



Process Heating Solutions Worldwide

# Food Processing Industry Case History



## High-Pressure Hot Water System

### Application

Poultry processing plant required a high-pressure hot water supply for their night time clean up. The heating system was to take preheated water supply up to 155°F, then boost the pressure to 275 PSIG for distribution to multiple hose stations throughout the facility. Accurate temperature control at a constant supply pressure was required regardless of water flow rate.

### Process Conditions

Water Flow Rate	7 - 250 GPM
Number of Hose Stations	1 -15
Inlet Water Temperature	120°F
Discharge Temperature	155°F
Water Supply Pressure	50 - 60 PSIG
Boost Water Pressure	275 PSIG
Steam Supply Pressure	100 PSIG
Steam Flow Required	135 - 3765 lb/hr

### Solution

**Pick Model 6X50-3 Hot Water Set** including dual steam control valves to effectively handle the wide range of turndown required. A 50HP multi-stage centrifugal boost pump was installed after the heater discharge so that water pressure did not exceed steam supply pressure at the heater. Temperature was controlled with a simple pneumatic thermostatic controller installed immediately at the heater discharge. The temperature control loop was interlocked with the pump to operate only when system was under demand. An electronic process controller monitored discharge pump pressure through a downstream pressure transmitter. A 4-20mA output to the pump VFD ramped pump speed to control and maintain the desired output pressure. The process controller and pump starter were housed in a stainless steel panel including E-stop and On/Off control.

This is the third identical system installed at this facility in the past few years.

### Features and Benefits:

- Complete System Capability
- Instantaneous Hot Water Upon Demand
- Precisely Controlled Water Supply Pressure

Learn more at  
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