

# Tower Guard



A **Green Alternative** for the Management of Recirculating Water Systems

## Tower Guard®...The System That Makes Sense and Saves Dollars



### **Tower Guard® is a chemical free system.**

This includes removing any environmental dangers linked with chemical treatments, spillage, disposal, and human exposure.

### **Tower Guard® significantly reduces make-up water requirements.**

The system bleed (blow down) has been shut off. Water loss is decreased to roughly one gallon per day after current scale is removed!

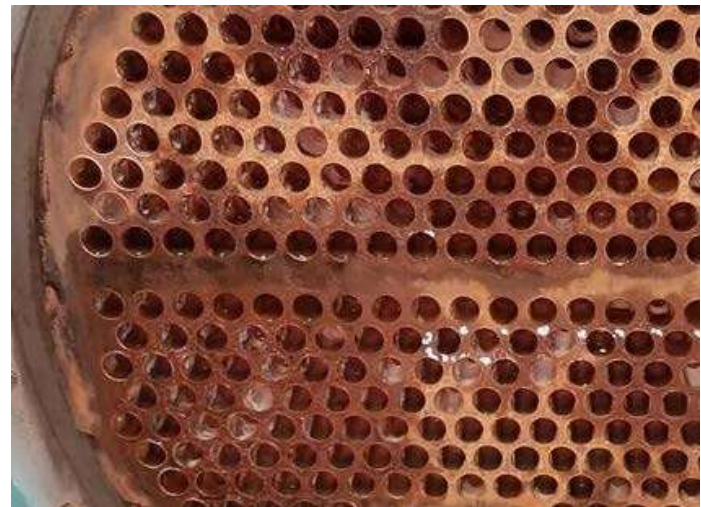
### **Tower Guard® eliminates scale build-up on heat transfer surfaces.**

Intense magnetic fields cause calcite to revert to aragonite, effectively preventing scale build-up and automatically descaling heat transfer surfaces.

**Tower Guard® reduces maintenance requirements.** Basin heat exchangers no longer need to be manually cleaned, and a simple weekly check consists of a germicide level test, a visual inspection of a lint trap, and tool-free manual cleaning, if necessary. The automated purge valve is verified to be operational by pressing the purge override button.

**Tower Guard® maximizes system efficiency, reducing operating costs.** The removal of scale from heat transfer surfaces and pipelines improves both heat transfer and pump efficiency. This lowers energy consumption as well as running costs. Furthermore, unlike ozone and chlorine-based systems, there is no passivation of heat transfer surfaces. Heat transfer rates are maximized on clean, non-passivated surfaces.

**Tower Guard® Extends equipment life.** Oxidants are corrosive to cooling system metals. Tower Guard's dissolved ions are toxic to algae, bacteria, and viruses, but are safe for human contact and non-corrosive to metals. Pitting (under-deposit corrosion) is also eliminated, so equipment life is substantially extended.



# Tower Guard® is Technology at its Best

## How Tower Guard® Works

Tower Guard® is not a non-chemical device (NCD), as most chemical treaters would classify it. Rather, Tower Guard® is a non-chemical system (NCS). Tower Guard® combines three separate technologies in a synergistic manner that removes all six problems that affect cooling towers and other recirculating water systems.

**Electronic Germicide Generator**, originally developed by NASA for manned space flight, and it is microprocessor-driven for precise control. As conductive water in the system travels over patented electrodes, charged germicide molecules (ions) are accepted. These ions, unlike UV, ozone, chlorine, and other oxidizers, give long-lasting residual protection.

The charged ions are attracted to other molecules in the flowing cooling system water. When these ions bind to algae, bacteria, and virus cells, the cells become considerably larger and are easily filtered out of the water. *Legionella* is also removed.

**Magnetic De-Scaler and Corrosion Inhibitor**. When minerals dissolved in water precipitate out of solution, they produce a hard mineral coating (calcite) on transfer surfaces and pipes. The Tower Guard® technology utilizes high magnetic fields that cause calcite to return to its native form, aragonite. This prevents the growth of scale and, in fact, it descales existing surfaces without making the water caustic.

Corrosive water is distinguished by an abundance of hydrogen ions. The Tower Guard® system neutralizes this excess and buffers pH, preventing general corrosion and galvanic (pitting) corrosion. The water will appear scaling (the opposite of corrosive) chemically, but physical forces will prevent scale formation.

**Solids-from-Liquids Separator**. This component of the Tower Guard® system continuously removes sand, silt, pollen, dust, and particles that enter by air and makeup water flow, down to 40 microns. It also collects scale that has been removed from heat transfer surfaces. There is no filter medium in the separator, and no moving parts. There is also no need for backwashing. Accumulated solids are automatically purged on a regular basis, with just 1-4 quarts of water lost.

# Installation is Easy

Tower Guard® is a side-stream treatment device that does not interfere with or rely on the operation of the cooling tower or evaporative condenser. A complete Tower Guard® System requires little floor space and weighs between 300 and 1,000 pounds, depending on the size of the system required. Standard system sizing can reduce, and in some cases eliminate, design expenses. To install, a PVC pipe is routed from one end of the collecting tank to the Tower Guard®, then back to the collection tank. A smaller PVC pipe leads to a drain. Pre-focused permanent magnet assemblies are installed at flanged junctions in existing influent and effluent lines. Finally, the system just requires one 240 VAC service connection.

## With Tower Guard®, Pay-Backs are Immediate

There are no chemicals to buy. There is no need for downtime for tube brushing, pressure washing, or sump cleaning. Water and sewer usage have been significantly reduced. System efficiency at its peak. Maintenance time and effort are reduced. Installing a Tower Guard® water management system can result in such large cost savings that the system can typically pay for itself in less than a year.

“Water Management Through Physics, Not Chemistry”

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