

# STOP SCALE BUILD-UP IN YOUR INDUSTRIAL WATER SYSTEMS

- Boilers • Chillers • Condensers • Cooling Towers
- Heat Exchangers • Water Lines...Other Systems

## ETROMAC™

ELECTRO-MAGNETIC TREATMENT UNIT  
SCALE PREVENTION



**ONE-TIME  
INVESTMENT COST**

*No chemicals to add  
No parts to replace  
No maintenance to perform*

**TWO-YEAR  
WARRANTY**

*Efficiently  
Effectively  
Economically*

Manufactured by **ETROMAC Inc.**  
[www.etromac.com](http://www.etromac.com)



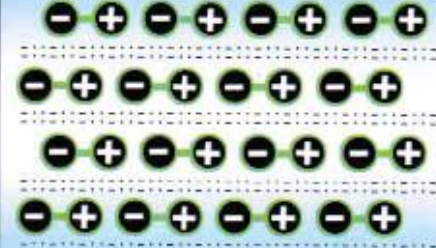


# **ETROMAC™** is efficient, effective...and affordable!

*Scale build-up in water treatment systems leads directly to increased maintenance, higher fuel cost and a less efficient operation.*



Encrusted mineral scale molecules  
in untreated system



Treated molecules in suspension

Scale formation can be reduced or prevented only through the use of a recognized neutralizing medium: magnetic, electrostatic, or chemical.

Chemicals may prove harmful to both pipes and to the environment, but electro-magnetic, permanent magnet and electrostatic devices all provide alternate safe solutions.

Of these, however, only the **ETROMAC™** ELECTRO-MAGNETIC TREATMENT SYSTEM combines the soft solid suspension activation of electro-magnetism with the unique advantages of a remote, controllable power supply... resulting in most effective scale control and consistently efficient performance.

**ETROMAC™**'s scale control and removal capacity is factory calibrated to fit your specific need. Because the **ETROMAC™** introduces no rod or other devices into the water line, the circulation system's flow rate remains unimpeded.



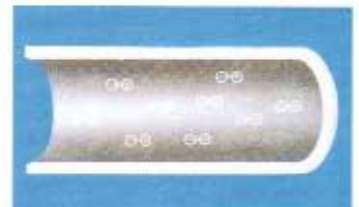
Before using ETROMAC



After using ETROMAC



Encrusted mineral scale molecules  
in untreated system



Treated molecules in suspension

## **ETROMAC™**'s seven great design benefits assure you

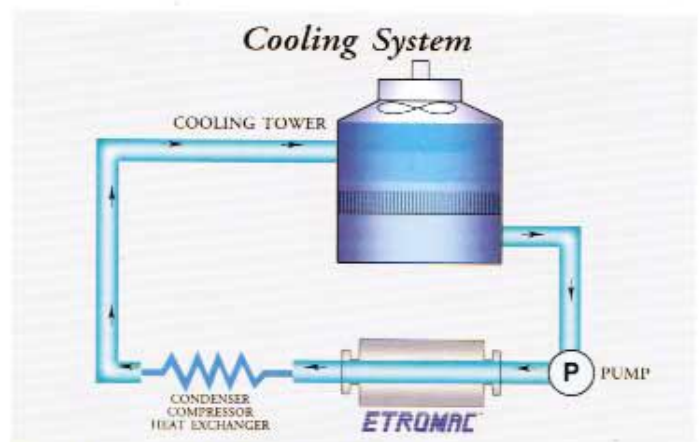
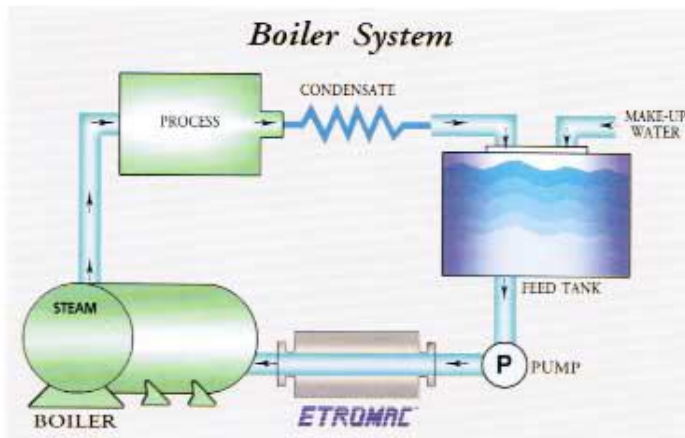
- UL, CSA approved  
Meet Safety Standards
- Effective scale control
- Unrestricted flow
- Pre-calibrated power supply
- Pollution-free performance
- Minimal maintenance
- Low operating cost

## **LOW-COST** Protection for a wide range of industrial applications

- |                        |                             |                         |
|------------------------|-----------------------------|-------------------------|
| ○ Beverage Bottling    | ○ Educational Facilities    | ○ Injection Molding     |
| ○ Boilers              | ○ Extruders                 | ○ Manufacturing Process |
| ○ Building Maintenance | ○ Food Processing           | ○ Meat Packing          |
| ○ Car Washers          | ○ Greenhouses               | ○ Poultry Business      |
| ○ Chillers             | ○ Heat Exchangers           | ○ Spray Heads           |
| ○ Compressors          | ○ Heating Systems           | ○ Vacuum Furnaces       |
| ○ Condensers           | ○ Humidification<br>Systems | ○ Water Heaters         |
| ○ Cooling Jackets      | ○ Ice Machines              | ○ Water Lines           |
| ○ Cooling Towers       | ○ Induction Furnaces        | ○ Welders               |
| ○ Die-casting          |                             |                         |



# ETROMAC™'s electro-magnetism is highly efficient.



## Scale Prevention principles

Scale is defined as a nucleation or incrustation formed in piping, boilers, heat exchangers and cooling towers by the precipitation of calcium and magnesium salts universally found in hard water, a reaction accelerated by the application of high heat.

Ions are defined as electrically charged particles formed in liquids by the action of an electrical imbalance. Ions in a water system, when in a soluble state, tend to adhere to piping walls and surfaces and form scale incrustations because of the excess electrons available from the hot metal surfaces.

Electro-magnetic action is, in effect, caused by an electro-magnetic field generator which orients these ions in the direction of an induced electro-magnetic field, then combines them into molecules suspended in the solution...*in which state they are no longer attracted to adjacent surfaces.*

As a direct result, solubility is increased, cohesive characteristics are decreased, and the soft solids created tend to remain longer in suspension. These soft solids (now containing the scale-building impurities) can then be flushed out of the system through normal blow-down or bleed-off procedures.

## Reduces old scale build-up... Prevents new scale formation

**ETROMAC** through its pre-calibrated electro-magnetic action neutralizes the scale-building potential of those ionic particles found in water circulation systems, aligning and bonding them into energized, suspendable solids.

Encrusted scale molecules are attracted to these electro-magnetically suspended solids and, being thus prevented from being again deposited as scale on piping and heat exchanger surfaces, are gradually carried out of open systems.

In closed or semi-closed systems where elimination of solids is not possible, the **ETROMAC** action then precipitates soft solid accumulations to the bottom of the boiler or tower basin, to be periodically removed by standard bleed-off or blow-down procedures which must be consistently followed if maximum benefit is to be obtained...regardless of the treatment method employed!

Prevention of scale accumulation in process water has never been as simple or cost effective a **ETROMAC** *now* makes it.

### Protects your circulation system

- Suspends scale-building solids
- Gradually eliminates existing deposits
- Reduces down-time on equipment
- Maintains maximum flow

There is no substitute for **ETROMAC**'s eternal vigilance!

POTENTIAL PROBLEM	<b>ETROMAC</b>	ELECTROSTATIC	CHEMICALS
SCALE	Effective, efficient elimination without pipe damage or health hazard	Less effective elimination and control	Potential damage to pipes and danger to environment
CORROSION	Significantly reduced	Less effective	Nearly inevitable pipe damage
SYSTEM FLOW	No restriction	Partial flow restriction	No restriction
POLLUTION	Pollution free	Pollution free	Causes major damage to humans and wildlife
MAINTENANCE EXPENSE	No maintenance	Periodic maintenance	Continual charges for handlings, storage and metering of chemicals



**ETROMAC™** is the most cost conscious because  
**ETROMAC™** has **no** parts to replace,  
**no** chemicals to add,  
**no** maintenance to perform.

- Provides free-flowing, scale-free operation
- Extends the working life of your equipment
- Combines safety and efficiency with cost effectiveness
- Reduces or eliminates present expenditures for maintenance, energy, chemicals, pipe replacement and production down-time.

**One-time investment cost**

**Two-Year Warranty**

### How **ETROMAC™** be designed

**ETROMAC™** has been designed to non-chemically accomplish the particular goal of keeping water circulation systems free of scale and scale-building minerals. To meet this goal, and provide users with long years of satisfaction and trouble free service, **ETROMAC™** system is *built to highest engineering standards with the highest quality materials. There is no better constructed system in the marketplace.*

### SYSTEM BENEFITS

- ✓ No hard-scale build-up
- ✓ Maximum heat exchanger capability
- ✓ Straight-line unrestricted free flow
- ✓ Efficiently power-calibrated system
- ✓ No chemical hazard or contamination
- ✓ Pollution-free performance
- ✓ Gradual removal of old scale
- ✓ One-time cost with 1-2 year payback

### COST SAVINGS

- ✓ Elimination or reduction of chemical expenditures
- ✓ Reduced energy consumption
- ✓ Extended equipment life
- ✓ Lower operating and maintenance costs for scale free systems

### COSTING CHEMICAL vs NON-CHEMICAL TREATMENT SYSTEMS

Calculation of true comparative cost of Chemical vs Non-Chemical scale prevention requires consideration of all related factors

CHEMICAL TREATMENT	NON-CHEMICAL TREATMENT
<ul style="list-style-type: none"> <li>○ Metering pump &amp; monitoring equipment cost \$ .....</li> <li>- Installation cost .....</li> <li>○ Minimal power consumption .....</li> <li>○ Chemical cost .....</li> <li>- Cost for storage .....</li> <li><b>Maintenance costs :</b></li> <li>○ Regular monitoring of all systems .....</li> <li>○ Handling of chemicals .....</li> <li>○ Periodic cleanout &amp; descaling .....</li> <li>- Manpower .....</li> <li>- Production downtime .....</li> <li>○ Municipal sewerage charges .....</li> </ul>	<ul style="list-style-type: none"> <li>○ Original equipment cost \$ .....</li> <li>- Installation cost .....</li> <li>○ Minimal power consumption .....</li> </ul> <p><b>No unit maintenance</b>  <i>(Only closed-loop systems will require a regular monitoring program)</i></p>
<b>TOTAL COST \$</b>	

Is your operation engineered to continuously **SAVE** or **SPEND** money?