



CHILLER SAVINGS THROUGH NEXT GENERATION FILTRATION AND IMPROVED EFFICIENCY

ElectroCell is a next generation hi-tech smart filtration side-stream filter (Particle Precipitator) skid that, with low flow and high filtration, will remove up to 98% of all suspended particles down to one micron. Unlike typical traditional side-stream filters our system addresses both suspended and dissolved solids. This is accomplished without utilizing media such as sand, screens or disks, and eliminating backwash by using only the bleed water that is already going to drain when conductivity setpoint has been realized.

On the inlet of our system suspended particles are charged with equal alternate positive and negative polarities. The dissimilar charged particles attract in our static mixer cartridges and the smaller particles coalesce and become larger particles that are then precipitated and discharged using conductivity to purge the system. In the shoulder off-season months of the year when bleed times have been reduced this is accomplished via a scheduled automated program.

On the outlet of our system we address dissolved particles that are electrostatically held in solution until the bleed cycle is enabled. Our electrohydrodynamic (EHD) technology collapses the laminar boundary between the pipe wall and the liquid flow, significantly enhancing heat transfer through the chiller tubes (condenser heat exchanger). On new applications this will keep chiller tubes clean and free of fouling; because we are removing the laminar boundary within the exchanger if scale is present it is removed over a short period of time.

The entire system is managed through a color touch screen PLC which monitors and manages conductivity, psi and system flows (make-up, bleed, evaporation and filter). The skid-mount modular systems vary in size depending on tonnage to be treated and can be interfaced with existing building automation systems through BACnet or Modbus.

Installations are relatively simple. Our system requires an inlet, outlet, drain and 20-amp electrical circuit (typically Schedule 80 PVC) off main condenser manifold in the chiller plant.

Validated savings over the past twelve years are 12% to 15% energy savings on chillers and 20% to 25% savings in make-up water to the cooling towers, along with a significant reduction in maintenance, service and repair costs.

ElectroCell's technology would replace existing side-stream filtration, if present, on both open and closed loops. Our technology works seamlessly with existing chemical company's program, but does not interfere with their service to the customer. (Chemical programs work more efficiently once suspended particles are removed.)