CASE STUDY

Pharmaceutical: Point-of-Use WFI Cooling

Exergy's sanitary Shell & Tube Heat Exchanger delivers precise, cGMP-compliant WFI cooling for pharmaceutical point-of-use loops — meeting strict thermal control, surface finish, and regulatory requirements.

The Objective

A pharmaceutical manufacturer required a sanitary cooler to handle 15 GPM of WFI/Purified Water, reducing process fluid temperature from 65°C inlet to 25°C outlet using 44°F chilled water - all within a compact footprint and under full FDA/cGMP regulatory compliance.

The Challenge

- Achieving tight thermal control across a demanding duty cycle
- Maintaining WFI compatible, fully sanitary wetted surfaces
- Preventing cross-contamination between process fluid and utility coolant

The Solution

Exergy implemented a **Shell & Tube Heat Exchanger, Model #02125 (95 Series)**, constructed entirely of **316L Stainless Steel**. Chilled water on the shell side provides efficient cooling of the WFI process stream. The electropolished internal surfaces and double tubesheet design ensure full BPE and cGMP compliance within a compact **4" shell diameter** and **31" tube length**.

33.79 ft²

Heat transfer area optimized for the specified thermal duty

0.4 µm Ra Max

Electropolished finish meeting ASME BPE surface quality standards

Double Tubesheet

Prevents intermixing of process fluid and utility coolant

Full Compliance

FDA/cGMP and ASME BPE regulatory requirements satisfied

Exergy's 95 Series Sanitary Shell & Tube Heat Exchanger addressed the customer's needs by delivering precise WFI cooling in a compact, electropolished, double-tubesheet design — ensuring regulatory compliance and reliable thermal performance for pharmaceutical point-of-use loop applications.