevention System

RT Marine™-S MGPS for Floating Vessels

MODEL	Cl ₂ as NaOCl Production Capacity(Kg/day)	Quantity of Seawater to be treated @ 0.5ppm (m ³ /h)	Quantity of Seawater to be treated @ 1ppm (m ³ /h)	Max seawater Flowrate (m ³ /h)
RT MARINE S150	3.6	300	150	5.6
RT MARINE S250	6.0	500	250	5.6
RT MARINE S400	10.0	800	400	5.6
RT MARINE S500	12.0	1000	500	5.6
RT MARINE S750	18.0	1500	750	5.6
RT MARINE S1K	24.0	2000	1000	5.6
RT MARINE S2K	48.0	4000	2000	5.6
RT MARINE S3K	72.0	6000	3000	5.6
RT MARINE S4K	96.0	8000	4000	5.6
RT MARINE S5K	120.0	10000	5000	5.6
RT MARINE S6K	144.0	12000	6000	5.6

* Systems designed for shipboard applications for both new builds and retrofits.
* Systems can be supplied as a skid mount or containerized, fully integrated package or as loose components.

RT Marine™-H MGPS for Hazardous Environment

MODEL	Cl ₂ as NaOCl Production Capacity(Kg/day)	Quantity of Seawater to be treated @ 1ppm (m ³ /h)	Quantity of Seawater to be treated @ 3ppm (m ³ /h)	Max seawater Flowrate (m ³ /h)
RT MARINE H150	3.6	150	50	5.6
RT MARINE H250	6.0	250	83	5.6
RT MARINE H400	9.6	400	133	5.6
RT MARINE H500	12.0	500	167	5.6
RT MARINE H750	18.0	750	250	5.6
RT MARINE H1K	24.0	1000	333	5.6
RT MARINE H2K	48.0	2000	667	5.6
RT MARINE H3K	72.0	3000	1000	5.6
RT MARINE H4K	96.0	4000	1333	5.6
RT MARINE H5K	120.0	5000	1667	5.6
RT MARINE H6K	144.0	6000	2000	11.2
RT MARINE H8K	192.0	8000	2667	11.2
RT MARINE H10K	240.0	10000	3333	11.2
RT MARINE H12K	288.0	12000	4000	16.8
RT MARINE H15K	360.0	15000	5000	16.8
RT MARINE H18K	432.0	18000	6000	22.4
RT MARINE H20K	480.0	20000	6667	22.4

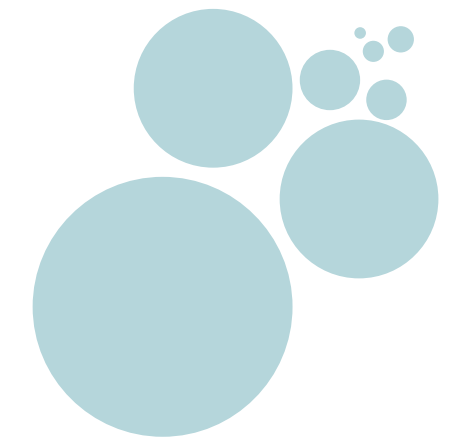
The RT Marine-H system is typically used for areas under Hazardous Area Classification.

- Improved Heatexchanger Efficiency
- Prevent Biofouling in Seawater Pipelines
- Avoid Break Downs and Down Time
- Save On Recurring Maintenance Cost



RT Marine™ Benefits

- Complete protection against bio fouling
- Consistent disinfection
- Easy to install, operate and service
- Instant operation
- Self cleaning Electrolyzer design
- Modular construction
- Eliminates hazardous material storage
- Corrosion proof design



Applications

Offshore Process Platforms, Oil Rigs, FPSO, Navy Vessels & Cruise Ships



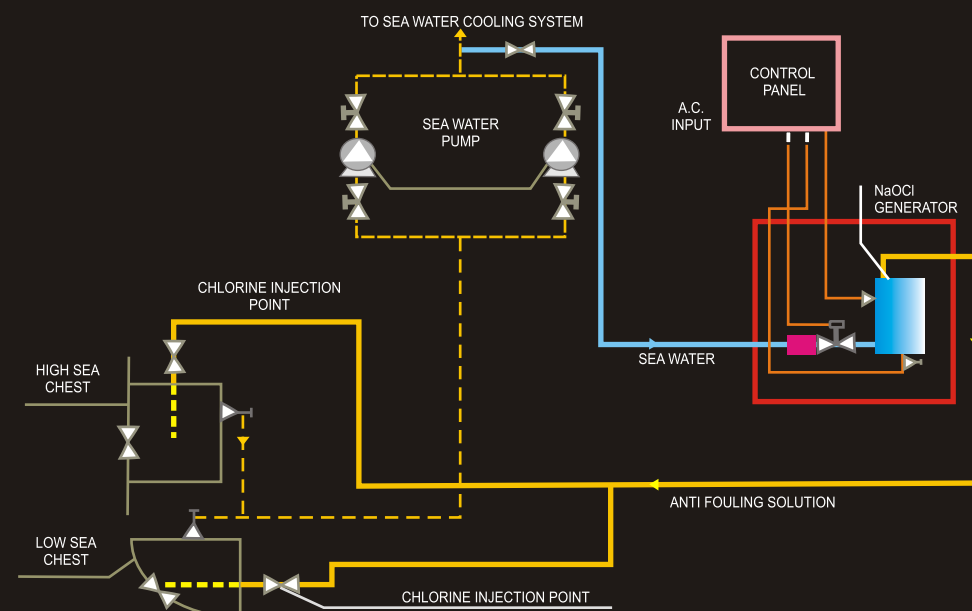
TITaN with its close to three decades of experience in manufacturing Electrolyzers for various electrochemical Industries, offers a comprehensive series of **Electrolyzers for Marine Growth Prevention**.

TITaN' Electrolyzer designs have been constantly evolved based on its past experience & client requirements under the able leadership & guidance of our chairman Dr.R.Thangappan, a world renowned Electrochemist and a scientist turned successful entrepreneur .

TITaN' electrolyzer range addresses most of the compelling requirements specific to each application and industry.



Dr. R. Thangappan
B.Sc., Tech (Chem. Engg)
MIE, MIIChE, FSAEST
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Typical RT Marine™ System

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MARINE GROWTH PREVENTION SYSTEM

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