

# TTK Tough Tank® & PTS-CPTS Pump Tank Stations

Advantage Pump Tank Stations are an integral part of evaporative cooling tower, fluid cooler and chilled water cooling systems. Pump Tank Stations provide a stable reservoir of cooling fluid that minimizes the affect of cooling load changes.

Pump Tank Stations are generally installed indoors and consist of a vented reservoir along with fluid pumps and controls that are selected to meet the specific needs of your system. The vented reservoir provides natural air separation for any air that may be trapped in the cooling fluid which reduces heat transfer effectiveness as well as providing a convenient location to monitor water quality and introduce chemical treatment.



Tough Tank TTK-800-3P with optional CheckMate™ Control & Monitoring System (shown with additional optional features)

## TOUGH TANK RESERVOIR FEATURES

- Tough Tank is a one-piece, cylindrical, seamless, rotationally molded linear low density polyethylene tank that will not rust or corrode
- 400, 800, 1500 & 3000 gallon capacities
- A 3/8" dense foam insulation is applied to the outside of the reservoir on chilled water systems to prevent sweating and heat gain
- A hinged tank lid is included for easy access to the tank and to keep debris out
- An internal baffle provides hot/cold water service (*2-pump systems*)
- The Tough Tank includes a drain valve, mechanical water make-up system and overflow port creating a fully engineered package ready to run
- A sight tube provides "at a glance" level verification
- 10 year tank failure warranty



PTS Series PTS-2000-4P with standard Control Console (shown with additional optional features)

## PTS-CPTS RESERVOIR FEATURES

- Constructed from epoxy coated mild steel or stainless steel welded sheet
- 275 - 3,000 gallon capacities
- A 3/8" dense foam insulation is applied to the outside of the reservoir on chilled water systems to prevent sweating and heat gain (*CPTS only*)
- An internal baffle provides hot/cold water service (*2-pump systems*)
- The PTS-CPTS includes a drain valve, mechanical water make-up system and overflow port creating a fully engineered package ready to run
- 1 year warranty

# Pump Features

- Careful consideration to service, efficiency and motor protection are central to the design and selection of each pump
- Nominal flow rates are 2.4 gallons per minute per ton for chilled water systems and 3 gallons per minute per ton for cooling tower systems
- Process pumps are selected to provide 45-65 pounds per square inch of pressure
- High efficiency centrifugal pumps are used for high flow to promote heat transfer
- Full pump trim including suction & discharge valves are included and is constructed of Schedule 80 PVC or welded steel depending on pipe size and duty
- Pumps providing higher flow rates and/or higher pressure are available
- A pump discharge pressure gauge as well as starter and motor protection are included, assuring the pump tank station performs optimally and reliably



## Available Pump Tank Station Options

### VARIABLE SPEED DRIVES

*(for Pumps or Cooling Tower Fans)*

- When used for pump control a pressure transducer senses process pressure and provides feedback to the drive to adjust the process flow rate to meet the current system needs
- When used for cooling tower fan control a temperature transmitter senses the process water temperature and provides feedback to the drive to adjust the fan speed to meet the current cooling needs of the system
- Based on settings, automatically uses the minimum energy necessary for the system saving energy, wear and money
- A 20% motor speed reduction can save nearly 50% in pumping or fan energy

### STANDBY PUMP & MANIFOLD

- For process, tower or evaporator pumps
- Standby pumps are pre-wired and manifolds are pre-plumbed
- Provide uninterrupted operation when primary pump fails or requires maintenance

### TEMPERATURE & PRESSURE ALARM

- Pump pressure & fluid temperatures are constantly monitored
- Out-of-spec activates audible and visual alarm

### CENTRAL CONTROL CONSOLE

*(In lieu of standard manual push button starters)*

- Easier and less costly installation as well as operator convenience
- All motor starters and controls are factory mounted in a NEMA 12 cabinet with branch circuit protection, control transformer and a single power connection
- Power On light and off/on selector switches are mounted on cabinet door

### ELECTRIC WATER LEVEL CONTROL

*(In lieu of standard mechanical water level control system)*

- A float switch activates a solenoid valve feeding make-up and water to the tank
- The float switch is mounted outside of the reservoir in small enclosed tank positioned at proper operating water level
- Being mounted outside of the main reservoir, the float switch tank is not affected by turbulence in the main reservoir making water level control more stable

### SPACE SAVING SYSTEMS

- Tough Tank reservoir is mounted on a frame above the pumping system to save valuable floor space
- Many pump configurations are available that are designed to occupy the space below the tank

[www.AdvantageEngineering.com](http://www.AdvantageEngineering.com)

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# System Controls

Pump tank stations can be equipped with controls as basic as manual push button motor starters and thermostats to much more advanced controls. Most systems with tower fans, tower pumps and alarms use the CheckMate™ control and monitoring system or a multistage electronic temperature control thermostat. Chilled water systems also benefit from the information available from the CheckMate™ control.

## BASIC SYSTEM CONTROL

- Pump motor starters with motor protection
- Cooling tower systems include fan motor starters and staging thermostats

## MULTISTAGE SYSTEM CONTROL *(for Cooling Tower Systems)*

- Stages tower fans and tower pumps to match system capacity to the cooling load
- Maintains a consistent water temperature regardless of load and ambient conditions
- Electronic thermostat with digital set point and readout of actual water temperature
- Offsets stage fans, pumps and alarms with single set point value



## CHECKMATE™ SYSTEM CONTROL & MONITORING SYSTEM *(for Cooling Tower and Chilled Water Systems)*

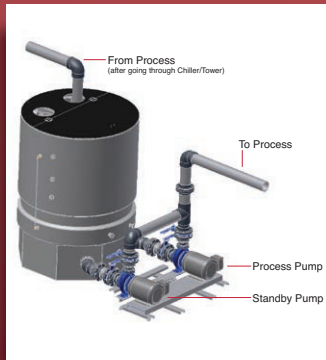
- Simultaneously displays performance, status of motors, alarms and temperatures
- Controls pumps & fans so system capacity matches current cooling load *(cooling tower systems)*
- Exclusive Top Operator™ switches provide motor and overall system control
- Main power on/off switch powers up entire system
- Emergency stop button stops power to all motors
- Process and evaporator pump(s) use on/off switches with integral GREEN LED light *(indicating running)* and RED LED light *(indicating overload condition)*.
- Tower pumps and fans have on/off/auto switches where when in the auto position pump(s) and fan(s) are staged to match the system capacity to the cooling requirements, maintaining consistent water temperature
- Up to six temperatures can be displayed on the “Temperature Status” screen including “To Process”, “From Process”, “Tower or Chiller In” and “Tower or Chiller Out”



# 1-Pump and 2-Pump System Configurations

## 1-PUMP SYSTEMS

Circulates the cooling fluid to process then directly back through the chiller or cooling tower. Flow rate variation must be kept to a minimum with 1-pump systems. This system can be equipped with an optional standby pump.



## 2-PUMP SYSTEMS

When process flow rates fluctuate greatly, 2-Pump systems are preferred for the constant, optimal flow and pressure they maintain through the cooling tower or chiller. 2-Pump systems can be equipped with an optional standby pump that can support either the process or recirculating pumps or discrete standby pumps can be provided.



	Model <sup>1</sup>	TTK-400	TTK-800	TTK-1500	TTK-3000	TTK-400-SS	TTK-800-SS	TTK-1500-SS	TTK-3000-SS
<b>Water Capacity (gallons)</b>	To Overflow	400	800	1,475	2,950	400	800	1,475	2,950
	Normal Operating (Tower)	255	425	800	1,475	255	425	800	1,475
	Normal Operating (Chiller)	350	675	2,400	2,400	350	675	2,400	2,400
<b>Reservoir</b>	Type <sup>1</sup>	PE	PE	PE	PE	PE	PE	PE	PE
<b>Connection Size (inches)</b>	Water Make-Up	1	1	1	1	1	1	1	1
	Tank Drain	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½
	Tank Overflow	4	4	6	6	4	4	6	6
<b>Dimensions (inches)</b>	Height	60	72	96	96	60	120	144	144
	Length	48	62	75	160	48	66	78	160
	Depth (Tank Only)	50	62	75	75	50	68	80	80
	Depth (Tank - 2 Pumps)	100	116	130	130	n/a	n/a	n/a	n/a
	Depth (Tank - 3 Pumps)	109	124	138	138	n/a	n/a	n/a	n/a
<b>Weight (pounds)</b>	Dry	860	1,590	2,243	4,636	2,100	3,390	4,493	9,136
	Maximum	4,640	8,730	15,525	31,516	5,880	10,530	17,935	36,016
	Shipping <sup>4</sup>	860	1,590	2,243	4,636	2,100	3,390	4,473	9,136

	Model <sup>2</sup>	PTS-275	PTS-400	PTS-600	PTS-750	PTS-1000	PTS-1250	PTS-1500	PTS-2000	PTS-2500	PTS-3000
<b>Water Capacity (gallons)</b>	To Overflow	275	400	600	750	1,000	1,250	1,500	2,000	2,500	3,000
	Normal Operating (Tower)	180	240	345	450	560	700	840	1,120	1,875	1,625
	Normal Operating (Chiller)	180	300	485	615	790	985	1,185	1,575	1,400	2,350
<b>Reservoir</b>	Type <sup>3</sup>	ST	ST	ST	ST	ST	ST	ST	ST	ST	ST
<b>Connection Size (inches)</b>	Water Make-Up	1	1	1	1	1	1 ¼	1 ¼	1 ¼	1 ¼	1 ¼
	Tank Drain	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½	1 ½
	Tank Overflow	4	4	4	4	4	4	4	4	6	6
<b>Dimensions (inches)</b>	Height	55	55	67	79	79	79	79	79	79	79
	Width	60	60	72	72	72	72	72	72	72	144
	Depth (Tank)	24	36	36	36	48	60	72	72	120	72
	Depth (Total)	60	72	80	80	100	112	112	112	174	124
<b>Weight (pounds)</b>	Dry	1,625	1,745	2,300	2,800	3,250	4,300	4,500	4,500	8,480	6,580
	Maximum	3,915	5,075	7,295	9,050	11,580	14,715	17,000	17,000	26,300	31,600
	Shipping <sup>4</sup>	1,725	1,845	2,400	2,920	3,370	4,500	4,700	4,700	5,700	6,750

<b>Pump</b>	<b>Process Pump</b>	PP-2	PP-3	PP-5	PP-7.5	PP-10	PP-15	PP-20	PP-25	PP-30	PP-40	PP-50	PP-60
	HP	2	3	5	7.5	10	15	20	25	30	40	50	60
GPM <sup>2</sup>	40	60	90	150	210	360	405	525	600	900	1,100	1,250	
PSI <sup>2</sup>	40	60	60	60	60	60	60	60	60	60	60	60	
<b>Unit Amperage (full load) @3ø/60hz</b>	230 Volts	6.8	9.6	15.2	22.0	28.0	42.0	54.0	68.0	84.0	104.0	130.0	154.0
	460 Volts	3.4	4.8	7.6	11.0	14.0	21.0	27.0	34.0	42.0	52.0	65.0	77.0
	575 Volts	2.7	3.9	6.1	9.0	11.0	17.0	22.0	27.0	32.0	41.0	52.0	62.0
<b>Pump</b>	<b>Tower/Evaporator Pump</b>	TP-2/EP-2	TP-3/EP-3	TP-5/EP-5	TP-7.5/EP-7.5	TP-10/EP-10	TP-15/EP-15	TP-20/EP-20	TP-25/EP-25	TP-30/EP-30	TP-40/EP-40		
	HP	2	3	5	5	10	15	20	25	30	40		
GPM <sup>2</sup>	60	90	210	255	405	525	810	900	1,100	1,750			
PSI <sup>2</sup>	30	30	30	30	30	30	30	30	30	30			
<b>Unit Amperage (full load) @3ø/60hz</b>	230 Volts	6.8	9.6	15.2	22.0	28.0	42.0	54.0	68.0	84.0	104.0		
	460 Volts	3.4	4.8	7.6	11.0	14.0	21.0	27.0	34.0	42.0	52.0		
	575 Volts	2.7	3.9	6.1	9.0	11.0	17.0	22.0	27.0	32.0	41.0		
<b>Pump</b>	<b>Standby Pump</b>	SP-2	SP-3	SP-5	SP-7.5	SP-10	SP-15	SP-20	SP-25	SP-30	SP-40	SP-50	SP-60
	HP	2	3	5	7.5	10	15	20	25	30	40	50	60
GPM <sup>2</sup>	40	60	90	150	210	360	405	525	600	900	1,100	1,250	
PSI <sup>2</sup>	40	80	60	60	60	60	60	60	60	60	60	60	
<b>Unit Amperage (full load) @3ø/60hz</b>	230 Volts	6.8	9.6	15.2	22.0	28.0	42.0	54.0	68.0	84.0	104.0	130.0	154.0
	460 Volts	3.4	4.8	7.6	11.0	14.0	21.0	27.0	34.0	42.0	52.0	65.0	77.0
	575 Volts	2.7	3.9	6.1	9.0	11.0	17.0	22.0	27.0	32.0	41.0	52.0	62.0

1. PE = Polyethylene reservoir, 115°F maximum continuous water temperature  
2. Approximate flow and pressure

3. ST=Epoxy coated mild steel or stainless steel. Tanks constructed from stainless steel typically include -SS in model number. PTS-uninsulated, CPTS-insulated  
4. Weights and dimensions are approximate, not for construction and will vary based on specific pump tank configuration



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