

# *Pump/Reservoir Systems*



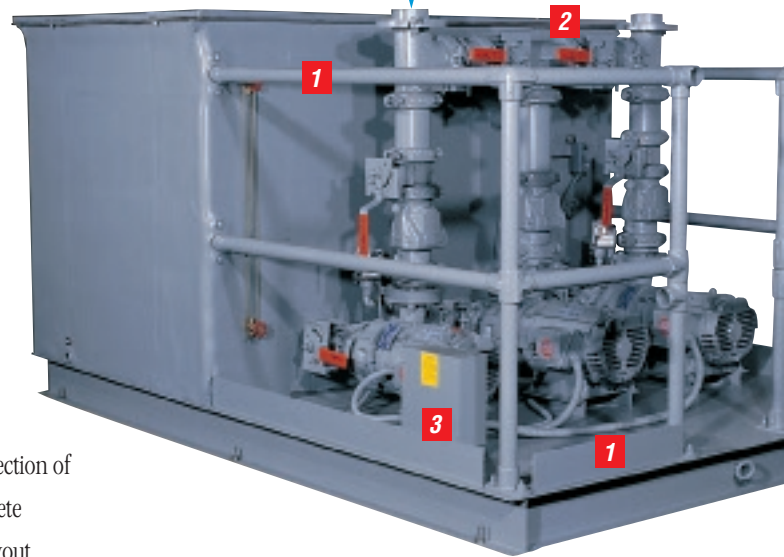


*PT1300 cooling tower reservoir with control panel mounted on deck.*

- 1** T-strainers provide for full flow removal of unwanted debris.
- 2** Unbreakable sight glass with safety rods indicates water level.
- 3** Sonalert horn and silencer switch warns of system failure.

*PT700 cooling tower reservoir with built-in OSHA approved railing.*

- 1** OSHA approved rail and toe board.
- 2** Dual standby pump discharge manifold.
- 3** All pumps and alarms wired to a junction box allowing for easy connection to control panel.



**C**ustom designed to meet your specific needs.

Designed to meet and exceed your application needs, Thermal Care pump/reservoir systems are available in a wide range of configurations. Our selection of reservoirs, pumps, controls and alarms, plus complete engineering support from system design to plant layout drawings, assure you of the correct system for your application. We provide a complete line of central chillers, fiberglass cooling towers, and water treatment equipment to handle all of your cooling system requirements.

**The most complete line of pre-engineered systems for cooling tower and central chilling applications.**

Thermal Care pump/reservoir systems are fully engineered for a complete range of tower or chiller applications, providing the highest quality design and construction features available.

Standard, full-sized Victaulic pump trim, extended pump suction legs, inside and outside welded seams and solid steel decking under the pumps are just some of the value-added features incorporated into every system. In addition, each reservoir is backed by Thermal Care's comprehensive engineering services. Included are flow schematics, electrical wiring diagrams and plant layout drawings — everything you need to obtain installation bids without additional costs. We can even provide you electronic files on disk upon request.

*PT1550 cooling tower reservoir with dual pump decks allows more or larger pumps to be factory-mounted to a reservoir while allowing unit to be shipped as a single assembly on a standard truck.*

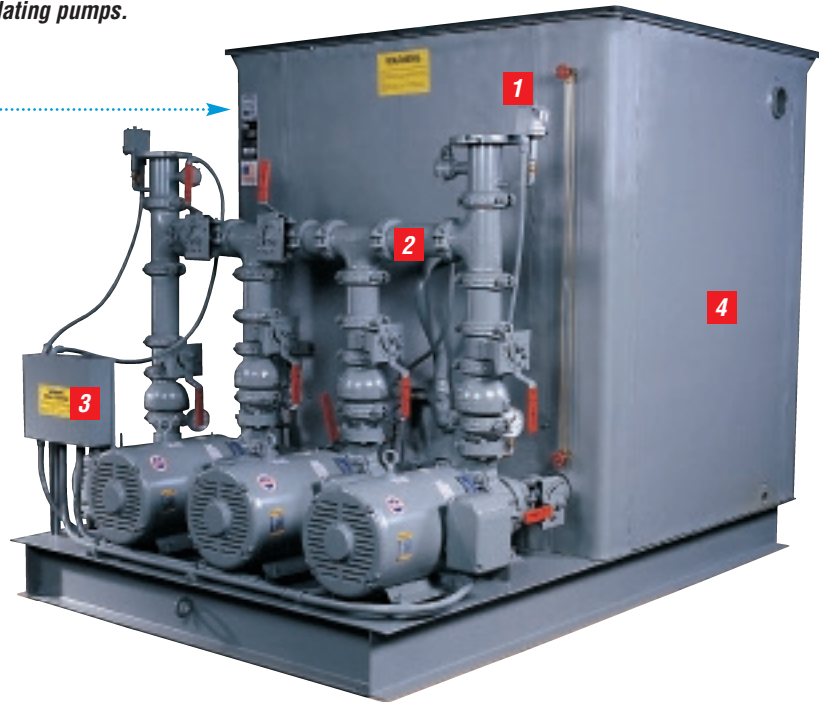
- 1** Mounted NEMA 4 control panel hardwired to pump motors with single point electrical connection.
- 2** Valved opening for future pump; Victaulic trim will allow quick incorporation into manifold.

*Insulated PT1300 chiller reservoir with standby pump for dual primary and recirculating pumps.*

- 1** Factory-installed and wired low pressure alarms warn immediately of pump failure.
- 2** Full-sized manifold with valves requires only two field connections and enables standby pump to back up process and recirculating pumps.

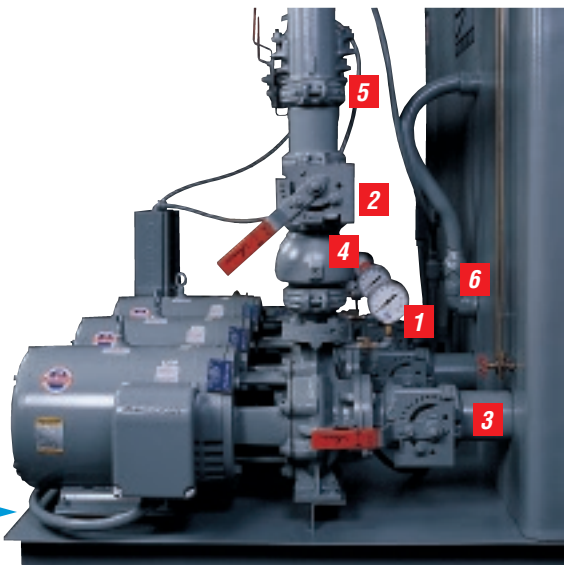
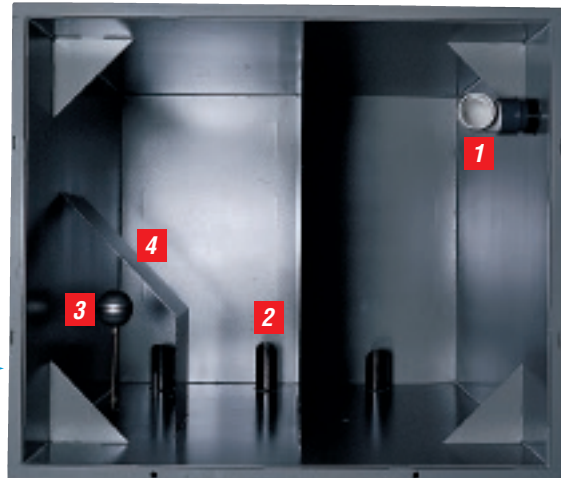
**3** Junction box is conveniently prewired; terminal strip facilitates quick connection to control panel.

**4** 3/4" insulation, including bottom and cover, prevents "sweating".



*Inside of steel dual compartment reservoir.*

- 1** PVC elbow at reservoir overflow increases holding capacity.
- 2** Pump suction legs prevent vortexing and pump cavitation.
- 3** Make-up valve assembly guarantees constant water level.
- 4** Wave baffle reduces float turbulence.



*Full-sized pump trim assures optimum pump operation and maximum pressure and flow.*

- 1** Liquid-filled pressure gauge with isolation cock at each pump.
- 2** Discharge butterfly valve with handle allows quick flow adjustment.
- 3** Suction butterfly valve allows pump to be changed without draining the reservoir.
- 4** Spring-loaded, non-slamming check valve prevents water hammer and draining of water lines at shutdown.
- 5** Grooved coupling eliminates pipe stressing and the need for flexible couplings.
- 6** Low level alarm protects pumps and alerts operator to problems quickly.

## **F**eatures/Benefits

- All pumps are mounted on a solid deck for added rigidity, serviceability and safety.
- Reservoirs are constructed of rugged plate steel or thick FRP for superior strength and reliability.
- Steel reservoir seams are double welded, inside and out, for the ultimate protection from leaks and corrosion.
- Steel reservoir interiors are carefully covered with a thick coat of marine duty coal tar epoxy to prevent water-to-metal contact and extend reservoir life.
- Thermal Care's exclusive Victaulic (grooved pipe connecting system) pump trim reduces the need for flexible couplings and eliminates pipe stress at start-up. Victaulic connections readily disassemble for fast maintenance and reconfiguration when adding or changing pumps.



**Eliminate corrosion problems with fiberglass reservoirs.**

**PTF series fiberglass reservoirs offer a significantly less expensive alternative to costly stainless steel reservoirs when or where corrosion is a problem.**

**These durable reservoirs are solidly constructed of a thick FRP with horizontal stiffeners for extra strength. Exteriors have a gray color and interiors come with a smooth white gelcoat lining.**

- High-efficiency, close-coupled, non-overloading, centrifugal pumps are precisely matched to your application, providing optimum flow and pressure to process with reduced electrical costs. Non-overloading pumps improve motor life by assuring the motor operates within its horsepower rating.
- Full-sized pump suction legs feature a 45° angle opening to prevent vortexing and pump cavitation. This also enables the tank to operate at a lower level, saving the cost of water and valuable chemicals that may otherwise overflow to drain at shutdown.
- Liquid-filled pressure gauges enable accurate flow adjustment. Isolation cocks prevent gauge pressure fluctuation and extend gauge life.
- Programmable controller comes with digital temperature display and RTD probe that controls temperature by cycling tower fan and recirculating pump. Includes high temperature alarm with indicating light.
- Drain connection makes draining the reservoir easy.

**Inside of fiberglass dual compartment reservoir.**

- 1** Fiberglass tank divider.
- 2** PVC pump suction legs prevent vortexing and pump cavitation.
- 3** Make-up valve assembly guarantees constant water level.



- Discharge check valve stops supply line flowback, eliminates the potential for water hammer at pump start-up, and eliminates impeller reverse rotation and possible failure.
- Properly-sized pump suction and discharge piping trim eliminates excessive pressure drop and maximizes flow to process. In addition, reduced water velocity means less wear and erosion.
- Prewired and mounted NEMA 4 control panel is hardwired to pump motors and all alarms, simplifying field installation and significantly reducing installation costs.
- Years of trouble-free operation are assured with the use of high quality Allen-Bradley components and NEMA 4 lights and switches as standard.
- Automatic water make-up assembly maintains constant water level.



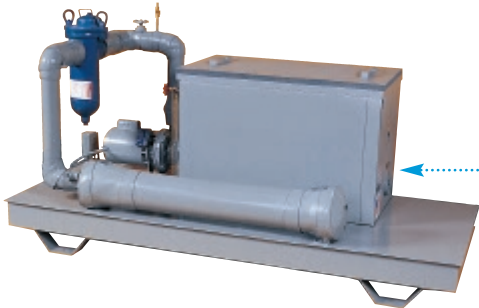
*All Thermal Care control panels are of NEMA 4 construction, come completely prewired and use only high quality components from manufacturers like Allen-Bradley.*

*For applications where a tank is not required, a pump deck assembly incorporates pumps, trim, and a control panel on a solid steel deck.*

*Suction and discharge manifolds allow for single point connection. In addition, the control panel is hardwired to the motors, simplifying electrical installation. This assembly has a NEMA 4 panel and TEFC motors for outdoor use.*



*PTH systems incorporate a tank, heat exchanger, circulating pump, and full flow filter as a single assembly. These systems are ideally suited for gravity return applications such as trough cooling.*



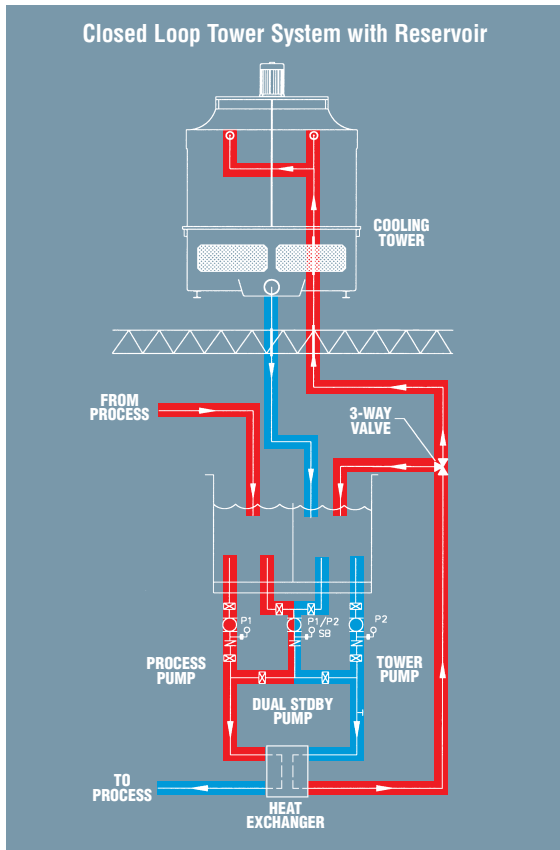
*Pump deck assemblies with suction legs and foot valves are available for applications with below ground reservoirs.*



## Options

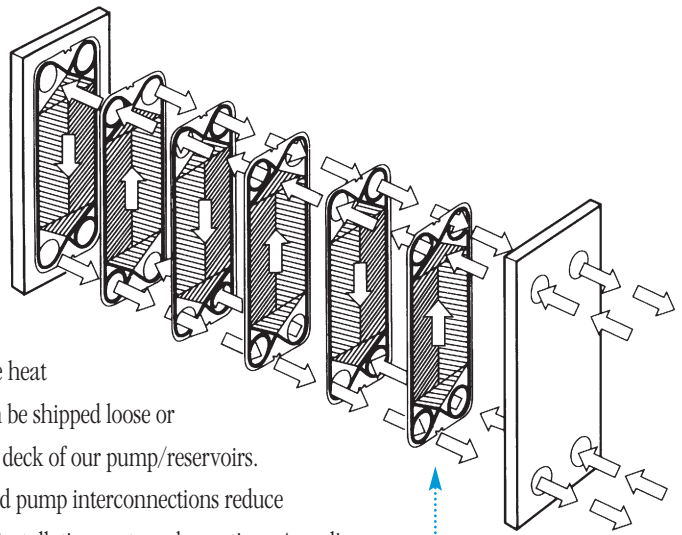
- Single or dual standby pumps for process and recirculating eliminate downtime. Pumps are available with complete connecting trim, including discharge manifold and isolation valves.
- Automatic switching to standby pump protects against downtime due to pump failure.
- Stainless steel reservoirs.
- Full 3/4" insulation maintains reservoir water temperature and eliminates "sweating".
- Premium efficiency motors cut electrical operating costs and offer rapid payback with utility rebate programs.
- 1/4 to 3/4 level unbreakable sight glass features shutoff valves and brass safety rods; allows for a quick visual check of reservoir operating level.
- Tank cover prevents contamination and evaporation.
- Factory-installed and wired alarms with panel mounted indicator lights warn of low flow, low pressure, low level and high temperatures. Sonalert horn with silencer switch warns of system failure.
- Solid-state sensor with alarm provides trouble-free sensing of low water levels.
- For operator protection, fused disconnect shuts off power before door is opened for maintenance or inspection.
- Panel-installed programmable logic controller (PLC) allows control sequences and alarm settings to be customized for individual process requirements.
- Reservoir support legs conserve valuable floor space. Legs from the reservoir to the roof can be used to support a cooling tower to reduce roof loading and eliminate additional roof support costs.
- OSHA approved ladder, rail and toe board for elevated tanks assure safe and easy service access.
- Automatic pressure-operated water bypass valve assures full flow to equipment such as a chiller evaporator.

# Thermal Care Heat Exchanger Systems



The diagram above shows how a heat exchanger can be incorporated into a cooling tower system. A divided reservoir prevents tower water and process water from mixing;

eliminating process water contamination. Separate pumps for each side of the reservoir circulate the water through the heat exchanger.



Thermal Care plate and frame heat exchangers can be shipped loose or mounted to the deck of our pump/reservoirs. Factory-installed pump interconnections reduce expensive field installation costs and save time. A cooling tower system provides the least expensive cooling per ton for applications where 85°F water is acceptable. While providing an efficient method of cooling, tower water can become contaminated with air borne debris and dirt. And even with a water treatment system, scale can accumulate in heat exchangers thereby reducing heat transfer efficiency.

A plate and frame heat exchanger will isolate contaminated tower water from clean process water and still provide the low-cost benefits of a cooling tower system. Also, a central heat exchanger on a closed loop system reduces cleaning and maintenance costs associated with operating several heat exchangers throughout a facility.

While some equipment manufacturers provide a closed loop tower with an integral heat exchanger, there can be disadvantages to this type of system. The resulting tower is heavier, requiring more costly installation and expensive roof supports. And, cleaning the heat exchanger in such a system is extremely difficult.

Here's how a plate and frame heat exchanger works and the benefits you can expect.

- **High efficiency** - Specially designed stainless steel corrugated plates produce heat transfer coefficients several times greater than those obtained with other types of heat exchangers.
- **Low initial cost** - Often less than half the cost of shell and tube exchangers.
- **Minimum fouling** - High velocities and turbulent flow mean reduced fouling and more effective heat transfer with less downtime.
- **Close temperature approach** - Large heat transfer area allows process water to cool within two or three degrees of incoming cooling tower water.
- **Easy-to-clean** - Units quickly disassemble for easy cleaning or service.
- **Expandable** - If cooling load increases, additional plates can be easily added.

Rugged Thermal Care pump/reservoirs, ideally suited for heat exchanger mounting, provide convenience and maintenance accessibility. Factory-mounted heat exchangers include full connecting trim from pumps saving considerable installation time and cost.



# **T**hermal Care Central Systems for Plantwide Cooling.

No other manufacturer can provide you with more complete cooling solutions and options than Thermal Care. We provide central chiller, cooling tower and water treatment systems. Also available from Thermal Care is a complete line of

temperature control units and air or water cooled portable chillers.

For information on any Thermal Care product or system, contact your Thermal Care representative or call us direct.

## *Fiberglass Cooling Towers*



*Built of 100% nonferrous materials, our cooling towers are ruggedly designed and manufactured to exacting specifications.*

*All towers come with a full 5-year warranty on the complete tower, including the motor.*

## *Air and Water Cooled Central Chillers*



*Central chillers from 20 tons are available for almost every application in a variety of designs including air-cooled,*

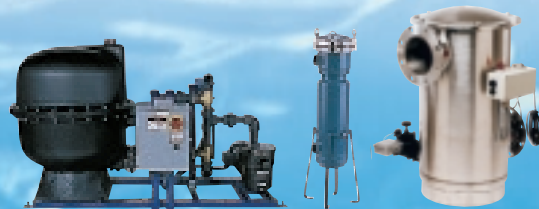
*water-cooled or remote condenser models. Screw, scroll or discus compressors are available.*

## *Tower Water Treatment Equipment and Water Filters*



*TWC Series computer-controlled treatment systems incorporate all necessary facets of a cooling tower or central chiller treatment system on a single, space-saving*

*panel. System information is displayed on a LCD screen.*



*Sand media filters, strainer filters, and full flow bag filters remove heavy-duty suspended solids from both cooling tower and chilled water systems.*

# **THERMAL CARE**

7720 N. Lehigh Avenue  
Niles, IL 60714-3491  
toll-free 888-828-7387  
telephone 847-966-2260 Ext.2900  
facsimile 847-966-9358  
www.thermalcare.com

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