



Optimizing Ethanol Production for Significant ROI



“Every ICM Ethanol plant should have a beer column heater.”

– Plant Manager, LincolnLand Agri-Energy

Hydro-Thermal’s innovative direct steam injection heaters boost your bottom line by increasing ethanol production, lowering energy costs, and minimizing outages. Consider some recent real world results:

BEER COLUMN Heater

TOTAL PROJECT COST

\$143,380

ENTHANOL INCREASE (in gallons)

600 gal/hour

14,400 gal/day

5,140,800 gal/year

REVENUE INCREASE (at \$1.50/gallon)

\$642,000/month

INCREMENTAL REVENUE

\$7,711,200/year

CORN OIL Heater

TOTAL PROJECT COST

\$34,398

ENTHANOL INCREASE (in gallons)

From 3.3 to 4.4 gal/minute

or an additional

514,000 gal/year

REVENUE INCREASE (at \$0.35/lb)

\$125,030/month

INCREMENTAL REVENUE

\$1,020,033/year

SLURRY TANK Heater

TOTAL PROJECT COST

\$523,000

STEAM SAVINGS (in lbs)

1,500 lbs/hour

36,000 lbs/day

13,140,000 lbs/year

Potential to reduce

AA dosing by 10%

SAVINGS (at \$2.78 per million MMBTUs)

\$637,200/year

ROI

10 Months

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BEER COLUMN Heater

BENEFITS

- More accurate and precise temperature of the mash going into the beer column puts less demand on the beer mash exchangers.
- Increasing the mash temperature – and supplying a more uniform and consistent temperature – helps recover lost ethanol gallons, which in turn brings revenue to your operating asset (depending on beer column base loss).
- Increased temperature changes the viscosity of the mash, allowing an increase in beer feed rate by an average of 300 gpm without concerns for mash carry over.



CORN OIL Heater

BENEFITS

- Adding temperature acts as an emulsion breaker – enabling a reduction in or elimination of emulsion-breaking chemicals.
- If you have a heat and hold tank, you have two installation options – either after the evaporator but before the heat and hold tank or after the heat and hold tank but before the tricanter. If it's before the heat and hold tank, it provides more residence time before separation at the tricanter. If it's after the heat and hold tank, you get less residence time. This can also be impacted by design and chemical location.



SLURRY TANK Heater

BENEFITS

- Greater tank temperature control and flexibility without having the steam valve open at 100% through sparging.
- Shearing effect exposes more available starch for sugar conversion to ethanol.
- More accurate and precise temperature control helps with viscosity and gives the flexibility to increase slurry solids.
- Changing viscosity brings down the beer mash exchanger pressures, which helps maintain front-end production rates while also providing uniform and consistent temperatures that help with enzyme optimization.

Need more information about Hydro-Thermal products?

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

400 Pilot Court | Waukesha, WI 53188
(262) 548-8900 | (800) 952-0121

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