Anti-Fouling Chlorinator 7600 ECOLCELL

Features:

- **Retards Clogging of Sea Water Intakes, Filter, Pipes and Coolers**
- **Reduces Unscheduled Maintenance and Overhaul of Cooling Systems and Engines**
- **Minimizes Corrosion Due to Turbulence and Biological Growth**
- **No Pollution - No Handling of Hazardous Chemicals**

General Description:

Micro-fouling (slime, algae, etc.) and macro-fouling (barnacles, clams, hydroids, mussels, etc.) organisms in the marine environment find ideal growing conditions in ships' on-board cooling circuits, particularly in titanium systems. Temperature, salinity, low flow and the presence of oxygen promote the fouling phenomenon.

Hypochlorite (HOCl) is acknowledged as being the best anti-fouling agent against both micro- and macro-fouling. The 7600 ECOLCELL uses an electrolytic cell to produce HOCl directly from sea water. The system is installed in a machinery space near a sea water intake, and the anti-fouling agent is injected into the sea chest; from there it is dispersed throughout the sea water system.

The 7600 ECOLCELL is based on the ECOLCELL technology of Azienda Chimica Genovese s.r.l. (ACG) of Genoa, Italy. ACG has over 45 years' experience with this technology in both naval and merchant marine applications worldwide. HLI brings its design and manufacturing experience to ruggedizing ACG's commercial equipment to meet the U. S. Navy's demanding requirements, as expressed in BIW specification FY02-256-01B for the DDG-51 class.

The 7600 ECOLCELL has been selected as class standard equipment for new construction on DDG-51 Arleigh Burke class Aegis destroyers, commencing with DDG 103. It is qualified to the full gamut of shipboard environmental requirements, including high-impact shock, vibration, EMI, and airborne and structureborne noise. All ILS elements are being put into place.

The DDG 51 Model 7600 ECOLCELL produces up to 0.5 lb/hr (0.23 kg/hr) of equivalent chlorine, enough to treat about 1,400,000 gal (5400 M^3) of seawater per day to 1 ppm. Larger sizes are available.

The 7600 ECOLCELL consists of four modules mounted on a single skid: the control panel, the electrolytic cell, the ultrasonic flowmeter, and the circulating pump (see figure 1 on the reverse of this sheet). However, this flexible technology can easily be provided in a more conventional bulkhead-mounted configuration, or in a "smart" system, whereby one chlorinator may be used to protect multiple sea chests.

When specifications require it or where regulations prohibit discharge of water with chlorine residual, HLI

7600 ECOLCELL Anti-Fouling Chlorinator

Technology by Azienda Chimica Genovese s.r.l.

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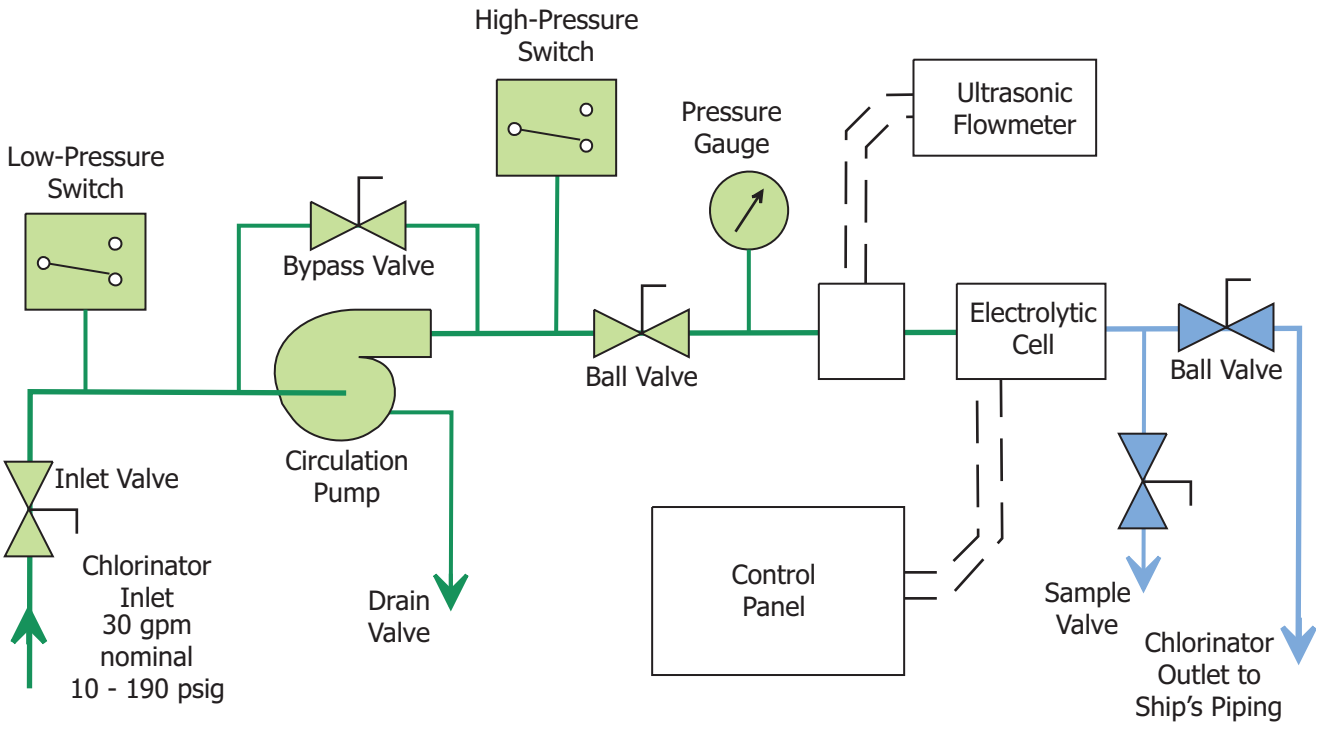


Flow Schematic

can provide a dechlorinator with your system.

Specifications

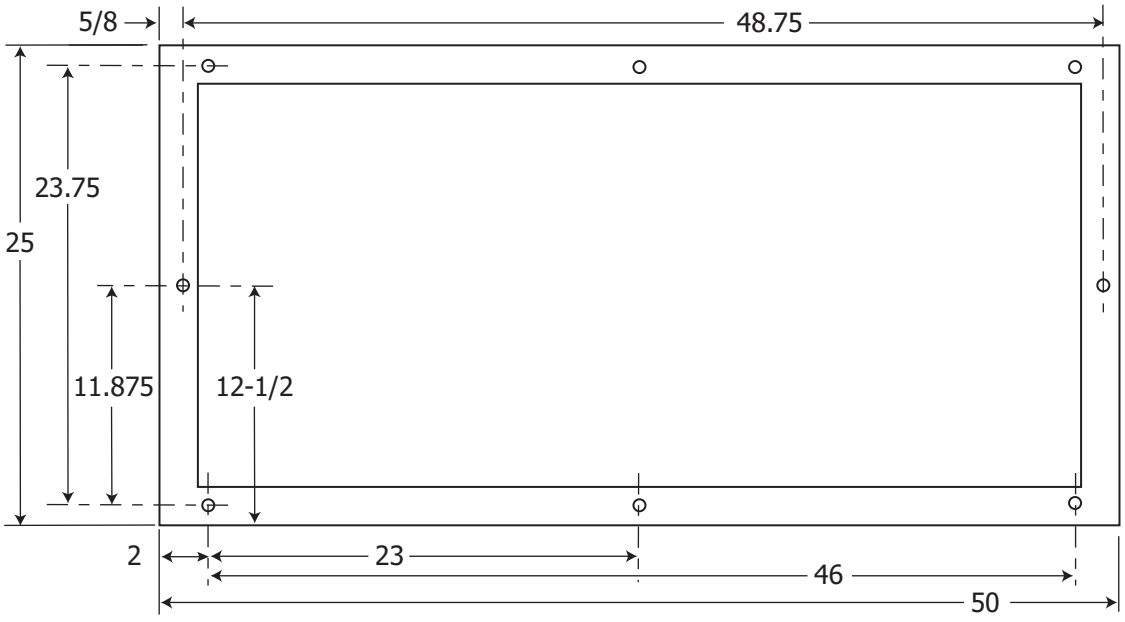
Capacity: 0.5 lb/hr equivalent chlorine (capable of treating up to 800 gpm at 1.25 ppm dosage rate).

Power Input: 440 VAC, 3-phase, 60 Hz

Environmental: High-impact shock MIL-S-901D, Grade B
- Vibration per MIL-STD-167/1 Type I and II
- EMI per MIL-STD-461C, Class A4
- Airborne Noise per MIL-STD-740B
- Structureborne Noise per MIL-STD-740B
- Current Regulation, Effectiveness of Enclosure, and Power Factor Tests per MIL-STD-108E

Chlorine Level Controls: Preset low or high level
- Manual range 0 - 0.5 lb/hr (0 - 250 grams/hr)
- Automatic range 0 - 0.5 lb/hr (0 - 300 grams/hr) via 4 - 20 mA remote signal from a chlorine monitor

Size: 50 in (127 cm) wide x 25 in (63.5 cm) deep x 62 in (157.5 cm) high



Mounting Footpint