



## COOLING TOWER PUMP TANK SYSTEMS

All of our pump tank assemblies are backed by proven engineering and expert construction that have made our systems the standard of the industry for more than 30 years.

Process cooling water is circulated by centrifugal pumps with cast iron housings, bronze impellers, and mechanical seals. Full-sized pump suction and discharge valves, discharge check valves, pressure gauges, and gauge trim. You can customize your AEC pump tank assembly with dozens of pump configurations and control options.



Pump Tank

### STANDARD FEATURES

- Centrifugal close-coupled pump, featuring cast iron impellers with 230/ or 460/3/60 ODP motor; other voltages and motor designs are available
- Tank, sides, bottom, and baffles are stainless steel
- Stainless steel basket on process return
- Lug-mount butterfly valves
- #304 stainless steel tank side walls 3/16" from T150 to T2000; 1/4" from T2700 to T5100D
- Standard hardware includes thermometer(s), pump pressure gauge(s), drain valve
- Full-size pump trim for maximum efficiency; includes isolation, throttling, and check valves
- Automatic level control makeup valve
- 8-foot support legs
- Butterfly valve handles
- Solid diamond-plate pump ledge
- 1 year warranty on parts and labor

### OPTIONAL FEATURES

- Armaflex insulation
- Composite cover
- Second pump ledge
- OSHA handrail and ladder
- Sight glass
- 1" Clayton float valve (claval makeup valve)
- Well reinforcement
- P1 process pump, P2 recirculating pump
- TEFC motor, in lieu of ODP motor
- Bronze impeller
- Single suction or double suction trim
- Discharge manifold: process/recirculation standby
- Plugged or valved opening, mild or stainless steel
- Digital temperature display
- Amp meter, hour meter, digital flow meter
- UL Panel
- NEMA 12 enclosure with fused transformer
- Through-the-door disconnect
- Panel mounted on tank and wired

## SELECTION

Model	Max. tower, tons <sup>1</sup> (Kcal/hr)		Capacity, gallons (l)		Max. pumps/ledge	Return water conn., in. (mm) NPT
	1 well	2 wells	Overflow	Operating		
T150 (D)	27 (102,200)	16 (63,900)	135 (511)	100 (378)	3	3 (76)
PT400 (D)	78 (295,200)	48 (184,500)	390 (1476)	350 (1325)	3	5 (127)
T500 (D)	96 (363,400)	60 (227,100)	480 (1817)	360 (1362)	3	4 (102)
T700 (D)	144 (545,000)	90 (340,600)	720 (2725)	540 (2044)	4	4 (102)
T1100 (D)	215 (813,800)	134 (508,600)	1075 (4069)	825 (3122)	4	6 (152)
T1600 (D)	323 (1,222,600)	200 (764,100)	1615 (6113)	1240 (4693)	4	6 (152)
T2000 (D)	408 (1,544,200)	255 (965,100)	2040 (7721)	1565 (5923)	5	6 (152)
T2700 (D)	540 (2,043,800)	337 (1,277,400)	2700 (10,219)	2065 (7816)	6	6 (152)
T3700 (D)	733 (2,774,400)	458 (1,734,000)	3665 (13,872)	2830 (10711)	6	6 (152)
T5100 (D)	1026 (3,883,400)	641 (2,427,100)	5130 (19,417)	3960 (14988)	7	8 (203)

<sup>1</sup> Calculated for cooling tower water, based on 3 gpm per ton and towers beign within 25 feet of the tank

## PUMP TANK CAPACITIES

Capacity		Trim size, in. NPT (mm)	Process pump, hp (kW)	Recirculating pump, hp (kW)
Nominal refrigeration, tower water, tons (Kcal/hr)	Nominal flow, gal. (l)			
20 (75,600)	60 (227)	2.5 (64)	5 (3.73)	3 (2.24)
30 (113,400)	90 (341)	2.5 (64)	7.5 (5.59)	3 (2.24)
40 (151,200)	120 (454)	3 (76)	7.5 (5.59)	5 (3.73)
50 (189,000)	150 (568)	3 (76)	10 (7.5)	5 (3.73)
60 (226,800)	180 (682)	4 (102)	10 (7.5)	5 (3.73)
75 (283,500)	225 (852)	4 (102)	15 (11.19)	7.5 (5.59)
80 (302,400)	240 (909)	4 (102)	15 (11.19)	7.5 (5.59)
100 (378,000)	300 (1135)	4 (102)	20 (14.91)	7.5 (5.59)
125 (472,500)	375 (1416)	6 (152)	20 (14.91)	10 (7.5)
150 (567,000)	450 (1703)	6 (152)	25 (18.64)	10 (7.5)
175 (661,500)	525 (1987)	6 (152)	30 (22.37)	15 (11.19)
200 (756,000)	600 (2271)	6 (152)	30 (22.37)	15 (11.19)
250 (945,000)	750 (2839)	6 (152)	40 (29.93)	20 (14.91)
300 (1,134,000)	900 (3406)	6 (152)	50 (37.29)	20 (14.91)

## DIMENSIONS

Model	Length, in. (cm)	Width, in. (cm)	Height, in. (cm)	Ship. weight <sup>2</sup> , lbs.	Operating weight <sup>2</sup> , lbs.
T150 (D)	72 (183)	36 (91)	40 (102)	600 (273)	1800 (817)
PT400 (D)	95 (241)	56 (142)	64 (162)	500 (227)	3500 (1588)
T500 (D)	102 (259)	48 (122)	52 (132)	2000 (908)	6000 (2722)
T700 (D)	114 (289)	72 (183)	52 (132)	2600 (1180)	8600 (3901)
T1100 (D)	114 (289)	72 (183)	77 (195)	3400 (1543)	12400 (5625)
T1600 (D)	138 (350)	72 (183)	77 (195)	4000 (1815)	17500 (7938)
T2000 (D)	150 (381)	92 (234)	78 (198)	5000 (2268)	22100 (10025)
T2700 (D)	150 (381)	120 (305)	78 (198)	6000 (2722)	28500 (12928)
T3700 (D)	162 (411)	120 (305)	90 (229)	7000 (3176)	37600 (17056)
T5100 (D)	162 (411)	168 (427)	92 (234)	7800 (3539)	50700 (22998)

<sup>2</sup> Weights are for tank only; pump weight is not included

## SIZING CONSIDERATIONS

In sizing a cooling tower pump tank, allow enough volume to avoid unacceptable levels of turbulence and enough volume for drawdown. Drawdown is the amount of water that is pumped out of the tank on startup before water begins to return from the towers. Standard tank sizes in this specification allow 2 gallons per ton (2 liters per 1,000 Kcal/hr) for drawdown and towers located within 25 feet (8 m) of the tank.

System size		Additional tank volume	
tons	Kcal/hr	gallons per foot over 25 feet	liters per meter over 8 meters
1 — 100	3,780 — 378,000	8.8	109.3
101 — 300	378,001 — 1,134,000	16.4	203.7
301 — 600	1,134,001 — 2,268,000	26.8	332.8

If towers are more than 25 feet (8 m) from the tank, add more tank volume based on the table below.

To reduce turbulence when the system is in operation, allow 1 gallon of tank volume for each gpm (1 liter of tank volume for each lpm) entering the tank.

### Sizing Example

A 100-ton cooling tower is being located 50 feet from the pump tank. What minimum volume should the tank have for a single-well tank and for a dual-well tank?

Single well: Volume = Drawdown volume + Operating volume + Distance correction  
 = 2 gals./ton x 100 tons + 1 gal./gpm x 300 gpm + (50 - 25) feet x 8.8 gal./foot  
 = 200 + 300 + 220  
 = 720 gallons required

Result: Select a T700 model pump tank.

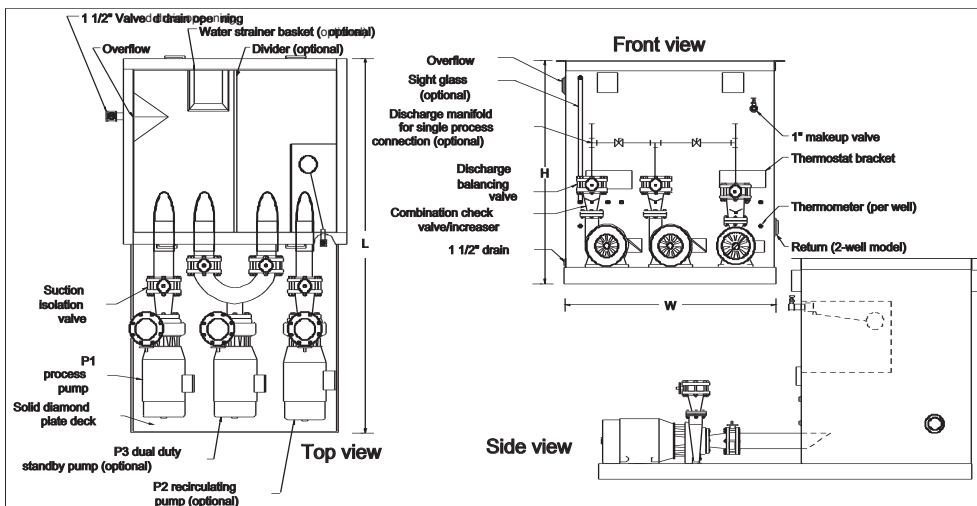
Dual well: Volume = Drawdown volume + Operating volume + Distance correction  
 = 2 gals./ton x 100 tons + 1 gal./gpm x 600 gpm + (50 - 25) feet x 8.8 gal./foot  
 = 200 + 600 + 220  
 = 1,020 gallons required

Result: Select a T1100D model pump tank

Simplifying formulas where standard flow, 3 gpm per ton, is used are:

Single well volume = 5 x Tons + Distance correction  
 Dual well volume = 8 x Tons + Distance correction

Standard tank selections are based on the formulas listed above, where the distance correction is zero (0), meaning that towers are within 25 feet of the tank.



All pumps are close-coupled centrifugal types and include a compound pressure gauge and ODP-type motors. TEFC motors are available as an option. Trim is full size, including butterfly valve (and reducer if necessary) on the suction side, combination increaser/check valve, and butterfly valve on the discharge side.

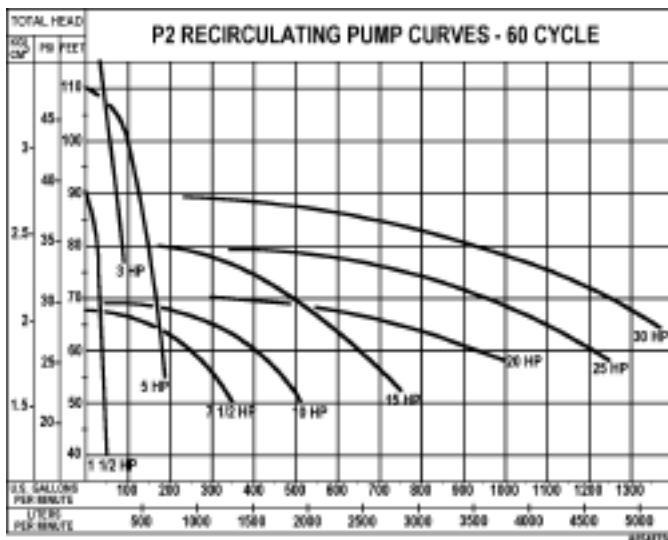
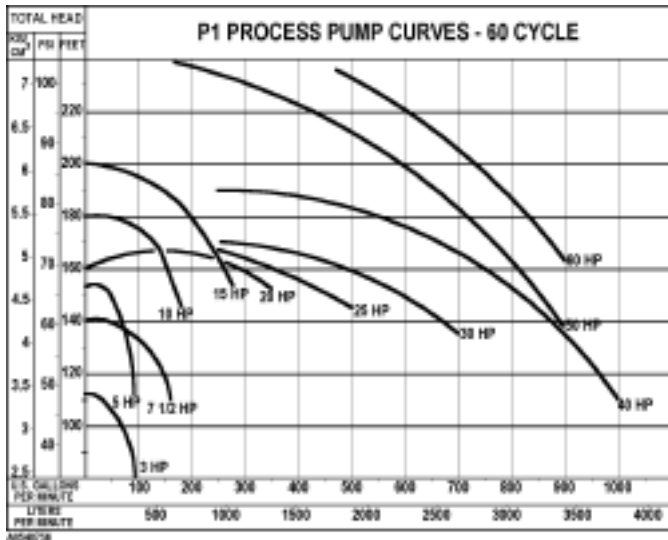
## PUMP INFORMATION

Pump hp	1.5	3	5	7.5	10	15	20	25	30	40	50	60
Amp draw, 460/3/60	2.6	4.8	7.6	11	14	21	27	34	40	52	65	77
Ship. weight. lbs. P1	—	95	115	125	165	180	300	310	400	465	710	730
Ship. weight. lbs. P2	60	90	115	275	320	425	510	630	670	—	—	—

## TRIM SIZE

Trim size	2"	2.5"	3"	4"	6"	8"
Max. flow, gpm (lpm)	50 (189)	90 (340)	160 (624)	320 (1211)	900 (3406)	2000 (7570)
Shipping wt., lbs. (kg)	25 (12)	35 (16)	50 (23)	75 (35)	120 (55)	165 (75)

## PUMP CURVES



## NEMA 1 STARTERS

2-60 hp pumps are available with 460/3/60 or 230/3/60 individual NEMA 1 starters. (230/3/60 voltage not available on 50 and 60 hp pumps).

Thermostat, well, on/off switch for cycling tower fans, and P2 recirculating pumps are available at extra cost. Mounting the starter on the pump tank and wiring to the motor is also available at extra cost.

Starters are shipped loose.

Note: For 50 Hz operation, derate by multiplying pressures by 0.69