



# ECOLCELL ANTIFOULING SYSTEM



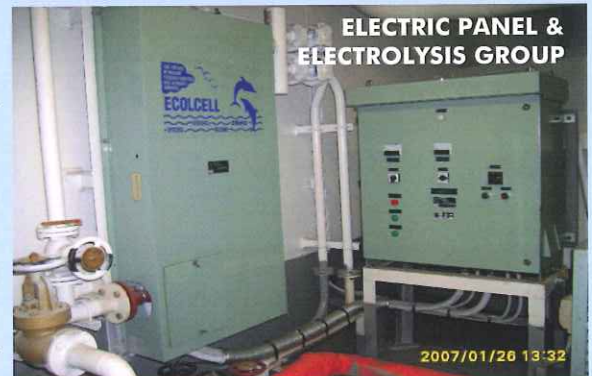
## Antifouling System

One of the solutions recommended by ACG to effectively combat marine fouling is the electrochlorination antifouling system. **ECOLCELL** creates an antifouling agent, sodium hypochlorite ( $\text{NaOCl}$ ), directly from seawater which is distributed to the seawater piping system for the protection against all types of fouling.

Only a small concentration of this antifouling agent (sodium hypochlorite) is required to combat marine fouling, 0.1 to 0.3 ppm. At such low levels, the chlorine residual is NOT harmful to the environment. These residual levels have been tested and they uphold International Environmental Standards. This antifouling agent is unique in that, and once the electrolysis (conversion from seawater to  $\text{NaOCl}$ ) has taken place, the solution reverts to salt and water within 25 minutes.

## How the system operates

Ecolcell operates by using an electrolytic cell containing titanium anodes to transform the salt of seawater into sodium hypochlorite ( $\text{NaOCl}$ ) through a process of electrolysis. Electrolysis begins when the current is switched on at the control panel and the valves are opened. The resulting sodium hypochlorite is piped to the injection point, where the disinfecting agent is injected into the seachests to mix with incoming seawater and prevents fouling in the whole seawater system.



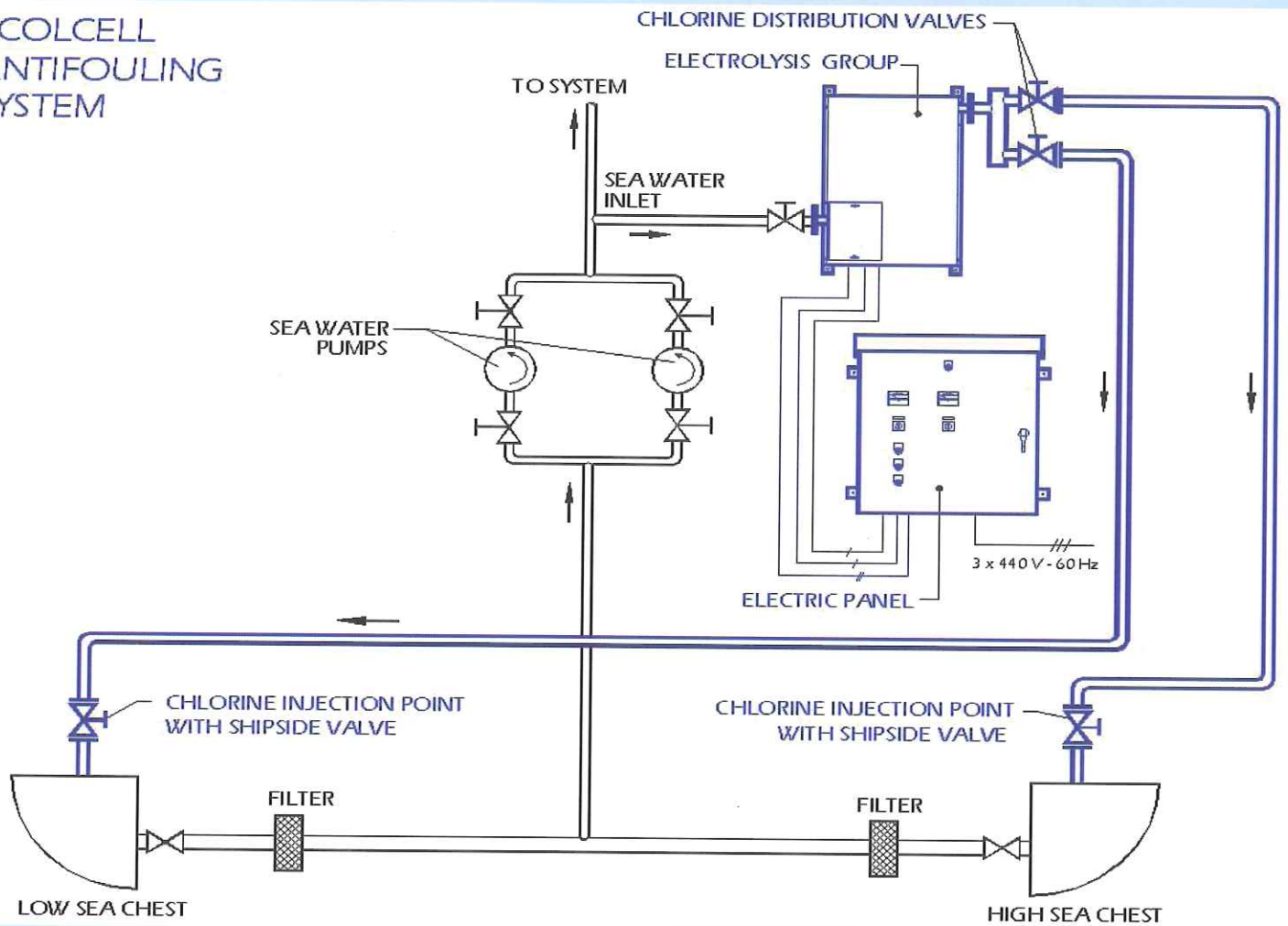




## The system consists of three parts :

- Control Panel (located near electrolysis group);
- Electrolysis Group (located in the engine room/the nearest to seachests);
- Injection points (located in seachests, connected to the electrolysis group via pipes and control valves. Especially designed ACG pipes can also be used);

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## Facts about Sodium Hypochlorite

Sodium hypochlorite is acknowledged as being the best antifouling agent :

- It is effective against both macro and micro marine fouling;
- It is eco-friendly, produced directly from seawater and reverts to salt and water when transformation process is complete (total time of 25 mins approx.);
- small concentrations guarantee that the corrosiveness of seawater does not increase (unlike copper anode system), i.e. no galvanic corrosion.

Chlorine injection points with shipside valves

