

# TOWER-FLO<sup>®</sup>

Water Filter Systems

## BENEFITS OF FILTRATION

Cooling towers act as giant air washers. Finely misted water is sprayed into a column of moving air. In cooling towers this mist increases the surface area of the water so heat transfer from water to air is more efficient and effective. In air washers this mist traps particulate matter out of the air and "washes" it into a sump for disposal.

Unintended and undesirable though it may be, cooling towers accumulate large quantities of dirt, dust, and other air-borne solids. They become suspended solids in cooling water coursing through cooling towers, pumps, chillers, condensers, heat exchangers, etc. As dirt and suspended solids accumulate in cooling water and cooling equipment, there are a number of undesirable results.

- **Fouling and energy consumption increase:** Dirt and suspended solids are key constituents in the dynamic processes of fouling, scaling and corrosion. Progressively fouled heat transferring surfaces are progressively less efficient, therefore, progressively more expensive to operate as pump and fan motors work harder and harder to reject the same heat load. A **Tower-Flo<sup>®</sup> Filter** will continuously remove suspended solids, preserving thermal capacity and reducing energy consumption.
- **Chemical consumption increases while effectiveness decreases:** Suspended solids accelerate consumption of treatment chemicals. Chemical dollars are spent treating dirt. Just as filters cannot control water chemistry, chemicals cannot control solids! Biocides are unnecessarily consumed by organic solids. Consumption of pH controlling chemicals is accelerated by solids. Polymer treatments are often added to keep solids in suspension so they might be blown down if they happen to float by an open blow down valve. Solids accumulate in areas of low water velocity – such as the tower basin, chiller, heat exchanger – which, in addition to interfering with heat transfer, provides: a breeding ground for slime, algae and bacteria (i.e.; legionella); a layer of insulation from biocide treatments and corrosion inhibitors; and the mechanism for underdeposit corrosion. A **Tower-Flo<sup>®</sup> Filter** will continuously remove suspended solids and lower chemical consumption.
- **Maintenance and downtime increases while equipment life spans are shortened:** Dirty water increases maintenance requirements on every piece of equipment it contacts. Tower "muck outs", chiller "rod outs, heat exchanger clean-outs and acid washing, all are exacerbated by effects of dirty water. Dirt in the water stream also acts as an abrasive, eroding seals, impellers, etc. And if regular maintenance isn't done, count on equipment to fail at the worst possible moment forcing corrective actions in a state of emergency and at ridiculous expense. A **Tower-Flo<sup>®</sup> Filter**, properly sized and installed, will continuously remove suspended solids, lessening maintenance, extending cleaning intervals and extending equipment life.

**Tower-Flo<sup>®</sup> Water Filter Systems** offer a simple, highly effective solution to contamination of cooling water by suspended solids. Continuous sidestream filtration is a fundamental requirement for a total water quality management program; in combination with treatment for control of water chemistry and biological contaminants.

**Tower-Flo<sup>®</sup> Filters** are skid-mounted, self-contained, automatic backwashing, sand filter systems which include pump, motor, strainer, filter vessel and internals, filter media, face piping, valves, valve actuators, and automatic backwash controls, all skid-mounted, pre-plumbed and pre-wired. These filters are best installed on an independent sidestream drawing water from and returning it to the cooling tower basin, separate and independent from the cooling loop's recirculation system.

With solids being continuously removed by a **Tower-Flo<sup>®</sup> Water Filter System**:

- heat exchanging surfaces remain clean and free of fouling, less energy is consumed;
- chemicals are not consumed treating dirt, fewer chemicals are consumed;
- chemicals controlling algae and bacteria will be more effective, fewer chemicals are consumed;
- sumps, pipes, tubes, barrels, plate and frames will remain cleaner longer, machine efficiency will be maintained, equipment life will be extended, while maintenance and downtime will be reduced.

It's like we say:

**LESS**

suspended solids in cooling water

**IS MORE**

thermal capacity

**FOR LESS**

operating cost

**REDUCE**

Fouling  
Energy Costs  
Chemical Costs  
Maintenance  
Downtime  
Legionella Risk

**IMPROVE**

Thermal Capacity

**UNITED**  
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