HEAT PIPE TECHNOLOGY

CASE STUDY

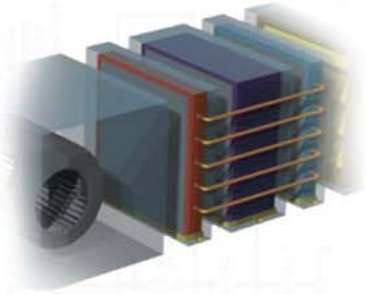
Manufacturing Facilities
Pharmaceuticals

Two Pharmaceutical Manufacturers Begin an Energy Saving Regimen in Puerto Rico

THE PROBLEM

Pharmaceutical production is popular in many tropical locations because of regulatory, tax, and labor-cost benefits. Yet many of the benefits can be easily negated if a production facility doesn't properly mitigate high humidity, an environmental feature that comes part and parcel with any tropical location. Tropical pharmaceutical production facilities need active humidity control or they risk a long list of potentially troublesome or hazardous events and conditions, including the growth of harmful bacteria, microbial contamination, non-sterile working condition, increased downtime (due to cleaning), and increased waste. High humidity can also negatively effect product packaging, the condition of coated pills, clogged powder feeders (due to moisture-laden powders), clogged tablet presses, and even the drying time in fluid bed dryers.

THE SOLUTION



Heat Pipe Technology's wrap-around Dehumidification Heat Pipes (DHPs) utilize the phase change of the working fluid to precool the outside air before entering the cooling coil and reheat the air after the cooling coil. This method has no moving parts and requires no additional maintenance. DHPs also reduce the load on the cooling coil and can reduce or eliminate the energy that would otherwise be needed for a separate reheat system.

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Logon to: www.heatpipeselect.com

THE RESULTS

Case 1- 100% Outside Air
- 50,000 CFM Total Air
- 525 fpm Air Velocity
- Hot Water Reheat 10°F
- Energy Cost:
  - Natural Gas $1.78 per therm
  - Electric Rate $0.19/kwh
- 24/7 operation; 365 days/year

Summary Results
- Precool Savings: $28,000
- Reheat Savings: $70,000
- Fan Penalty: $7,500
- Net Savings: $91,000
- Installation Cost Estimate: $88,000
- Simple Payback: 11.5 months

Case 2 - Mixed Air
- 22,800 CFM of Total Air (1,800 CFM O/A, 21,000 CFM Re-circulated)
- 456 fpm Air Velocity
- Hot Water Reheat 8°F
- Energy Cost:
  - Natural Gas $2.0 per therm
  - Electric Rate $0.16/kwh
- 24/7 operation; 365 days/year
- Standard plant efficiencies

Summary Results
- Precool Savings: $18,000
- Reheat Savings: $45,000
- Fan Penalty: $4,000
- Net Savings: $58,000
- Installation Cost Estimate: $50,000
- Simple Payback: 10.3 months

[1] If rates are higher in your area, the return on investment will be higher and the payback more rapid.

For more information, visit www.heatpipe.com