



Pulse~Pure®

Non-Chemical Water Treatment System



Technology for the Future...Available Today!



EVAPCO ENGINEERING

The Wilson E. Bradley Global Research & Development Center, located at world headquarters in Maryland, includes six state of the art environmentally-controlled testing laboratories and a water analytical laboratory devoted to advanced research in support of our water treatment programs.

Since its founding in 1976, EVAPCO, Incorporated has become an industry leader in the engineering and manufacturing of quality heat transfer products around the world. EVAPCO's mission is to provide first class service and quality products for the following markets:

- Commercial HVAC
- District Energy
- Industrial Process
- Industrial Refrigeration
- Power

EVAPCO's powerful combination of financial strength and technical expertise has established the company as a recognized manufacturer of market leading products on a worldwide basis. EVAPCO is also recognized for the superior technology of their environmentally friendly product innovations in sound reduction and water management.

EVAPCO is an employee owned company with a strong emphasis on research and development and modern manufacturing plants. EVAPCO has earned a reputation for technological innovation and superior product quality by featuring products that are designed to offer these operating advantages:

- Higher System Efficiency
- Environmentally Friendly
- Lower Annual Operating Costs
- Reliable, Simple Operation and Maintenance

With an ongoing commitment to Research and Development programs, EVAPCO provides the most advanced products in the industry — **Technology for the Future...Available Today!**

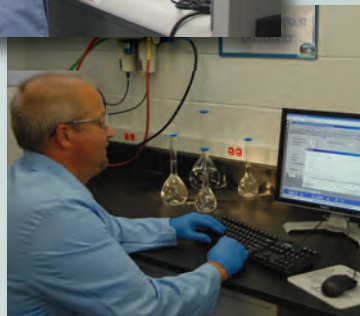
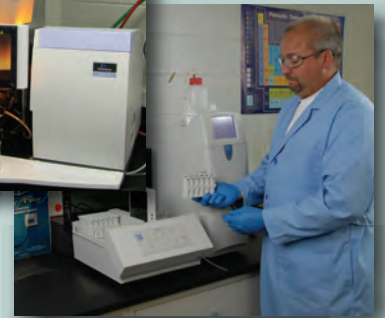
EVAPCO products are manufactured in 17 locations in 8 countries around the world and supplied through a sales network consisting of over 170 offices.

EVAPCO's research and development focuses on thermal performance verification, market leading heat transfer research, and low temperature testing with a paramount emphasis on developing sustainable products and technologies... *Pulse~Pure*® Non-Chemical Water Treatment is a result of this commitment.

Water Analytical Services supports the application and ongoing development of *Pulse~Pure*® Non-Chemical Water Treatment, as well as research on passivation, corrosion, and new materials.

This division utilizes advanced equipment in the field of analytical chemistry, including Ion Chromatography and Atomic Absorption

Spectroscopy, giving EVAPCO the ability to conduct fast and accurate analyses of both chemically and non-chemically treated systems.



Pulse~Pure® Water Treatment System

EVAPCO's *Pulse~Pure*® Water Treatment System offers an environmentally responsible alternative for treating cooling water. EVAPCO's patented and patent pending *Pulse~Pure*® innovation utilizes pulsed-power technology to provide chemical-free water treatment with no harmful by-products. This cutting edge technology enables you to rely on one trusted supplier for your evaporative cooling equipment and associated water treatment — EVAPCO!

Furthermore, your *Pulse~Pure*® purchase includes a one year cooling water monitoring program performed by EVAPCO's factory trained representatives.

Pulse~Pure® FEATURES

- Compact Design with No Moving Parts
- Factory Installed Option Available on Coolers and Condensers (*shown below*)
- Low Energy Consumption
- No Treatment Chemicals Required
- Manufactured and Warranted by EVAPCO
- Performance monitored by an EVAPCO Authorized Service Organization



Pulse~Pure® INTEGRATED CONTROLLER FEATURES

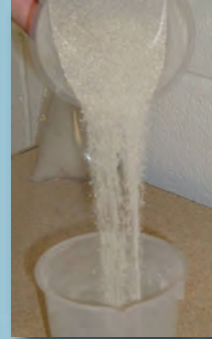
- **Integrated Conductivity Controller** — The *Pulse~Pure*® system integrates a micro-processor driven conductivity controller with a temperature compensated toroidal sensor. One location for conductivity and *Pulse~Pure*® control!
- **Single Power Feed** — One 120 volt or 460 volt service feed is all that is required to power the *Pulse* Panel and Integrated Conductivity Controller.
- **USB Port** — Incorporates an audit trail which can document up to 60 days of system operation.
- **Water Meter Inputs** — Includes ability to track and document water usage from make up and blowdown water meters (meters by others).

EVAPCO... Your single source for environmentally responsible water treatment, evaporative cooling equipment and quality service.

Pulse~Pure® Technology Provides...

SCALE CONTROL

Pulse~Pure® technology controls the formation of mineral scale (calcium carbonate) by creating "seed crystals" from small suspended particles in circulating cooling water. As the *Pulse~Pure*® treated water is cycled up beyond normal solubility, the calcium carbonate precipitates onto the seed crystals eventually settling out in the basin of the evaporative equipment as non-adherent powder. The result is clean heat transfer surfaces coupled with crystal clear basin water.

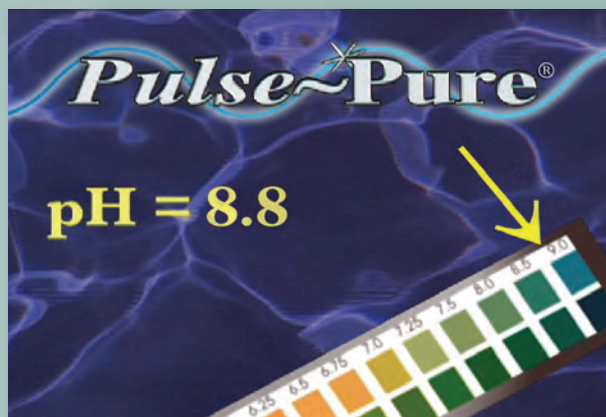


MICROBIOLOGICAL CONTROL

Pulse~Pure® technology controls biological growth by two physical mechanisms; agglomeration and electroporation. Agglomeration is the mechanism where seed crystals form with calcium carbonate and trap bacteria and other small particles in the growing matrix. These trapped bacteria cannot ingest food nor reproduce and become inert.

Electroporation is the process of damage to the bacteria's cell wall caused by the pulsed electric fields generated in the *Pulse~Pure*® chamber. These damaged bacteria devote energies to repair in lieu of reproduction resulting in extremely low bacteria counts.

Both of these mechanisms of bacteria control are physical and non-species-specific thus reducing the bacteria's ability to mutate or adapt to defend against the treatment. EVAPCO guarantees that total bacteria counts will not exceed 10,000 CFU/ml (Colony Forming Units per Milliliter) in the cooling water of an operating *Pulse~Pure*® treated system.



CORROSION CONTROL

Pulse~Pure® technology controls corrosion by operating in an alkaline environment beyond the normal saturation for calcium carbonate. These operating characteristics allow calcium carbonate to act as a natural cathodic corrosion inhibitor. Corrosion potential is reduced further by the elimination of the need for feeding corrosive oxidizing biocides and other potentially harmful chemicals. Operating *Pulse~Pure*® systems typically exhibit uniform corrosion rates equivalent to most chemically treated systems without the risk of aggressive localized corrosion noted in some chemically treated systems.

Pulse~Pure® ENGINEERING DATA

NEW!



**Pulse~Pure®
Integrated Controller**



**Field Installed
Pulse~Pure®**

Pulse~Pure® Water Treatment System Engineering Data and Power Requirements

Model	Pipe Size (in)	Amps (120V / 460V)	Max Flow (gpm)	PURIFICATION CHAMBER				PULSE PANELS	
				Max OD (in)	Length (in)	Weight (lb)	Cable Length (ft)	120V Weight (lb)	460V Weight (lb)
P-3	3	1.3 / 0.3	275	11-1/2	43-1/4	56	15 / 25 (opt)	45	55
P-4	4	1.5 / 0.4	475	11-1/2	43-1/4	66	15 / 25 (opt)	45	55
P-6	6	2.5 / 0.7	1,100	15	48-3/8	94	15 / 25 (opt)	45	55
P-8	8	4.0 / 1.0	1,900	15	48-3/8	120	15 / 25 (opt)	50	60
P-10	10	6.3 / 1.6	3,000	20-1/4	55-1/4	163	15 / 25 (opt)	50	60
P-12	12	7.5 / 2.0	4,200	20-1/4	55-1/4	204	15 / 25 (opt)	50	60
P-14	14	9.6 / 2.5	5,000	23	66	274	25	50	60
P-16	16	11.3 / 2.9	6,700	23	66	340	25	50	60

NOTES:

- (1) Units are designed for a maximum water temperature of 130°F. Units are not designed for boiler applications.
- (2) Units are standard with 120V NEMA 4 electrical pulse panels. Optional NEMA 4X and 460V available.
- (3) Purification chamber flanges ship mounted for field installation.
- (4) Pipe assembly is Schedule 80 PVC with a water-resistant purification chamber housing.
- (5) Units are UL and cUL approved. FCC title 47 CFR compliant and have a Total Harmonic Distortion less than 15%.

EVAPCO is doing its part to protect water resources by eliminating the discharge of chemicals to our waterways. Combining Pulse~Pure® Non-Chemical Water Treatment with Evaporative Cooled Equipment can contribute to earning credits for the LEED® Green Building Rating™† system in the following categories:

WATER EFFICIENCY*

- WEc1.1: Water Efficient Landscaping: Reduce by 50%
- WEc1.2: Water Efficient Landscaping: No Potable Water Use or No Irrigation
- WEc2: Innovative Waste Water Technologies

*Note: Check with local government agencies for regulations governing use of this discharge water.

INDOOR ENVIRONMENTAL QUALITY

- EQc5: Indoor Chemical & Pollutant Source Control

INNOVATION & DESIGN PROCESS

- IDc1.1: Innovation & Design Process

†The Leadership in Energy and Environmental Design (LEED) Green Building Rating System is a voluntary, consensus-based national rating system for developing high-performance, sustainable buildings. LEED addresses all building types and emphasizes state-of-the-art strategies in five areas: sustainable site development, water savings, energy efficiency, materials and resources selection, and indoor environmental quality.



Preserving the Environment

Pulse~Pure[®] APPLICATIONS



Green-Focused Retail Chain
Arizona



Bottling Company
Illinois



LEED[®] Certified College Classroom
Georgia



Mission Critical Facility
Illinois



City Government Building
State of Washington



Food Processing
Mexico

Pulse~Pure[®] BENEFITS

- **Advanced Engineering** — Combining both High and Low Frequency Coil Arrangements
- **Dependable Operation** — No Cooling Fans Required
- **Clean Power** — Less than 15% Total Harmonic Distortion (THD)
- **Compact Design** — Saves Facility Floor Space
- **Saves Money** — Quickest Install & Commissioning with Factory Mounting



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