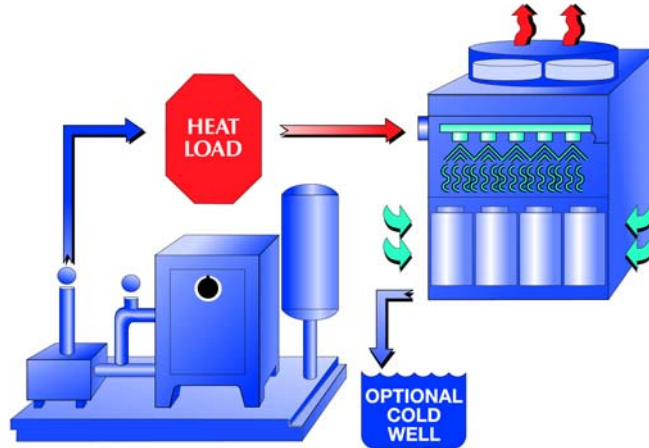




Open Evaporative Cooling System (OE)



In applications where a Evaporative-type, Closed Loop (CE) glycol system cannot be used due to budget constraints or application considerations, an Open Evaporative (OE) cooling system may be offered. OE-type systems are more economical in terms of initial equipment costs; however, incur maintenance costs associated with scaling, fouling, and water treatment packages. OE-type systems are also operated where heat transfer fluids, such as glycols, are not allowed, and/or the cooling medium comes in direct contact with customer product, such as plastic and aluminum extrusions.

Packaged Open Cooling Tower Systems (OE) include a cooling tower and a pump and control unit. The pump and control module includes pump(s), motor starter(s), and thermostatic controls for the tower fan motor(s). Operation is so simple, no assigned operator is necessary. The control package regulates temperature, flow rates, and heat exchange, using cooling tower water. Systems are available up to 2500 tons.

The pump and control unit is delivered to you mounted on a structural steel baseplate – pre-piped and pre-wired to the fullest extent possible. On-site, simply mount the cooling tower where it will have an adequate supply of clean, ambient air (tower may need to be elevated to allow for gravity drain to pump suction or sump), and locate the pump and control module anywhere between the heat load and the tower.

Where remote sumps are required or fluid mixing is needed for temperature control, Packaged Coldwells or combination Hotwell/Coldwell systems are available. These wells can be constructed of a variety of materials including carbon steel, stainless steel, and plastic materials. Skids using vertical turbine pumps are also available for use with in-floor / in-ground sumps. The skid is designed to cover the sump; minimizing necessary floor space.

HydroThrift “OE-type” cooling systems are custom designed for your particular and exacting requirements. Although competitively priced with “off the shelf” type systems, your HydroThrift OE-type cooling system will incorporate pumps, electrical controls, flow controls and temperature controls which are hand picked for your particular application. When selecting components and other design considerations, special attention is given to durability, serviceability, and system integration.



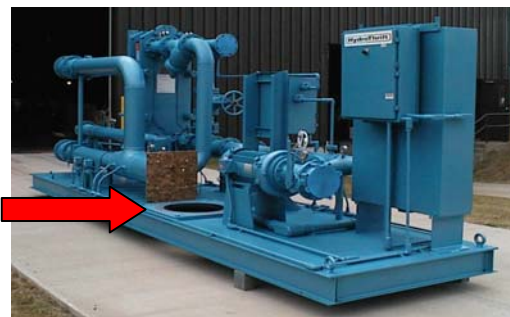
POLY TANKS: Shown at left is a packaged pump and control unit with a high density polyethylene coldwell. The tank is isolated from piping stress with flexible connections. Tank sizes range from 150 GPM to 5000 GPM.

BYPASS VALVES: Packaged pump skid with a direct acting bypass valve to bypass tower flow to the remote sump. This is an option for applications whose climatic conditions may overcool the coolant during the winter.



CHEMICAL TREATMENT: Open towers will require chemical treatment packages which can be incorporated with the pump skid. This example shows a treatment package for two cooling towers. Sump conductivity is monitored to determine chemical dosing and fresh water makeup. A biocide is dosed on a timed basis to control algae and other bacterial contaminations. These treatment packages are electrically incorporated with the main control panel and can be mounted either on the pump skid or at a remote location.

FILTER SKID: Side stream filter skids are available to continuously filter fluid from the sump. These units take their suction from the Tower sump or Hotwell/Coldwell, and separate the particulate contamination by means of a centrifugal separator and bag filter. This example shows a disconnect switch for the pump, whose motor starter is located in the main control panel. For add-on units and retrofits, a complete stand-alone filter skid can be manufactured.



VERTICAL TURBINE PUMPS: Where the customer has an in-ground sump, a pump skid incorporating vertical turbines can be designed. In this example (left), the pump skid acts as the cover for the sump. The vertical turbine pump (not shown) draws from the sump and circulates cold water to the customer's equipment. Also note on this unit, the plate and frame heat exchanger that utilizes tower water on one side and glycol on the other to provide additional cooling for a closed loop circuit. A chemical water treatment package is also used on this system, as described above.

FABRICATED STEEL HOTWELL/COLDWELL: This example shows two pumps, with options for adding a third standby pump in the future. Cold water is pulled from the bottom of the tank and sent to the heat load. Once the fluid has picked up the heat, it is directed to the cooling tower and then gravity feeds back to this Coldwell. A chemical water treatment package is also incorporated into this design.



STRAINERS WITH AUTOMATIC BLOWDOWN: This OE type system has a Stainless Steel coldwell and automated strainers. Pressure differential is monitored across the strainers. When the preset trip pressure is reached, automated valves open and flush the strainers for a preset period of time.