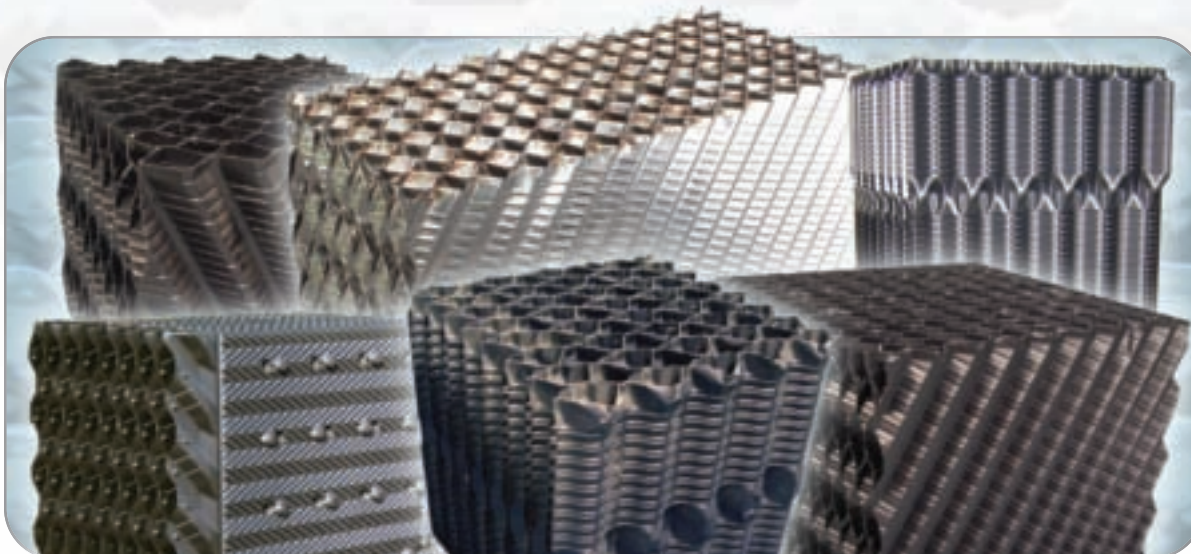


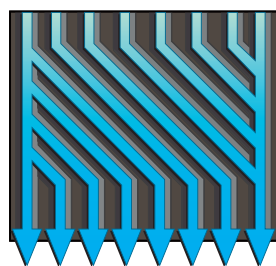


# evapco

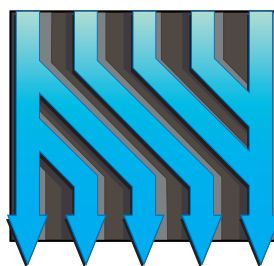
## EVAPCO has Fill Options for all Cooling Tower Applications



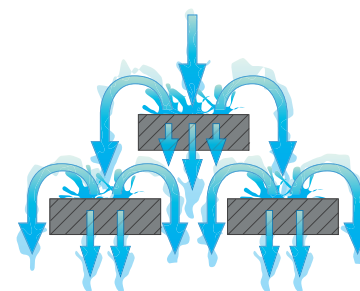
- **Evap-Pak** – High Efficiency Fill installed in All Factory Assembled Cooling Towers
- **Titan-Pak** – Lightweight Stainless Steel Fill for Superior Corrosion Resistance
- **Wide-Pak, VertiCLEAN & Tech-Clean®** – Wide Gap Counterflow Fills for Use in Dirty Water Applications to Prevent Clogging
- **Cross-Pak** – Used for Crossflow Fill Kit Retrofits
- **Opti-Bar® & Opti-Grid** – High Efficiency Splash Fills for Field Erected Cooling Towers



**EVAPCO'S**  
High Efficiency Fills



**EVAPCO'S**  
Wide Gap Fills



**EVAPCO'S**  
Splash Fills

## EVAPCO's PVC Fill Technical Information

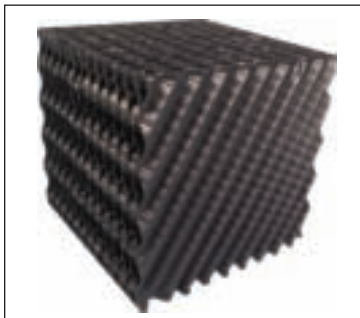
All of EVAPCO's Fill Products have been engineered for maximum performance in a variety of cooling tower applications. All bundled fill is fabricated from rigid thermoformed PVC sheets that are solvent welded for maximum strength. The resulting structural integrity enables the fill to be used as a working platform and provides a safe working environment to perform preventative maintenance or service. The lightweight, easy to handle PVC bundles simplify installation thereby saving labor hours and cost.

EVAPCO's standard fill products are resistant to UV, rot, fungus, organic/inorganic solvents, acids, alkalis and chemicals normally found in cooling tower waters. PVC material meets CTI standard 136. All PVC counterflow fill is suitable for inlet water temperatures up to 130°F/54.4°C, and is available in HPVC material for inlet temperatures up to 150°F/65.5°C. *Temperature fluctuations for counterflow fill of up to 15°F/8.4°C above the maximum continuous operating temperature can be tolerated if kept to 2 hours or less.* EVAPCO's Stainless Steel Fill is suitable for inlet water temperatures up to 150°F/65.5°C.

EVAPCO's Cross-Pak crossflow fill is suitable for inlet water temperatures up to 120°F/49°C, and is also available in HPVC for inlet temperatures up to 130°F/54.5°C. *Temperature fluctuations for the Cross-Pak fill of up to 5°F/2.7°C above the maximum continuous operating temperature can be tolerated if kept to 1 hour or less.*

Standard PVC sheet mil thickness is 10 mil after forming. Products are also available in 15 mil thickness after forming for specialty applications where higher bundle strength is required. Additionally, all products are self-extinguishing with a flame spread of 5 per ASTM E84-819.

### Standard EVAP-PAK – High Efficiency Counterflow Fill



The EVAP-PAK fill is standard in all factory assembled Evapco Cooling Towers and is the highest efficiency fill on the market. EVAP-PAK Fill has **69 sq. ft.** of surface area per cubic foot. EVAP-PAK fill is also known as 1200 Fill.

EVAP-PAK Fill is ideal for towers where:

- TSS < 25 PPM (< 10 PPM where bacteria activity is high)
- Make up water is coming from uncontaminated sources
- Biocidal water treatment program is in use
- TDS < 1,000 PPM as Calcium Carbonate (CaCO<sub>3</sub>)
- Minimal airborne contamination
- No greases, oils, process contamination, or fibers

### TITAN-PAK – Stainless Steel High Efficiency Counterflow Fill



The TITAN-PAK stainless steel fill is used in factory assembled cooling towers, and was designed for corrosive and high temperature applications. The TITAN-PAK fill is completely constructed of stainless steel and is fire retardant. Stainless steel fill, when properly maintained will last the life of the cooling tower. Its configuration is very similar to the EVAP-PAK Fill, so performance de-rate is minimal.

TITAN-PAK Fill is ideal for towers where:

- TSS < 25 PPM (< 10 PPM where bacteria activity is high)
- Make up water is coming from uncontaminated sources
- Biocidal water treatment program is in use
- TDS < 1,000 PPM as Calcium Carbonate (CaCO<sub>3</sub>)
- Minimal airborne contamination
- No greases, oils, process contamination, or fibers

### WIDE-PAK – Cross Fluted Wide Gap Counterflow Fill

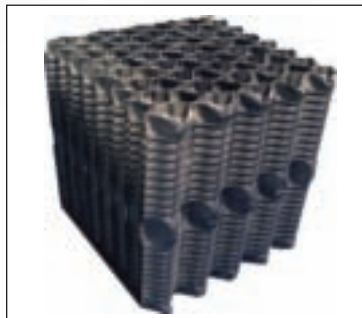


The WIDE-PAK Cross Fluted fill is often used in factory assembled cooling towers for dirty water applications. The WIDE-PAK fill has 48 sq. ft. of surface area which maximizes efficiency while maintaining a wide flute design. When designing around WIDE-PAK, consideration for performance derates should be accounted for. WIDE-PAK is also known as 1900 fill.

WIDE-PAK Fill is ideal for towers where:

- TSS <100 PPM (<25 PPM where bacterial activity is high)
- Make up water is coming from surface waters
- Biocidal water treatment program in use
- TDS < 5,000 PPM as Calcium Carbonate (CaCO<sub>3</sub>)
- Minimal airborne contamination
- No greases, oils, process contamination, or fibers

### VERTICLEAN – Vertical Fluted Wide Gap Counterflow Fill



The VERTICLEAN Vertical Fluted fill is often used in factory assembled cooling towers for dirty water applications. The VERTICLEAN fill maximizes efficiency while maintaining a vertical flute design. This vertical flute design is ideal for dirty water applications.

VERTICLEAN Vertical Fluted Fill is ideal for towers where:

- TSS between 75 and 500 PPM
- Make up water is coming from surface waters
- Good biological control
- TDS < 5,000 PPM as Calcium Carbonate (CaCO<sub>3</sub>)
- Some process contamination is allowed
- Oil or greases in system up to 5 PPM
- No Fibers

## Replacement Fill Options for Factory Assembled and Field Erected Units

The most important factor in a cooling towers performance is the design and condition of the fill media. Over time, the fill in a cooling tower will experience scale build-up, become clogged with debris, and when subjected to poor water conditions, may even fall apart. Replacing a tower's fill can greatly increase the thermal performance, reduce the tower's operating cost, and solve many of your customers' tower related problems. In addition to the counterflow fill options discussed above, **EVAPCO offers replacement fill for ALL manufactures evaporative cooling equipment, including BAC, Marley & Imeco.**

### CROSS-PAK – High Efficiency Crossflow Fill



The CROSS-PAK Fill is designed to replace OEM hanging fill sheets in factory assembled crossflow cooling towers. The CROSS-PAK Fill is custom configured to suit any crossflow cooling tower application, and includes bundles with integrated inlet louvers and integrated drift eliminators when applicable. **There is no capacity reduction when replacing the OEM fill with EVAPCO's High Efficiency Crossflow Fill.**

CROSS-PAK Fill is ideal for towers where:

- TSS<100 PPM (<25 PPM where bacterial activity is high)
- Make up water is coming from uncontaminated sources
- Biocidal water treatment program is in use
- TDS<5,000 PPM as Calcium Carbonate (CaCO<sub>3</sub>)
- Minimal airborne contamination
- No greases, oils, process contamination, or fibers

### TECH-CLEAN® – Wide Gap Vertical Offset Fill

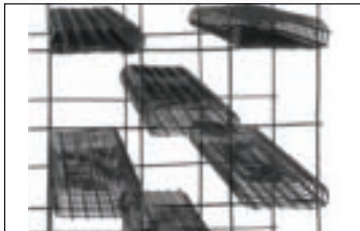


The TECH-CLEAN® Fill is often used in field erected cooling towers. TECH-CLEAN® fill has offset flutes which keeps the water in suspension longer and promotes water mixing. This increases the efficiency while maintaining relatively open flutes for dirty water applications.

TECH-CLEAN® Fill is ideal for towers where:

- TSS < 50 PPM (< 15 PPM where bacteria activity is high).
- Make up water is coming from uncontaminated sources.
- Biocidal water treatment program is in use.
- TDS < 1,500 PPM as Calcium Carbonate (CaCO<sub>3</sub>).
- Good scale control is in effect.
- Minimal airborne contamination.
- No greases, oils, process contamination, or fibers.

### OPTI-BAR® – Splash Fill



The OPTI-BAR® High Efficiency Splash Fill is used in field erected cooling towers. OPTI-BAR® eliminates the streaming and channeling of water common with standard bar fills, and the open areas between mesh strands allows water droplets to pass through the bar and be cooled by the air passing under the bar. In a recent major research study by an independent consulting firm, OPTI-BAR® was tested for performance and compared to all other splash fills available in the market today. The test results showed that OPTI-BAR® was at least 10% more efficient than the nearest competitive splash fill design.

### OPTI-GRID – Splash Fill



The OPTI-GRID Splash Fill has evolved over many years, and is the result of hours of research and testing, searching for the optimum configuration of a counterflow splash fill. Because of its strength and resistance to collecting fibers, OPTI-GRID is ideal for waters with high amounts of fibers or pulp. Optimum performance in a splash fill is the result of maximizing the number of water droplets in any unit volume of water, and minimizing the size of those droplets in order to produce the highest surface area of water available to the passing air. It was found through research that, rather than bouncing droplets off flat surfaces, as found in typical wood and plastic lath fills, more and smaller droplets were formed if the cascading water droplets were subject to repeated shearing action. It was found that narrow horizontal strips, in uniformly spaced tiers throughout the heat transfer area, provided the optimum efficiency.



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