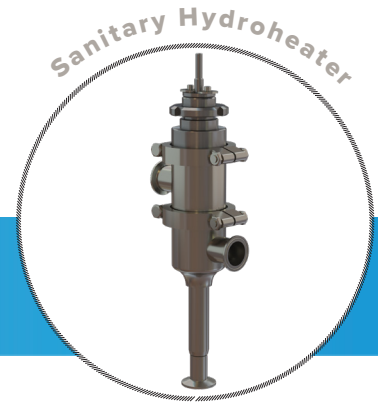


DAIRY CLEAN-IN-PLACE UPGRADE:



When replacing a heat exchanger with a Clean-In-Place system makes sense.



Problem

A heat exchanger couldn't maintain consistent temperatures



Solution

An A110AL Sanitary Hydroheater™ was installed in the facility



Results

Space and energy were saved, while maintaining precise temperatures



Problem

To be fair it always makes sense, but just to prove our point we want to share a specific example in the dairy industry! A customer in the dairy industry was experiencing difficulties cleaning a separator in their plant that divides milk into cream and skimmed milk. The existing Clean-In-Place (CIP) heat exchanger system installed in their facility was in a remote area, since the heat exchanger's water input travels a long distance and draws from a separate tank in the facility. This resulted in difficulty maintaining an inlet temperature of 150°F [66°C] and discharge temperature of 190°F [88°C]. Consistent inlet temperatures are required to clean the separator, but with the remote location and fluctuation in temperature, the plant was losing production from extended cleaning times. The plant also introduced some chemical cleaning agents to ensure proper sanitation since the inconsistent temperature of the system could not guarantee cleanliness.

The existing heat exchanger system's non-uniform heating, resulting in a need for a condensate return system — which decreased the available space in the plant. The chemical use needed to complete this process was undesirable, as was the amount of time required to ensure there was a clean system. This heat exchanger system also increased the production costs in their facility.



Solution

Seeing the various deficiencies in this system, the Project Engineer looked at alternative heating solutions. The Project Engineer and his firm knew Hydro-Thermal had experience in solving heat inconsistency in systems before, including dairy processes. So, they enlisted Hydro-Thermal® to review the current situation and process and provide a recommendation. Hydro-Thermal's Regional Sales Manager and Application Engineers dug into the issues and helped identify that introducing direct steam into their facility and process would eliminate all the challenges they were encountering.

After carefully reviewing their current process and CIP system, Hydro-Thermal decided that the best heating solution was an automatic A110AL Sanitary Hydroheater™. Utilizing this Sanitary Hydroheater's system operating range in place of the heat exchanger resulted in 100% efficient use of the steam. The new heating system was suspended overhead, as the Sanitary Hydroheater is much more compact compared to the old heat exchanger system, resulting in minimal floor space being utilized. It also provided the dairy company the ability to reach their desired temperature level of 190°F [88°C] instantaneously with highly accurate temperature control of ±1°F [.5°C].



Results

The 3-A certified automatic A110AL Sanitary Hydroheater was installed and has reliably met the customer’s performance expectations. The unit eliminated the need for a condensate return system and saved floor space that was previously unavailable. It provided energy savings to the customer by transferring heat from steam directly to the product rather than through an indirect heat transfer method. It also provided temperature control with instant and accurate heating.

The most valuable result of using a Sanitary Hydroheater in their system is lowered CIP cycle time, better control of system temperatures, and decreased chemical usage. It saved valuable floor space by being suspended overhead, which is made possible by directly injecting steam into the water to provide instant, on-demand heat.

SYSTEM OPERATING RANGES

Fluid:	Water
Flow Rate:	180 GPM [49 m ³ /hr]
Inlet Temperature:	150°F [66°C]
Discharge Temperature:	190°F [88°C]
Steam Supply Pressure:	120 PSIG [8 barg]