PUMP OVERVIEW
The ClydeUnion S&N Pumps In-Line SNSAFE system offers the most comprehensive bio-fouling prevention solutions package on the market. Strategic implementation of our system increases the service life of pumps, and maintains flow efficiency throughout a rig/vessel.

- Delivers an impressed DC current from a power converting control panel to strategically placed copper anodes in the seawater system
- The passage of the DC current through the copper anode releases copper ions into the seawater flow at a predetermined rate
- The copper ions deter the entry and growth of fouling organisms

DESIGN
The In-Line SNSAFE system is designed to treat the produced seawater by mounting the copper anode in the seawater header. The in-line system works to eliminate marine growth downstream of the treatment point

- Copper anodes are raised above the O.D. of the main pipe to ensure minimal obstruction to flow
- Attached to the ring main between piping using flanged connections

EFFECTS OF BIO-FOULING
- Creates a thermal barrier around a pump motor and reduces the amount of heat that can be dissipated
- Accelerates corrosion by impingement/erosion, pitting and cavitation
- Reduces fluid flow throughout the piping of the vessel/rig
- Restricts and/or creates turbulent fluid flow at pump intakes

SYSTEM BENEFITS
- Eliminates bio-fouling macro-organisms
- Low initial cost
- Replaceable anodes
- Minimal maintenance
- Pre-calculated anode life
- Environmentally safe
- Low operating cost
- Minimal space requirement
**FEATURES + BENEFITS**

1. Electronic junction box
2. Copper anode housing
3. Copper anode

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**EFFECTS OF SEA LIFE GROWTH ON PUMPS**

Sea life growth covering the pump bowls and intake screen

Sea life growth inside the pump intake and on the pump shaft