



# Steam Boilers



Boiler Scale Removed by Crack Propagation

Deaerator Tank for 500HP Boiler Using Dolphins

## Chemical-Free • Saves Energy • Improves Boiler Performance

### ◆ FACT SHEET ◆

## The Dolphin Pulsed-Powered Water Treatment for Steam Boilers

| Superior Performance  | Environmental Benefits   | Immediate Savings   |
|---|--|---|
| <ul style="list-style-type: none"> <li>• Elimination of scale leads to enhanced boiler operation and energy savings.</li> <li>• No foaming or carryover caused by chemicals.</li> <li>• Excellent corrosion protection using natural conditions without corrosive chemicals.</li> <li>• Maintains safe and reliable pH in boiler water and condensate return without chemical additives.</li> </ul> | <ul style="list-style-type: none"> <li>• End regulatory, liability, and health-and-sfety concerns with chemicals.</li> <li>• Improve &amp; simplify boiler room cleaning requirements.</li> <li>• Gain green building tax credits and reduce toxic release inventory.</li> <li>• No discharge of chemicals through blowdown to the environment.</li> <li>• Alleviate indoor-air quality concerns.</li> </ul> | <ul style="list-style-type: none"> <li>• Eliminate all chemical costs.</li> <li>• Eliminate all indirect costs of chemical addition (e.g., handling, storage, regulation).</li> <li>• Elimination of scale, foaming, and corrosion throughout the system results in efficient heat transfer and lower energy costs.</li> <li>• Decreased boiler blowdown creates significant savings in BTU value during water disposal.</li> </ul> |

## No Scale • No Foaming • No Corrosion

**Operating Principle.** Our application is "package" or "modular" boilers operating under 300 psi and utilizing tap water (softened or dealkalized water is not necessary). The Dolphin produces a pulsed, time-varying, induced field inside a coil-pipe assembly that is fit conveniently into the boiler's water system. The electric signal changes the way calcium and other minerals in the water precipitate, avoiding hard-lime scale by instead producing a mineral powder. In retrofit applications where scaled heat-transfer surfaces exist, hard-lime scale will flake off over time. The Dolphin is used with a conductivity-actuated surface blowdown and a periodic bottom blowdown.

## The Dolphin: easy installation, system enhancement, effortless use, and engineered solutions.



Transformer Panel

Coil-Pipe Assembly

- Major Transformer Panel Components**
  - Proprietary Transformer
  - Over-Current Fuse
  - Power-Status LEDs
  - Locking-Power Cable Connector
- Major Coil-Pipe Assembly Components**
  - Stainless Steel Pipe
  - Special Coils and Circuitry
  - Thermal Safety Switch (with Automatic Reset)
- Optional System Components**
  - Automated Blowdown System
  - Building Management System (Remote Interface)
  - Solid Separations Equipment

### • Easy Installation

The Transformer Panel can be easily mounted on any flat surface using the built-in external flanges and four mounting screws.

The Coil-Pipe Assembly simply replaces an existing pipe section to complete the non-restricting, flow-through installation.

Uses standard 110V electric service.

### • Effortless Operational Use

Power-status LEDs provide quick visual checkpoints of proper operation.

Tolerates operational variables without requiring adjustments.

### • Specific Enhancements to Steam Boilers

Protects heat-transfer surfaces from scale and corrosion, making boilers more efficient and longer-lasting.

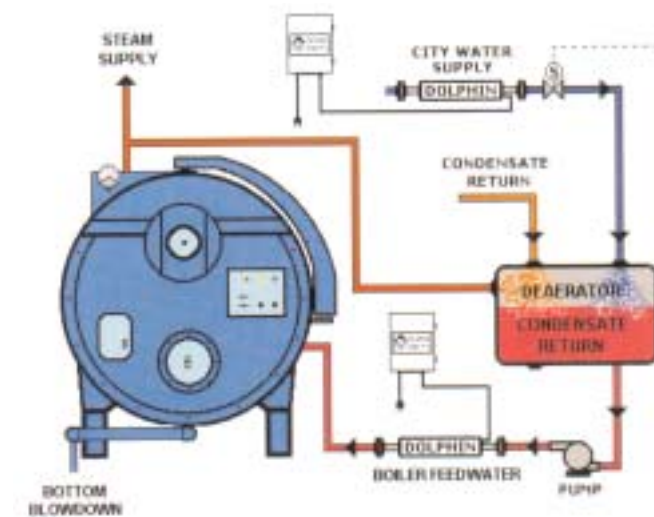
Improves the effectiveness of steam boilers by maintaining safe and reliable pH in boiler water and condensate return without chemical additives.

### • Customized Engineered Solutions

Need to use steam for sensitive applications such as humidification and food processing?

Is saving energy a priority?

Call us with any questions regarding your needs.



Typical Dolphin installation on a Steam Boiler



Represented by:

CLEARWATER SYSTEMS, LLC

145 Dennison Road, P.O. Box 463

Essex, CT 06426

Phone: (860) 767-0850 • Fax: (860) 767-8972 • Email: cws@clearwater-dolphin.com • web: www.clearwater-dolphin.com