



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 a 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 with heated fresh water to bring the machine up to temperature quickly. The mill desired a better method to their 135°F target temp 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

The solution for this application 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 startup the machine without having to dump water. Although installed for start-up heating, the heater has been in constant operation, running 24 hours a day and 7 days a week since 2006. This has greatly reduced the time it takes to change over paper grades by assuring the paper machine will be at temperature at start-up. A large improvement to the paper machine drainage has also been realized by maintaining an ideal temperature throughout the grade run.