

## Closed-Loop Engineered (PCX) Cooling System

**Maintain clean coolant constantly through your equipment.** A PCX is a packaged cooling system which uses a plate and frame or a shell and tube type heat exchanger to cool equipment by a closed loop using an external water source, such as plant process water, tower water, pond or river water. The closed loop may be filled with a water-glycol mixture, deionized water, city water, or other clean heat transfer fluid.

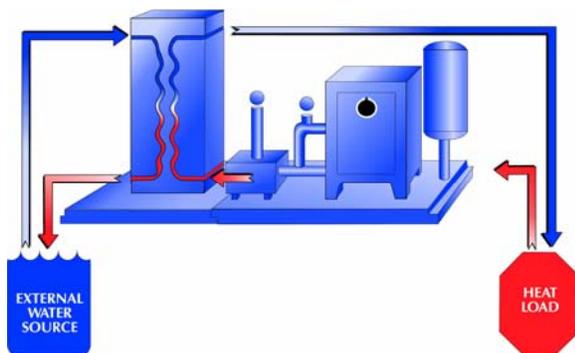
The HydroThrift PCX system assures that no entrained air, contaminants, air-borne dirt or chemicals from treated or untreated water, as in open or "once-through" cooling systems, are evident in your liquid cooled equipment.



**Increase life, reduce maintenance costs.** Service life of your production equipment is extended because scaling, liming, and corrosion on coils, water jackets and heat exchangers are prevented, resulting in higher efficiency in your equipment, less repairs, maintenance and downtime, and lower per hour operating cost.

Another reason for efficient service is that flow, temperature and pressure in operation are controlled in the highly engineered HydroThrift PCX system, minimizing the costly inconsistencies found in external "once-through" cooling.

**Compact, easy to install.** The prepackaged unit consisting of the pump, control panel, and mounted heat exchanger, is delivered to you with built-in temperature and pressure gauges monitoring pump and heat exchanger inlet and outlet parameters.



Then:

- A. Connect the external water source to the appropriate heat exchanger connections.
- B. Connect the piping from the heat load to the vent and surge tank, and, the return line from the heat exchanger to the heat load.
- C. Connect the main power source to the control panel
- D. Fill the system with clean coolant through the convenient surge tank access.

**The bottom line is that HydroThrift cooling systems provide continuous, high efficiency heat transfer and deliver it at less initial cost with better pay back than many other cooling systems.**

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**Heat Exchanger: Plate and Frame or Shell and Tube.** Mounted on the pump and control skid, either type of heat exchanger transfers the heat carried by the coolant from the heat load to the external cooling water.

Plate and frame heat exchangers provide closer approach temperatures to the cooling water temperature. Shell and tube types facilitate cleaning of the external water side of the exchanger. Both are engineered and built for the most efficient operation and heat transfer.

**Vent and surge tank.** To minimize oxidation of heat transfer surfaces, the ASME code-welded surge and vent tank deaerates the coolant, and includes gauge glass, fill port, drain and vent valves.

**System line gauges.** Inlet and outlet gauges display pressure and temperature differentials for continuous monitoring of the cooling system.



**Automatic control.** The NEMA 12 design electrical enclosure contains the panel with fused motor starters, with overload protection, and start/stop pushbuttons for the circulating pump motors. The 115 volt control circuit includes pump indicating lights.



**Rugged, close-coupled centrifugal pump provides compact design.**

Couplings, alignment problems and attendant wear are eliminated in HydroThrift cooling systems through the use of heavy-duty centrifugal pumps close-coupled on the motor shafts. Pumps are equipped with mechanical seals. Pump capacities are typically rated at 100 feet head with higher pump heads available as conditions demand.



**Packaged pump and control skid.** Pumps, electrical enclosure, vent and surge tank, piping, valving, gauges, wiring and thermostatic modulating valves (if required), and the plate and frame or the shell and tube heat exchanger are all completely factory assembled on a full-deck fabricated steel base.

**Optional equipment.** Custom engineering allows a wide-range of options, including:

- Alarm systems for low flow, high temperature or low temperature
- Disconnect switch: through-the-door, interlocked.
- Dual, full capacity stand-by pump with mechanical alternator to automatically start stand-by pump, in case of operating pump failure.
- Thermostatically modulated valve that controls water through the mounted heat exchangers may be included. This valve reduces the need for external water when there is a reduction in cooling required for the dedicated closed-loop cooling system.
- Other monitoring and control equipment, as requested.



**HydroThrift**

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