PAPER MACHINE: WHITEWATER (K413)

SUMMARY

Goals:

- Eliminate cold start-up from shutdowns or grade changes
- Precise temperature control
- Eliminate need to dump water

Accomplishments:

- Precise temperature control
- Hot water on demand
- Reduced batch time
- Improved paper machine drainage

An upper Midwest specialty paper mill that has been in business for over 125 years needed to heat whitewater on paper machines that make multiple grade changes each day. The whitewater cools during wash-up and causes problems due to a cold start-up.

The paper machine would run cold after shutdowns or wash-up grade changes. The current solution was to dump whitewater and refill it with heated freshwater to bring the machine up to temperature quickly. The mill desired a better method to get to their 135°F [57° C] target temperature quickly.

CONDITIONS

Fluid:	Whitewater (silo heating)
Flow Rate:	250-300 GPM [57-68 m^3/hr]
Inlet Temperature:	100-105˚F [38-40˚C]
Discharge Temperature:	250˚F [121˚C]
Fluid Supply Pressure:	135˚F [57˚C]
Steam Supply Pressure:	Static head on whitewater chest (silo)
Steam Superheat:	160 psig [11 barg]

SOLUTION

This application's solution included using a K413 Hydroheater® to heat the tank of water in a recirculation without a pump configuration. Water heating improvements are realized with the precise temperature maintained at 135°F [57°C], and they can start up the machine without having to dump water. Although installed for startup heating, the heater has been in constant operation, running 24 hours a day and seven days a week since 2006. This has dramatically reduced the time it takes to change over paper grades by assuring that the paper machine will be at a startup temperature. A considerable improvement to the paper machine drainage has also been realized by maintaining an ideal temperature throughout the grade run.

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