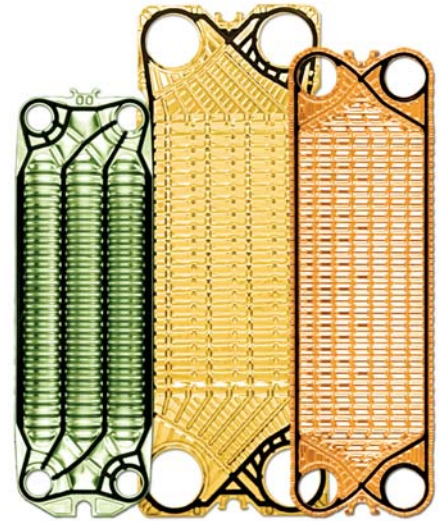


Coated Mueller® Accu-Therm® “Free-Flow” Plate Heat Exchangers Solve Severe Fouling Problem, Reducing Downtime by 1500% for Michigan Bearing Manufacturer

Application

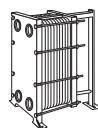
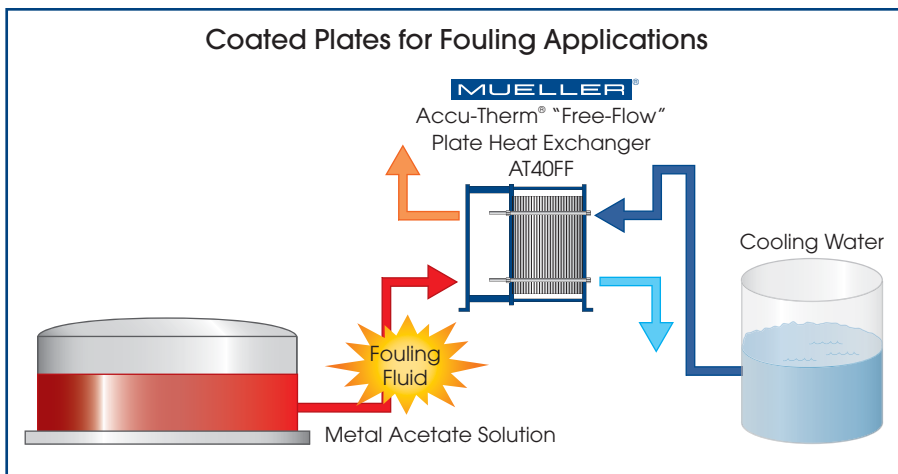
In 2006, a Michigan bearing manufacturer purchased a conventional plate heat exchanger to cool a lead acetate solution used in the manufacturing process. Anticipating fouling problems with the lead acetate solution, the plant ordered a spare unit along with a complete plate pack to minimize downtime. The solution started to foul the plate surface shortly after start-up, which required shutting the plate heat exchanger down every two to three days for about an hour to change plates. In addition to the shutdown time, the plates needed to go through an elaborate cleaning cycle to remove the fouling. Each plate pack was soaked overnight in a tank containing glacial acidic acid and then rinsed off with water. For a process that runs 24/7, an hour shut down every two to three days makes a significant impact on runtime.



Coated Mueller Accu-Therm “free-flow” plates.

To improve runtime, the plant decided to try a special coating on the plates to make their surface less susceptible to fouling. Two of the plates in the plate pack were coated and the unit was put back into service. The special coating reduced fouling build-up, but the small gap in the conventional plate still caused a significant plugging problem. Next, the bearing manufacturer tried the coating on a different plate with a wider gap — a Mueller Accu-Therm “free-flow” plate. Mueller Accu-Therm “free-flow” plates offer an unrestricted flow path with a gap of more than two tenths of an inch (two times the conventional gap). In addition to the larger gap, the “free-flow” plate offers an unrestricted flow path without contact points for the fouling fluid.

As there are no contact points between the plates in the flow path, the “free-flow” plate lends itself very well for application of external coatings.



MUELLER ACCU-THERM PLATE HEAT EXCHANGERS

Double Savings

With the coated “free-flow” plates in place, the plant was able to run a full month before noticing any signs of fouling. The runtime could even be stretched to two months at a slightly reduced heat transfer rate, if needed. In addition to the longer runtime, the plates were much easier to clean. The fouling could now be removed by just rinsing the plates with water and then be put back into service.

MUELLER ACCU-THERM “FREE-FLOW” PLATE HEAT EXCHANGERS

Mueller Accu-Therm “free-flow” plate heat exchangers feature a special plate geometry that offers an uninterrupted wide flow path for fouling fluids and fluids containing fibers and particles. The “free-flow” design is a step up from the conventional wide gap plate heat exchanger in that it has no contact points in the flow path that restrict flow. An added advantage with no contact points is that the “free-flow” plate pattern lends itself very well for application of external coatings. Plus, the coating is easy to apply and will not rub off at the contact points.

