

WHITEWATER HEATING FOR IMPROVED PAPER MACHINE PERFORMANCE



LOCATION

Heat the whitewater (WW) loop with direct steam injection using plant or waste steam

- » Silo
- » WW chest
- » WW storage tank

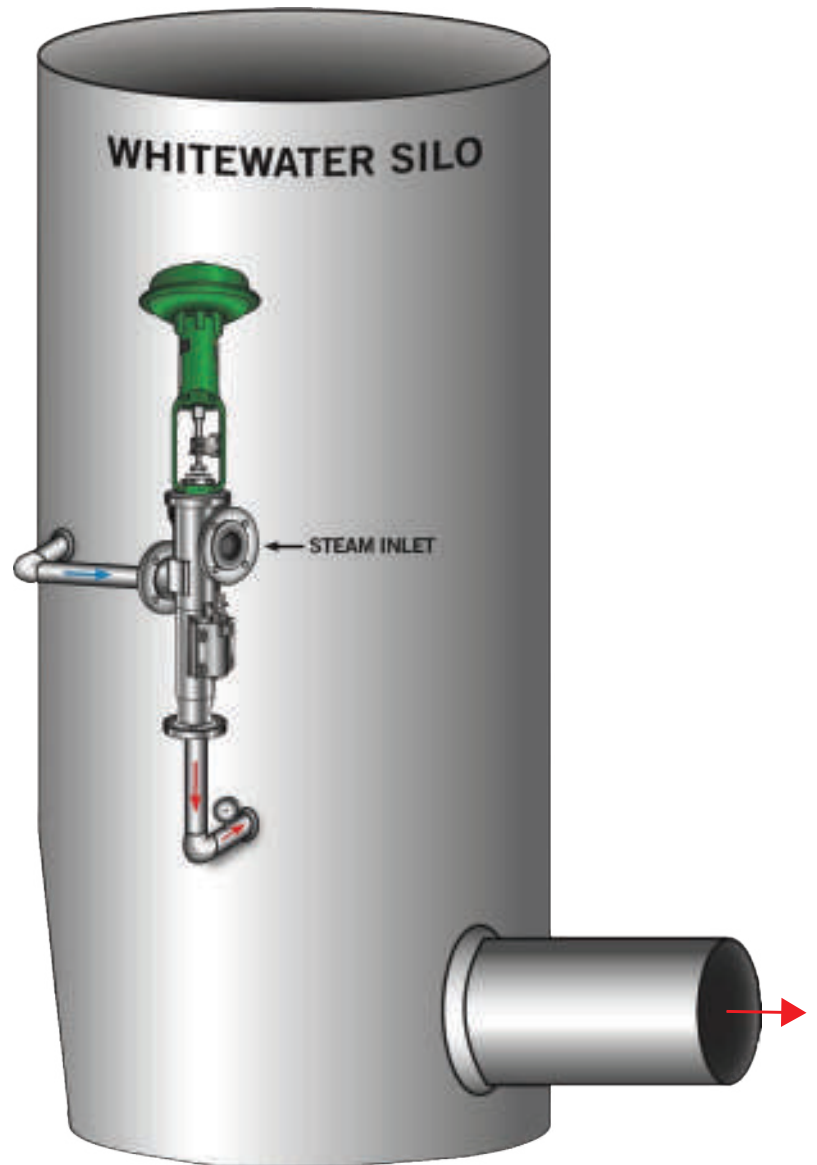
Heat other water uses on the paper machine to match WW temperature

- » Headbox rolls
- » Wire showers
- » Press section showers

WHY IT WORKS

Targeting operating temperatures of 120–140°F (49°-60°C) improves drainage rate (Refer to viscosity chart)

Heating showers (freshwater streams) eliminates temperature stratification from this normally cold water source



Temperature		Absolute - Dynamic - Viscosity (cp)
(°F)	(°C)	
32	0	1.794
40	4.4	1.546
50	10.0	1.310
60	15.6	1.129
70	21.1	0.982
80	26.7	0.862
90	32.2	0.764
100	37.8	0.682
120	48.9	0.550
140	60.0	0.470
150	71.1	0.401
180	82.2	0.347
200	93.3	0.305

*Heating WW to 140°F (60°C) reduces viscosity in half

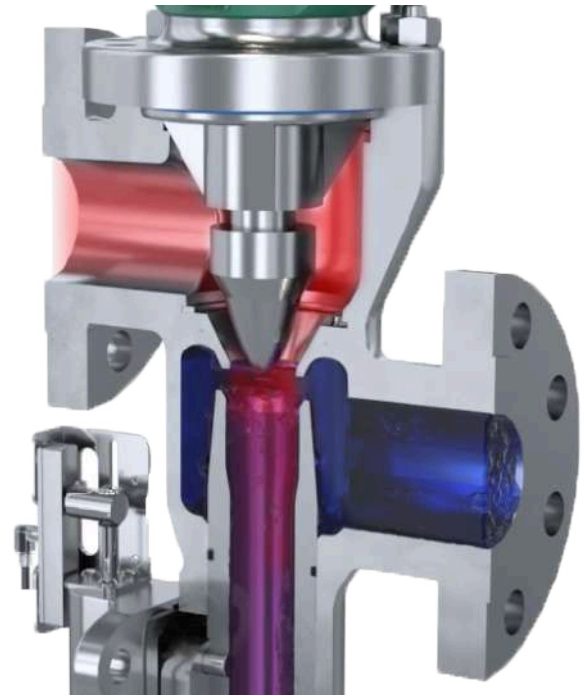
BENEFITS

- » Improved drainage = increased machine speeds
- » Can improve sheet formation
- » Faster heat-up cycles
- » Quicker start-ups
- » Faster and hotter boilouts

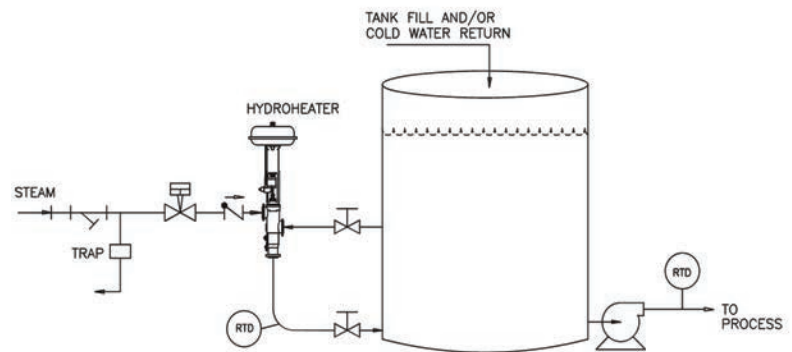
HOW IT WORKS

The Hydro-Thermal engineered heating solution provides:

- » Automated valve providing consistent temperature control +/- 1°F (.5°C)
- » Full steam pressure is used to rapidly condense the steam inside the combining tube
- » Heated water is discharged into the silo or tank
- » Self pumping (venturi eductor effect) or standard heater installation (refer to P&ID self-pumping installation)
- » Industrial design provides reliable, low maintenance operation



Hydroheater technology injects precise amounts of steam into the process fluid



SELF-PUMPING INDUSTRIAL HYDROHEATER

At the heart of the application is the Industrial Hydroheater design that uses high-velocity steam injection for heating of the whitewater and creates the pumping of an eductor. This Venturi effect will provide a self-recirculating flow of whitewater through the Hydroheater and pump it back into the silo or chest. Relatively low-pressure steam (35 psig [2.5 barg] or greater) can be used for heating your whitewater, efficiently capturing this energy that may otherwise be vented as waste steam.

Need more information about Hydro-Thermal products?

Go to www.hydro-thermal.com or contact us at info@hydro-thermal.com

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