



TEMPERATURE CONTROLLERS... PORTABLE CHILLERS... CENTRAL CHILLERS... PUMP TANK STATIONS... TOWER SYSTEMS...

SUBJECT: WATER MAKE-UP REQUIREMENTS OF COOLING TOWERS

FYI #262 12/07/2001

Evaporative cooling towers, like the Advantage Power Tower Series, provide cooling by evaporating a small amount of the recirculated process water flow. Approximately 1,000 BTUs are required to evaporate .12 gallons of water. Therefore, every tower ton (15,000 BTH/hr) requires approximately 1.8 gallons of water evaporation, or .03 gpm/ton.

As water evaporates in a cooling tower system, the water vapor enters the atmosphere while any dissolved solids remain behind, building concentration in the remaining water.

Most water treatment systems control this concentration by bleeding off the high concentration water, which is made up by fresh city water with a lower solid concentration. The amount of water that is bleed off by the water treatment system is usually less than or equal to the amount of water that evaporates.

Therefore, the maximum normal water make-up for a cooling tower system is .06 gpm/ton or about 2% of the nominal tower flow rate.



Advantage Power Tower Series Cooling Tower, Model TC-135F

ADVANTAGE MODEL # <small>Power Tower Series</small>	TOWER CAPACITY <small>expressed in TONS</small>	MAXIMUM EVAPORATION <small>at design capacity (GPM)</small>	NOMINAL TOWER FLOW RATE <small>(GPM)</small>	MAXIMUM WATER MAKE-UP <small>at design capacity (GPM)</small>	ADVANTAGE MODEL # <small>Power Tower Series</small>
TC-45F	45	1.35	135	2.7	TC-45F
TC-85F	85	2.55	255	5.1	TC-85F
TC-105F	105	3.15	315	6.3	TC-105F
TC-135F	135	4.05	405	8.1	TC-135F
TC-170F	170	5.10	510	10.2	TC-170F
TC-210F	210	6.30	630	12.6	TC-210F
TC-270F	270	8.10	810	16.2	TC-270F
TC-405F	405	12.15	1215	24.3	TC-405F
TC-540F	540	16.20	1620	32.4	TC-540F

Maximum includes evaporation and bleed off