



## Innovative Solid Chemistry Water Treatment System



***EASY...SAFE...SUSTAINABLE***

**Smart Shield®...Water Treatment System Manufactured with  
EVAPCO Quality for Your Open Evaporative Cooling System!**

## EVAPCO Smart Shield® Factory Assembled Solid Chemistry Water Treatment

EVAPCO's product innovation continues with the introduction of Smart Shield® factory assembled solid chemistry water treatment for open cooling systems. EVAPCO Smart Shield® is available in two unique skid-mounted systems, **Controlled Release and Monitored Release**, to protect a broad range of evaporative cooling water applications. In addition, these new Smart Shield® systems incorporate a modular design to simplify installation and minimize the floor space required in the mechanical room for the water treatment of your evaporative cooling equipment.

The skid-mounted Smart Shield® feeders are designed to control the release of granular and solid water treatment chemicals. Taking the water out of liquid water treatment chemicals provides an easier and more sustainable treatment approach that reduces shipping, handling, and storage weights by up to 80%.

Contact your local EVAPCO Representative to learn whether the Controlled Release or Monitored Release System is right for your open evaporative cooling application.



Controlled Release System (CRF-1 shown)

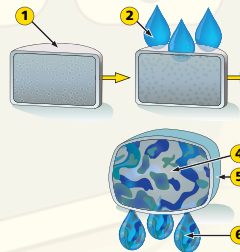
### CONTROLLED RELEASE SYSTEM

EVAPCO's Controlled Release System is designed to provide easy, safe, and sustainable chemical water treatment for open-circuit cooling towers and remote sump applications. This system incorporates either a single or dual Controlled Release Feeder (CRF) arrangement to provide scale and corrosion inhibitor chemistry supply for a 30-day period. The patented scale and corrosion inhibitor technology utilizes a polymer coating to control the release rate as detailed in the inhibitor operation figure.

The Controlled Release System arrives pre-piped and pre-wired to simplify field connections. The system includes a conductivity controller, associated conductivity probe and manifold along with the control valve for the BCF-NX described below.

#### Controlled Release Inhibitor

- 1 Polymer coated inhibitor tablet
- 2 Recirculated water permeates the polymer coating
- 3 Solid chemistry becomes a slurry inside the tablet
- 4 Osmotic pressure causes the tablet to swell, forcing the chemistry out through the polymer coating
- 5 Polymer coating controls the treatment release rate
- 6 Treated water returns to the basin

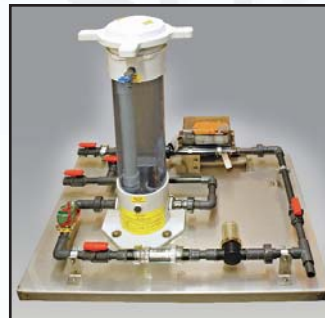


### BIO-CONTROL FEEDERS



#### BCF-NX

The patent pending BCF-NX feeder, shown on the left, is designed to optimize the intermittent feed of a granular non-oxidizing biocide. This feeder arrives skid-mounted as part of the base assembly with both the Controlled Release and Monitored Release Systems. The BCF-NX utilizes innovative packaging for the non-oxidizing biocide which eliminates the need for problematic chemical feed pumps while minimizing biocide storage and handling concerns.

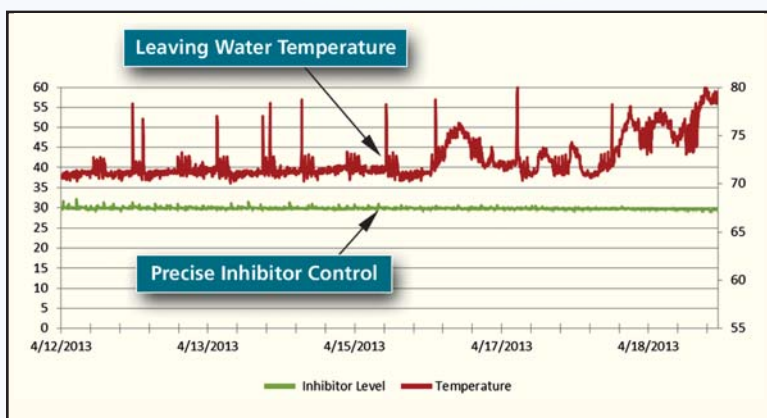


#### BCF-OX

The BCF-OX feeder is designed to optimize the feed of an oxidizing biocide. The BCF-OX feeder arrives factory mounted on an independent skid in combination with either a Controlled Release or Monitored Release System. This skid incorporates a motorized ball valve which controls blow down from the evaporative cooling system when wired to the conductivity controller. The BCF-OX skid (B25 shown) arrives pre-piped to minimize field piping and speed field installation.



Monitored Release System (MRF-2 shown)



Monitored Release System Performance Data

### MONITORED RELEASE SYSTEM

EVAPCO's Monitored Release System is designed to simplify the chemical treatment of open-circuit cooling tower and remote sump applications. This system incorporates either a single or dual Monitored Release Feeder (MRF) arrangement to provide scale and corrosion inhibitor chemistry for systems that are larger or have a higher inhibitor demand than can be satisfied by the Controlled Release System. This innovative system utilizes an advanced inhibitor probe to automatically monitor and maintain precise inhibitor residual throughout the evaporative cooling water application.

The Monitored Release System arrives pre-piped and pre-wired to simplify field connections. The system includes an advanced conductivity controller, associated conductivity probe and manifold, inhibitor probe, and control valves for both the BCF-NX and MRF feeders.

EVAPCO's Monitored Release System maintains precise control of the scale and corrosion inhibitor residual regardless of variation in the evaporative cooling system's thermal load. The graph on the left, from an operating condenser water system, details the precise control of inhibitor that is maintained as the plant's leaving water temperatures vary due to fluctuation in heat load.

### Smart Shield® Engineering Data

Smart Shield Model		Dimensions inches (mm)			Shipping Weight lb. (kg)	Water Inlet/Outlet Size in. (mm)	Blow Down Valve Size in. (mm)
		L	D	H			
Controlled Release	CRF-1	79 (2005)	33-1/4 (845)	49 (1245)	265 (120)	1 (32)	n/a
	CRF-2	95-5/8 (2430)	33-1/4 (845)	49 (1245)	300 (135)	1 (32)	n/a
Monitored Release	MRF-1	84 (2135)	39-1/2 (1005)	60-1/2 (1540)	435 (200)	1 (32)	n/a
	MRF-2	106 (2695)	39-1/2 (1005)	60-1/2 (1540)	490 (220)	1 (32)	n/a
BCF-OX	B15	38 (965)	28 (710)	23 (585)	85 (40)	3/4 (25)	3/4 (25)
	B25	38 (965)	28 (710)	35 (890)	90 (40)	3/4 (25)	3/4 (25)
	B50	45 (1145)	30 (760)	35 (890)	120 (55)	1 (32)	1 (32)

Each Smart Shield® system combines either a Controlled Release System or a Monitored Release System with a BCF-OX.



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 is recognized for the superior technology of their environmentally friendly product innovations in sound reduction, energy reduction, and water management.

## EVAPCO Water Systems

EVAPCO's Water Systems division focuses on the application and on-going development of chemical, hybrid, and non-chemical water treatment systems. 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 analyses of these water treatment systems.

Located at EVAPCO's corporate headquarters, the Wilson E. Bradley Global Research & Development Center provides a broad range of capabilities for advanced water systems research on operating equipment. EVAPCO's Smart Shield® systems were developed and tested utilizing these unique facilities. With an ongoing commitment to Research & Development programs, EVAPCO provides the most advanced products in the industry – **Technology for the Future, Available Today!**



Visit us on the web to learn more: [www.smartshield.evapco.com](http://www.smartshield.evapco.com)

Contact your local EVAPCO Sales Representative or EVAPCO® Headquarters for more information.



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