

Azienda Chimica Genovese



*Tradition and Innovation
since 1947...*

ECOLCELL

Electrochlorination antifouling system

COPRON

Copper/Aluminium anode antifouling system

MARIMPRESS

Impressed current cathodic protection system

Azienda Chimica Genovese s.r.l. was constituted in 1947 by Alessandro Doldi in Genoa-Italy, to produce and market a disinfectant agent: Sodium Hypochlorite.



Genoa Headoffice

In 1953 ACG built his first direct electro-chemical chlorination of water plant for La Spezia Gas & Water Municipal Company. In 1954 ACG began the construction of plants for antifouling treatment of seawater circuits on board of ships. First plant began working on 25th June of the same year on M/N Enotria (Adriatica di Navigazione SpA), to prevent the growth of sea organisms in seawater pipes of coolers, condensers, emergency fire systems, sewage water boxes etc.

Till now that plant holds the record for the most successful application of antifouling treatment, its efficacy was immediately appreciated. The ability to eliminate unpleasant odors of hygienic services onboard was, besides, enhanced.

ACG's success is a result of its commitment in quality (ISO 9001:2000 and NATO AQAP 120 certified) and in developing new and improved products.

This success is based on more than 60 years of experience, on the continuous technical innovation and research, to the constant attention to single Shipowners, fulfilling exactly customers' requirements.



Shanghai Representative Offices



Workshop Italy



Changshu Workshop

Products

During year 1978 ACG began the production of **ECOLCELL** Antifouling System, fed with seawater instead of sea salt solution, using inside the electrolytic cell some anodes in graphite. First of these systems was installed on vessel Carducci (Tirrenia di Navigazione SpA).

The system operated on the principle of electrolysis: a low voltage was applied to seawater circulation in a cell, producing Sodium Hypochlorite without any addition of chemical products. The resulting solution (at low concentration of Chlorine - 0,5 ppm max) was then injected into seachests and mixed to seawater suctioned by pumps.

In 1979 ACG starts to use titanium anodes, activated with electrocatalytic coatings, simplifying considerably Antifouling System. In this way ECOLCELL TITANODO System was created.

The system is installed in the Engine Room, closed to the sea chests.

Titanium anodes have a long life (more than 5 years) and they may work in any seawater temperature or salinity conditions.

No cleaning is required to eliminate calcium and magnesium deposits formed during electrolysis. The operation of these systems is totally automatic and no regulation or supervision is required.

Antifouling treatment based on electrochlorination has proved to be the most efficient and the most economical: according to reports of some customers the expense of ECOLCELL antifouling system is amortized after two years and currently it is the only system able to solve completely any problem induced by sea fouling.

From the beginning of 1980s, to compliment its antifouling systems, ACG expanded its product range to include **MARIMPRESS ICCP** (Impressed Current Cathodic Protection System) designed to protect ships' hulls from the harmful effects of marine corrosion. Marimpres makes use of titanium anodes which give the system a life of about 20 years. The company is among world leaders in both antifouling and cathodic protection systems and has a significant international presence.

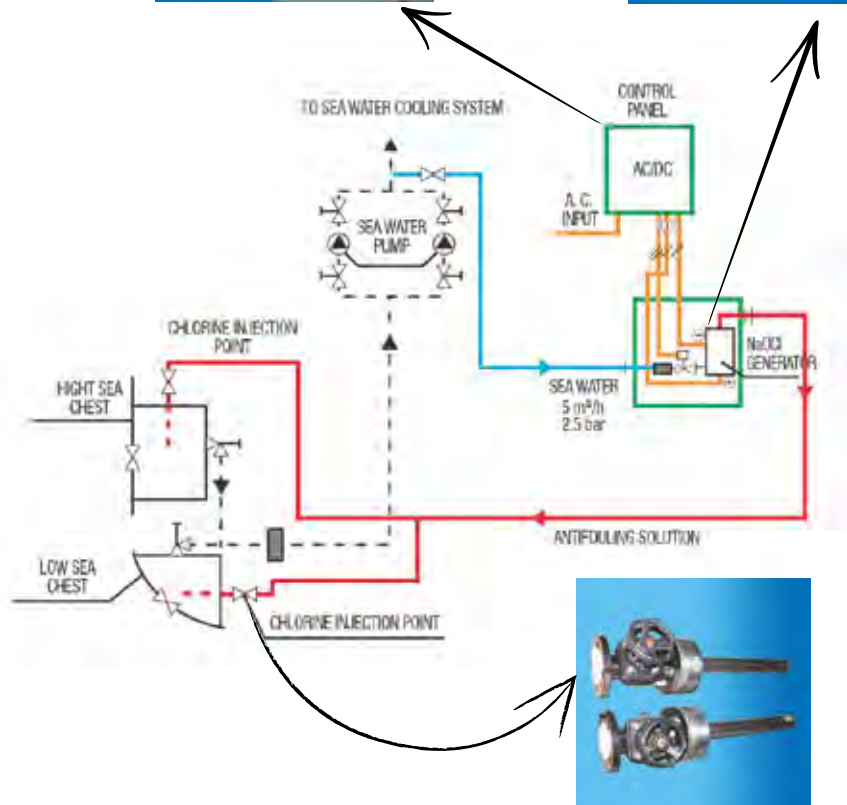
MINIECOLCELL system was born in 1982: it's an high concentration Sodium Hypochlorite Generator for sewage sterilization on board of ships.

ACG also developed an alternative antifouling system, COPRON, based on Copper & Aluminium/Iron Anodes, to prevent micro fouling.

ECOLCELL

Electro-chlorination system: the best solution to prevent macro and micro fouling growth in sea water circuits onboard. It's capable of treating sea water flow rates from 30 to 8.000 m³/h. The main advantages of the Ecolcell system are: eco-friendly, long anodes life, fully automated, easy maintenance.

The system efficiency can be verified by easy check onboard.



The problems caused by marine fouling lead to heavy maintenance costs and increase consumption of fuel.



NaOCl Generator capable to treat a sea water flow rate up to 8000 m³/h

ECOLCELL GIANT CHLOR

ECOLCELL GIANT CHLOR System is a very large electrochlorination plant designed for the treatment of large flow rates of sea water, up to 30,000 m³/h to prevent the growth of marine fouling inside Main Sea Water Cooling Circuits on board of LNG and FPSO-LNG. ECOLCELL GIANT CHLOR is able to produce up to 15 kg/h of Free Chlorine. The ECOLCELL GIANT CHLOR System uses an our new generation cell technology that is the final result of our care to continuing product development, top level engineering and strict quality assurance. The new type of electrolysis cell has been expressly designed for these hard application.



MINIECOLCELL

System for disinfection of sewage on board of ships



ECOLPOOL

Sodium hypochlorite generator for the disinfection of marine swimming pools



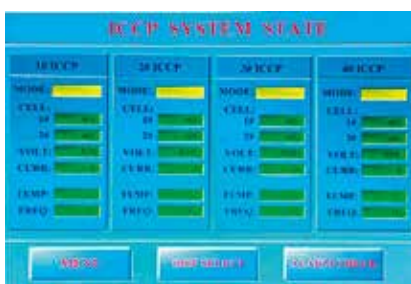
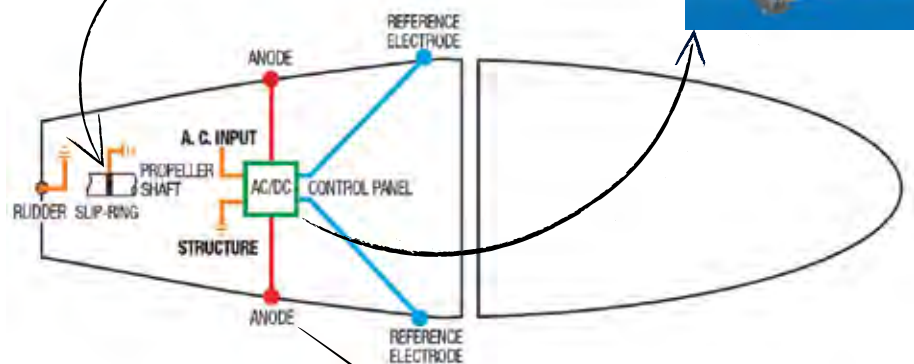
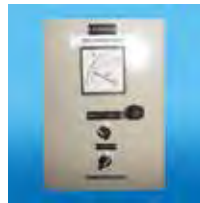
MARIMPRESS ICCP

MARIMPRESS impressed current cathodic protection system (ICCP) is used to protect ships' hulls, floating dry-docks, oil-rigs and other submerged steel structures from corrosion.

The system operates by continually measuring the potential of the submerged steel surface using hull-mounted reference electrodes and releases the necessary Current only if necessary. This system uses Titanium MMO coated anodes which have longer life compared to sacrificial Zinc or Aluminium anodes.

MULTIZONE MARIMPRESS ICCP

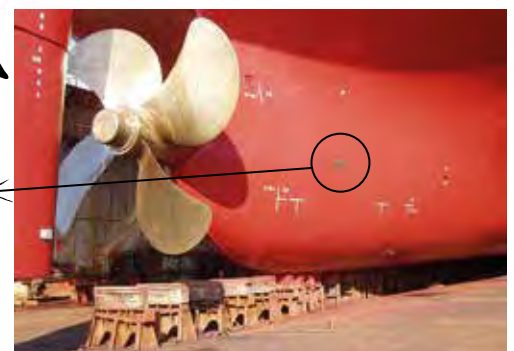
New generation of ICCP systems which can provide multi-zone control and redundancy. One Intelligent display shows all systems status, systems operation and administrates them all, making adjustments (releasing Current) on a particular zone.



Multi-zone ICCP System's display



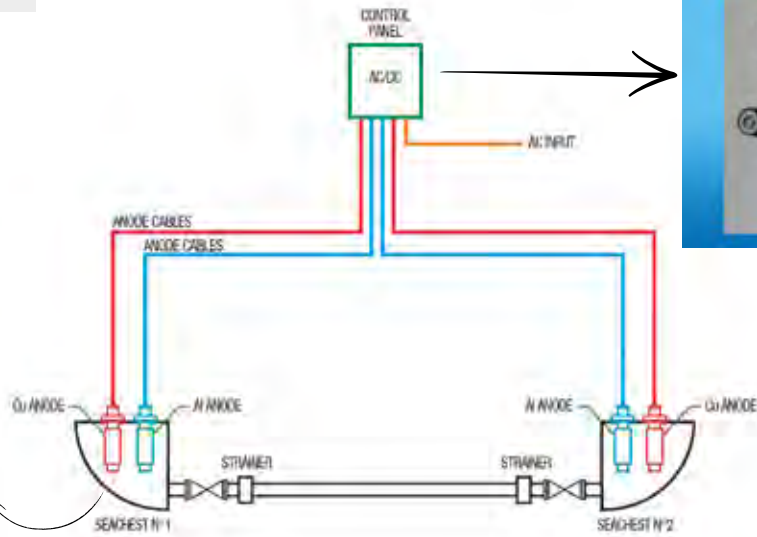
Anode internal view



Anode external view

COPRON

System with Copper and Aluminium/ Iron anodes to prevent micro fouling inside the circuits of cooling sea water circulation.



COPRON REACTION TANK

A kind of MGPS Copron system. The sea water flows through a tank equipped with Copper and Aluminium/Iron anodes. The antifouling solution is produced inside of a tank and then is injected (through injection points) inside the sea chests.



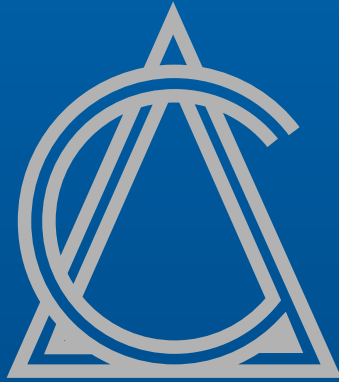
ACG Worldwide

Thanks to Claudio Doldi, ACG was able to expand worldwide its market:

- Europe: Cyprus, Croatia, Finland, France, Germany, Greece, UK, Malta, Netherland, Norway, Poland, Russia, Slovenia, Turkey
- Australia, China, Indonesia, Japan, South Korea, USA, Vietnam

ACG is based in Genoa - Italy and through years (since 1997) has widened its horizons turning to Oriental market, opening three representative offices in China (Shanghai, Guangzhou and Dalian) and one in South Korea. In 2000 ACG opened a workshop in Changshu, one hundred km far from Shanghai. Nowadays ACG is carrying on its tradition, pushing its aim towards all new technologies and market demands.





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