

Bank-In-Tank Unit Recovers Heat From Wastewater To Fresh Wash Water

PLATECOIL bank helps fabric manufacturer reduce natural gas bills by \$37,500 annually.

A PLATECOIL® bank-in-tank heat recovery unit is a good strategy for recovering otherwise wasted heat energy from spent process water to preheat fresh process water. The prime surface heat exchanger application is not susceptible to plugging, since there is no closed channel handling particle-laden flows.

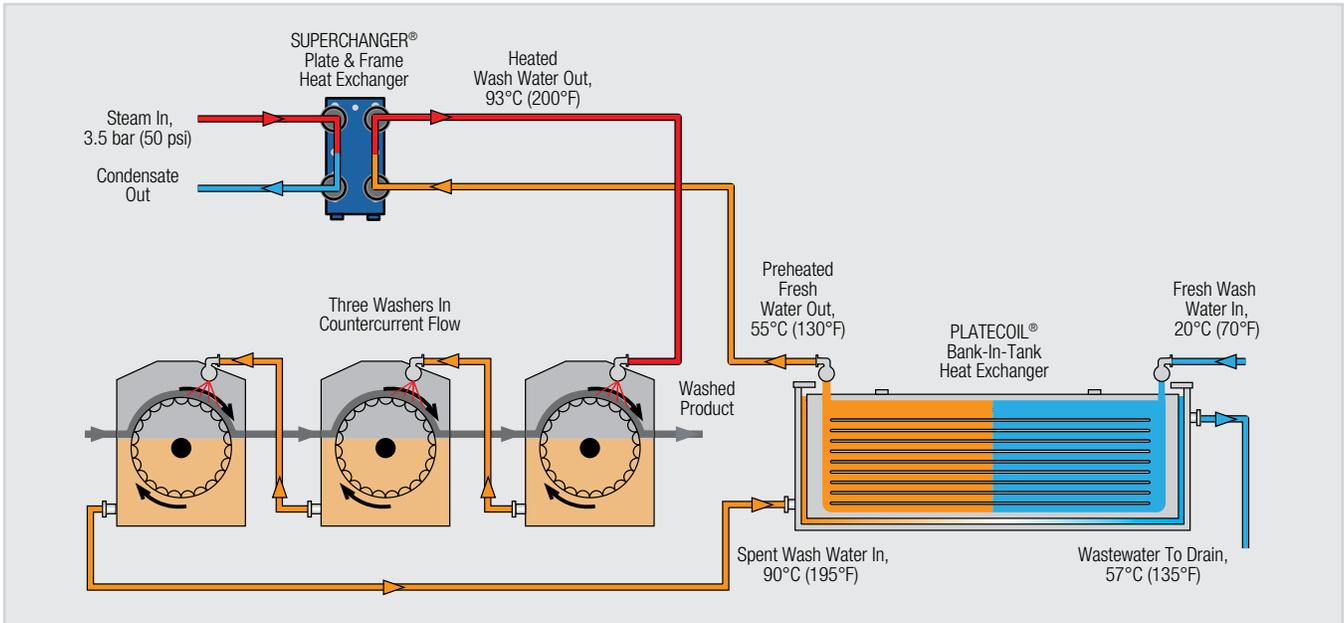
In this application the PLATECOIL bank transfers heat from wastewater to fresh water upstream of a Tranter SUPERCHANGER® Plate & Frame Heat Exchanger. Fresh water enters the manifolded PLATECOIL panel bank unit at 20°C (70°F) and exits to the SUPERCHANGER heat exchanger at 55°C (130°F), at the rate of 190 litres/min (50 gpm).

The SUPERCHANGER unit uses 3.5-bar (50-psi) steam to raise the fresh water to 93°C (200°F) before it goes to three washers used in the finishing process.

Hot water overflow from the three washers enters the tank at 90°C (195°F) and exits to an outside drain at 57°C (135°F), at the rate of 190 litres/min (50 gpm).



A PLATECOIL® bank fabricated from parallel pass panels offers high flow rate and good heat transfer rates from spent to clean water.



Countercurrent flow through the SUPERCHANGER® unit employed as a steam heater aids efficient heating of the preheated fresh water. The PLATECOIL bank-in-tank unit recovers heat from the particle-laded spent wash water with low maintenance.

Bank Configuration

Twelve 560-mm x 1800-mm (22-in. x 71 in.) Style 93D series-parallel-pass PLATECOIL panels, constructed of 316 SST, comprise the bank. The panels, which distribute flow to the passes in parallel, provide 27.5 m² (297.5 sq. ft) of heating surface for efficient transfer of heat between the spent wash water and the fresh wash water.

Versatility For Various Washing Duties

The PLATECOIL bank-in-tank unit is performing exactly as designed, according to the company's process and plant engineers. They report annual savings in natural gas consumption of \$37,500, attaining payback on the bank in approximately 32 weeks. Required maintenance is only once-a-year cleaning.

In addition to fabric washing, the application has merit for pulp, nonwovens, natural or synthetic fibers—anywhere heat can be recovered from a spent filtrate.



Overflow hot water from three washers (in background) enters the PLATECOIL bank at lower left at 90°C (195°F), then transfers heat to fresh water before exiting to an outside drain (bottom right) at 57°C (135°F).



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