

Pulse~Pure® PLUS Water Treatment System

EVAPCO's Pulse~Pure® PLUS Water Treatment System offers an environmentally responsible alternative for treating cooling water. EVAPCO's patented Pulse~Pure® PLUS 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® PLUS purchase includes one year cooling water monitoring program performed by one of EVAPCO's factory trained water partners.

Pulse~Pure® PLUS Features

- ▶ Compact Design with No Moving Parts
- ▶ Factory Installed on Coolers and Condensers
- ▶ Factory Assembled BCF Skid for Cooling Towers and Remote Sump Systems
- ▶ Low Energy Consumption
- ▶ No Treatment Chemicals Required*
- ▶ Manufactured and Warranted by EVAPCO
- ▶ Performance monitored by an EVAPCO Authorized Service Provider

* Additional biocide dosage is available depending on the local biocide regulation and legionella legislation.

Pulse~Pure® PLUS Benefits

- ▶ Advanced Engineering — Combining both High and Low Frequency Coil Arrangements
- ▶ Dependable Operation — No Cooling Fans Required
- ▶ Compact Design — Saves Facility Floor Space
- ▶ Saves Money:
 - Quickest Install & Commissioning with Factory Mounting
 - Reduced Chemical Costs
 - No Drums, Pumps or Containment required
- ▶ Higher Safety Level
 - Reduced Employee Chemical Exposure
 - No Liquids to Spill - Less Risks of Slips and Falls
- ▶ Manufactured and Warranted by EVAPCO - First Year Monitoring included

Pulse~Pure® PLUS Engineering Data and Power Requirements

	Pulse~Pure® Model	Pipe Size (in)	Amps @230V	Max Flow (lps)	PURIFICATION CHAMBER			PPIC
					OD (mm)	Length (mm)	Weight (kg)	Weight (kg)
CCC/ Condensers + Open Towers	P-3	3	0.7	17.5	292	1,099	25.4	25
	P-4	4	0.8	30	292	1,099	30	25
	P-6	6	1.3	69.5	381	1,229	42.6	25
	P-8	8	4.0	120	381	1,229	54.4	27
Open Tower Applications	P-10	10	6.3	189.3	514	1,403	74	27
	P-12	12	7.5	265	514	1,403	92.5	27
	P-14	14	9.6	315.5	584	1,676	124	27
	P-16	16	11.3	422.7	584	1,676	124	27

- NOTES:
1. Units are designed for a maximum water temperature of 50°C.
 2. The BCF must have unobstructed return piping to basin.
 3. Units are standard with 230V NEMA 4 (equivalent to IP65) electrical pulse panel, and are CE, UL and cUL listed.
 4. Pipe assembly is schedule 80 PVC with a water resistant purification chamber housing.
 5. Pulse~Pure® PLUS water treatment system can be remotely started through the building management system using MODBUS protocol or control relay wired from the pump.



OUR PRODUCTS ARE MANUFACTURED WORLDWIDE.

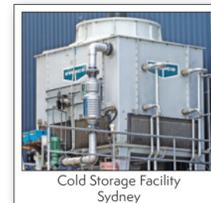


- ★ World Headquarters/
Research and
Development Center
- EVAPCO Facilities

EVAPCO, Inc. - World Headquarters & Research / Development Center

Pulse~Pure® PLUS

The Global Water Treatment System of the Future... Available Today!



Learn More Now

Visit www.evapco.eu to download product catalogs.
View complete product specifications and more.



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Committed to making life easier, more reliable and more sustainable for people everywhere

Pulse~Pure® PLUS

Bulletin 980-E Metric

Innovative Hybrid Water Treatment Systems



Since 1976

An Employee-Owned Company
Commercial HVAC | Process Cooling
Industrial Refrigeration | Power

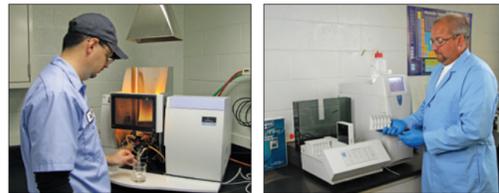


EVAPCO Water Systems Engineering

The Wilson E. Bradley Global Research & Development Center incorporates laboratories for water analysis and state of the art environmentally controlled testing. These laboratories provide unique capabilities for advanced water systems research on full-scale operating equipment.

This state of the art Research and Development Center has over 5,500 m² dedicated to full scale thermal analysis and product development. EVAPCO's *Pulse~Pure*® PLUS System was developed and tested utilizing these unique facilities.

EVAPCO's Water Systems division focuses on the application and ongoing development of water treatment systems as well as research on passivation and corrosion. This division utilizes advanced technologies and equipment in the field of analytical chemistry, including Ion Chromatography and Atomic Absorption Spectroscopy, giving EVAPCO the ability to conduct fast and accurate analysis of chemical and hybrid water treatment systems.



EVAPCO's Water Analytical Services

Since its founding in 1976, EVAPCO Inc. has become a global leader in the design and manufacture of heat transfer solutions. Our pledge is to make everyday life easier, more comfortable, more reliable and more sustainable for people everywhere. EVAPCO's mission is to provide first class service and quality products for the following markets:

- ▶ Commercial HVAC
- ▶ Industrial Process
- ▶ Industrial Refrigeration
- ▶ Power

With manufacturing facilities and sales offices in more than 40 countries – EVAPCO is the team that engineers and contractors know they can count on for life. Our ongoing commitment to research and development has earned us a reputation for technological innovation and superior product quality. These advanced products, including water systems, are designed to provide:

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



EVAPCO's Innovative eco-ATWB-E Evaporative Cooler

Pulse~Pure® PLUS Water Treatment System

Pulse~Pure® PLUS Technology Provides...



Scale Control

Pulse~Pure® PLUS 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*® PLUS 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® PLUS technology controls biological growth by three mechanisms: two physical (agglomeration and electroporation) and one chemical (biocide).

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.

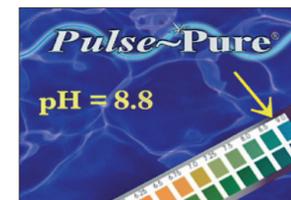


Electroporation is the process of damage to the bacteria's cell wall caused by the pulsed electric fields generated in the *Pulse~Pure*® Chamber. These damaged bacteria devote energies to repair in lieu of reproduction resulting in extremely low bacteria counts.

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*® PLUS treated system.



In addition an oxidizing biocide can be fed through the Bio~Control Feeder (BCF). This allows for additional biological control in difficult circumstances (e.g. when process water from food processing can contaminate the make-up water) or when local legislation requires the use of oxidizing biocides.



Corrosion Control

Pulse~Pure® PLUS 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. Operating *Pulse~Pure*® PLUS 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® Chamber

- ▶ Factory mounted on the riser pipe to simplify commissioning
- ▶ Utilizes both low and high frequency coils for superior bacteria control



Pulse~Pure® Integrated Controller (PPIC)

- ▶ PPIC provides single 230 VAC field power connection
- ▶ NEMA 4 (IP65) panels conform to CE and are UL and cUL approved

BCF for Closed Circuit Coolers and Condensers

- ▶ Simplifies control of microbiological activity by releasing biocide whenever the spray water pump is in operation
- ▶ Utilizes easy and safe granular biocide which is replenished monthly
- ▶ Integrated membrane technology controls release of biocide



Factory Mounted Sub-Assembly for Closed Circuit Coolers and Condensers

- ▶ Patented self-draining design eliminates the need for haet trace and insulation
- ▶ Motorized ball valve controls blow down



BCF-OX-D40 for Cooling Towers and Remote Sump Systems

- ▶ The skid incorporates a motorized ball valve which controls blow down from the cooling tower in conjunction with the PPIC
- ▶ Utilizes easy and safe granular biocide which is replenished monthly

