

# Recold Evaporative Condenser INSIGHT

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## Overview

Recold evaporative condensers can help improve your refrigeration system over air-cooled condensers by having:

- Up to 50% less energy usage
- Annual cost savings that can be greater than the price of the condenser
- System benefits like less refrigerant charge, reduced rack and electrical service costs, and extended compressor life

...and this in regions outside the southwest!

## Detail – Low Operating Cost

- Compressor and condenser energy usage can be reduced up to 51%, translating into as much as \$35,000 in annual operating cost savings

Because...

- Evaporative cooling can provide significantly lower condensing temperatures than achievable with “air cooled” or “dry” heat rejection devices
- Reaching lower condensing temperatures allows evaporative devices to transfer heat more efficiently, using less electrical energy



Estimated Annual Compressor and Condenser Energy Cost



| Total Low and Medium Temperature              | Air-Cooled | Evaporative | Delta     |
|-----------------------------------------------|------------|-------------|-----------|
| Installed Compressor and Condenser Power (hp) | 175.1      | 132.4       | -24%      |
| Annual Energy Use (kWh)                       | 1,030,687  | 502,752     | -51%      |
| Annual Energy Cost                            | \$92,762   | \$45,246    | -\$47,516 |
| Annual Water Usage, Serwer, Maintenance Costs | ---        | ---         | \$11,844  |
| Annual Operating Cost                         | ---        | ---         | -\$35,672 |

*Note: Energy usage estimates based on industry recognized energy analysis software. Water usage estimates based on typical operating parameters, cost varies by municipality. See system detail on following page.*

# Evaporative Condenser INSIGHT

## Detail – System Benefits

- Lower condensing temperatures can lower compression ratio as much as 23%, extending compressor life
- Up to 24% less total installed condenser and compressor power, reducing rack and electrical service costs
- Evaporative heat transfer can lower refrigerant charge by as much as 100 lbs

## Calculation Detail

Estimates based on simulated annual operation of a 40,000 ft<sup>2</sup> supermarket refrigeration system in Miami, FL. Contact Recold for information specific to your site.

| <b>Evaluation Parameter</b>          | <b>Low-Temperature Summary</b> |                    |                  | <b>Medium-Temperature Summary</b> |                    |                  |
|--------------------------------------|--------------------------------|--------------------|------------------|-----------------------------------|--------------------|------------------|
| <b>Condenser</b>                     | <b>Air-Cooled</b>              | <b>Evaporative</b> | <b>Delta</b>     | <b>Air-Cooled</b>                 | <b>Evaporative</b> | <b>Delta</b>     |
| Refrigerant                          | R-404A                         | R-404A             | ---              | R-404A                            | R-404A             | ---              |
| Capacity (Btu/hr)                    | 303,500                        | 306,000            | ---              | 555,000                           | 551,000            | ---              |
| Suction Temperature (°F)             | -20                            | -20                | ---              | +20                               | +20                | ---              |
| Condensing Temperature (°F)          | 110                            | 95                 | -15              | 115                               | 95                 | -20              |
| Dry Bulb / Wet Bulb Temperature (°F) | 100                            | 80                 | -20              | 100                               | 80                 | -20              |
| Rate Compressor Power (hp)           | 73.6                           | 60.6               | -18%             | 83.5                              | 59.8               | -28%             |
| Compression Ratio                    | 8.98                           | 7.33               | -18%             | 4.33                              | 3.32               | -23%             |
| <b>Rated Condenser Power (hp)*</b>   | <b>9</b>                       | <b>6</b>           | <b>-33%</b>      | <b>9</b>                          | <b>6</b>           | <b>-33%</b>      |
| <b>Annual Energy Use (kWh)</b>       | <b>525,376</b>                 | <b>272,223</b>     | <b>-48%</b>      | <b>505,311</b>                    | <b>230,519</b>     | <b>-55%</b>      |
| <b>Annual Energy Cost (\$)</b>       | <b>\$47,284</b>                | <b>\$24,501</b>    | <b>-\$22,783</b> | <b>\$45,478</b>                   | <b>\$20,745</b>    | <b>-\$24,733</b> |

\*Evaporative condenser rated power includes a 10 hp fan motor and 2 hp pump motor. One unit is used for both low and medium temperature systems; multiple loads are easily separated in a Recold Evaporative Condenser.

## Recold Evaporative Condensers

- Low-profile forced-draft or induced-draft
- 294 to 7644 MBH Capacity
- Corrosion-resistant copper coils
- Proven redundancy options
- Time saving maintenance access features
- Easy to install, factory wired and tested
- Made in the USA

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Recold has manufactured heat exchange equipment serving Refrigeration, HVAC, and Industrial applications for over 75 years. For the best value in heat rejection, insist on a Recold Evaporative Condenser.

**SPX®**

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