FLUID COOLERS

Web: www.AdvantageEngineering.com
Phone: 317-887-0729

- **Temperature Control Units**
  Water & Oil
  30° - 500°F
- **Portable Chillers**
  Air & Water-Cooled
  20° - 70°F
- **Central Chillers**
  Air & Water-Cooled
  Packages & Modules
  20° - 70°F
- **Pump Tank Stations**
  Chilled or Tower Water
  200 - 3600 gallons
- **Cooling Tower Cells**
  45 - 540 tons
- **Fluid Coolers**
  Hydra
  Dry
- **Filters**
- **Heat Exchangers**
- **Heat Recovery Units**

WARRANTY

- **1 Year:**
  Covering parts and labor
- **2nd Year:**
  Complementary visit for preventive maintenance consultation

HYDRA II® SERIES

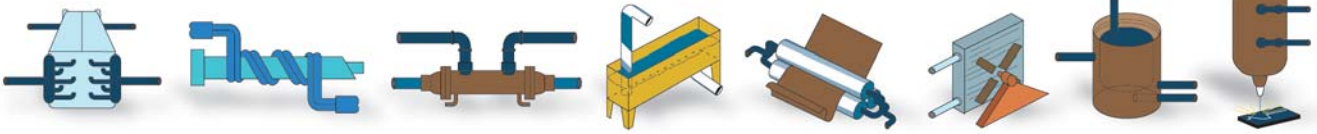
HYDRA II
FLUID COOLER

- **Cooling Tower Alternative**
- **Closed Loop Cooling**
  - Limited Water Treatment
- **Modular Design**
  - Up To 500 Tons
- **Minimize Water Use**

Advantage Hydra II Fluid Coolers
Use ambient air for the majority of the year to cool your process water. You save water, chemicals, and sewage charges while completely isolating your cooling water from the effects of solids build up on your plant heat exchange surfaces caused by the evaporation of make-up water.

Standard Cooling Towers
Use water as the evaporative cooling source 12 months per year. In addition to the water cost, there are water treatment chemicals and sewage charges for the tower bleed-off.

APPLICATIONS



Molds & Dies | Nozzles, Barrels & Tools | Heat Exchangers | Troughs & Tanks | Rolls | Radiators And Air Coils | Jacketed Vessels and Mixers | Lasers

Made In America

HOW IT WORKS

- Warm process fluid is circulated through the closed loop cooling coil of the Hydra II Fluid Cooler. Cool ambient air is drawn across the coil by the unit's high efficiency direct drive fan/motor assemblies drawing heat out of the process fluid and rejecting it to the surrounding air.
- The cooled process fluid is returned to the system reservoir to be circulated for process cooling.
- When the ambient temperature is slightly below the desired process fluid temperature, the Hydra II Fluid Cooler operates in the dry mode using no evaporated water.
- When the ambient temperature rises above the desired process fluid temperature, the Hydra II Fluid Cooler automatically switches to its adiabatic pre-cooling mode.
- The adiabatic pre-cooling mode uses water to wet an evaporative media installed in the air inlet prior to the cooling coil. When the warm ambient air is drawn across the media it evaporates some of the water cooling the air before it reaches the coil containing the process water.
- When the ambient temperature drops the Hydra II Fluid Cooler automatically switches back to dry mode cooling to minimize water usage.
- When pre-cooling is not required the adiabatic system is drained to minimize potential contamination.
- The unit is designed to be installed outside, slightly elevated so that the adiabatic sump can drain by gravity when not in use.
- Each modular Hydra II Fluid Cooler includes a complete control system to optimize cooling and minimize water and electrical consumption.
- A custom computer program is available to predict normal maximum water temperatures and estimated annual water and electrical costs for your location.
- In freezing climates a glycol/water mixture is required to prevent the fluid from freezing in the coil and causing damage. An isolation heat exchanger is available as an option for users that do not want to run glycol to their use point.

Non-Ferrous Reservoir
holds water used to wet media. Empties automatically when not required.

Centrifugal Pump
distributes water to wet media.

Internal view of Hydra II Fluid Cooler

HIGH EFFICIENCY EVAPORATIVE MEDIA

When evaporative pre-cooling is required, a highly absorbent media is wet using city water. The honeycomb design provides a large wetted surface that is exposed to the entering air to provide maximum adiabatic effect to lower the incoming air temperature. 6" thick media is used to provide the required performance. Excess water circulated through the media assists in rinsing it free from debris and minerals. The evaporative media is easy to replace and includes a two-year replacement warranty.

HIGH OUTPUT FAN

The fan and motor assemblies are the only moving parts and they are nearly maintenance free! Air foil shaped blades are factory set to achieve optimum air flow. Fan motors are rated for outdoor and moist air extremes and are controlled to maintain the fluid temperature set point.

DIMENSIONS

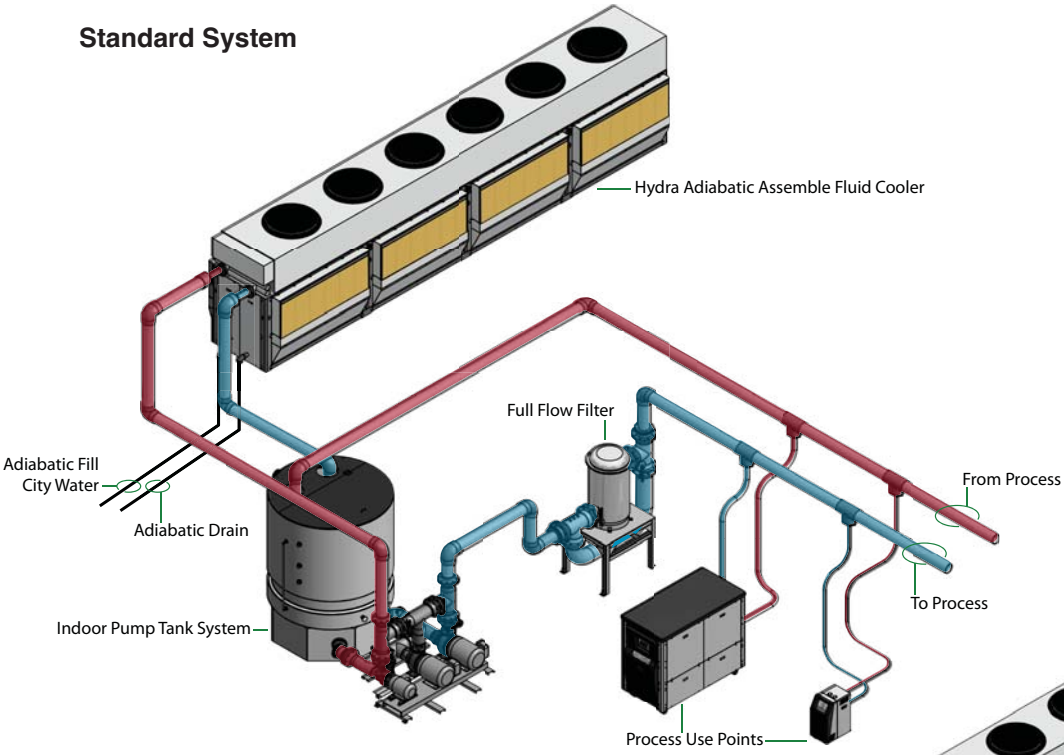
Model HYD-55 55 ton fluid cooler

ADIABATIC SYSTEMS - EVAPORATIVE MEDIA COMPARED TO MISTING SYSTEMS

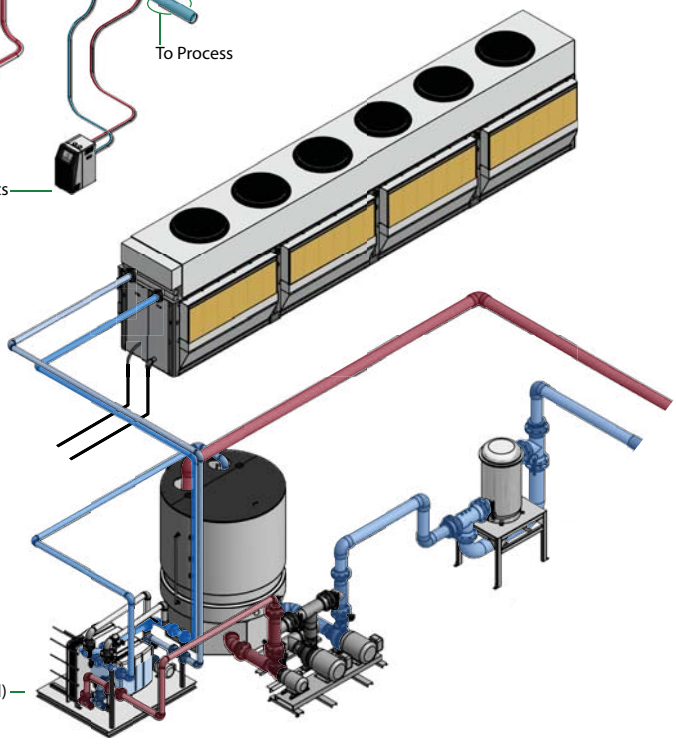
- The Advantage Hydra II Fluid Cooler includes automatic adiabatic pre-cooling of the intake air when dry cooling alone can not maintain the process cooling fluid temperature. This system greatly enhances the cooler's capacity with minimum water usage. The ambient air dry bulb temperature is reduced as the air passes through an efficient wetted evaporative media. The design cools the intake air without aerosol formation and without carry over on the dry coil.
- Water is evenly distributed over the evaporative media by the included low pressure sump pump. Some of the water is evaporated, while excess water assists in rinsing the media to keep it free from debris and minerals. The excess water is collected in the cooler's sump and is recovered and recirculated so that the system uses the minimum amount of water.
- Unlike adiabatic coolers equipped with nozzle and spray systems, the Advantage adiabatic pre-cooler feature does not need high pressure pumps, always maintains a dry coil, provides stable and predictable capacity and requires far less maintenance. Spraying too much water is common in misting systems using more water then required causing wet areas around the cooler installation.
- The evaporative media used in the Advantage adiabatic pre-cooler system is easy to replace and comes with a two-year replacement warranty.

TYPICAL FLOW SCHEMATICS

Standard System



System with Isolation Package

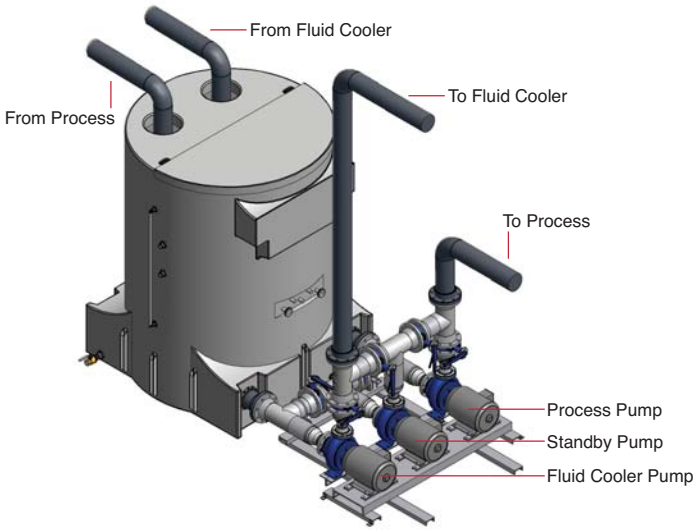


PUMP TANK SYSTEMS

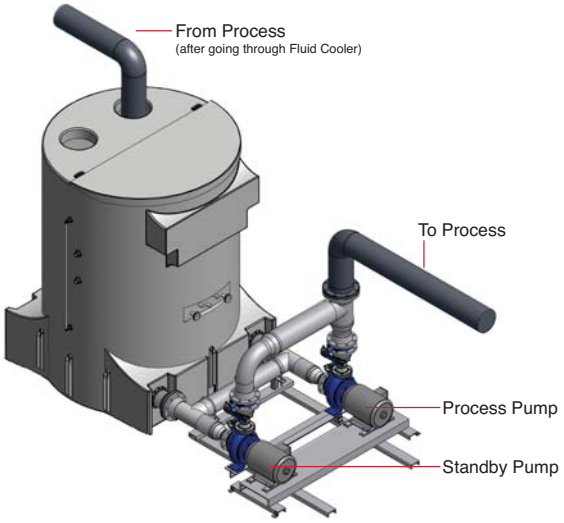
Advantage pump tank systems are used to support fluid coolers. Pump tank systems consist of a vented reservoir along with fluid pumps and controls specifically selected to meet the needs of your process and/or entire facility. The standard unit is designed to be installed indoors or protected from the elements.

Use of a pump tank assembly improves plant cooling effectiveness by providing a stable reserve of cooling fluid to moderate the affects of rapid load changes and to provide a place for air to separate from the system and for debris to settle out of the recirculating water flow. A pump tank also provides a convenient location to monitor water quality and introduce chemical treatment. Experienced application specialists review each application to provide the proper fluid flow, pressure and temperature for each unique system. Every central water system includes water distribution piping drawings suitable for contractor bidding and installation work.

2-Pump Systems... process flow rates often fluctuate and can be higher or lower than the fluid cooler requires for optimum performance. 2-Pump systems are preferred for most applications because constant and optimum flow and pressure is maintained through the cooling tower or chiller regardless of the process flow. 2-Pump systems can be equipped with an optional standby pump that can support either the process or recirculating pumps. Discrete standby pumps are also available as an option. Full suction and discharge manifolds are included with the purchase of a standby pump.



1-Pump Systems... circulate the cooling fluid to process then directly back through the fluid cooler. Flow rate variation must be kept to a minimum with 1-pump systems. This system can be equipped with an optional standby pump. Full suction and discharge manifolds are included with the purchase of a standby pump. 1-Pump Systems are not recommended in freezing climates.



ENGINEERING DESIGN SERVICE

Experienced water system designers analyze customer facility and process information to select the correct component combinations to provide the most efficient output. If one of our standard systems does not fit, then **Advantage** will design a custom system. All systems include water distribution drawings suitable for contractor bidding and installation work.

OTHER PRODUCTS

Portable Chillers
Air & Water-Cooled, 1/4-40 ton

Central Chilling Modules
Air & Water-Cooled, 5-300 Tons

Cooling Tower Cells
Fiberglass or Metal,
45-540 tons

Temperature Controllers
Water & Oil Units, 30°-500°F

Central Chilling Packages
Air & Water-Cooled
20-200 Tons

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TEMPERATURE CONTROLLERS · PORTABLE CHILLERS · CENTRAL CHILLERS · PUMP TANK STATIONS · TOWER SYSTEMS · FILTERS

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