

SUPERMARKET REDUCES CO₂ SYSTEM WATER USE BY 98% WITH THE PX G1300®



LOCATION
Northern California



SYSTEM SIZE
740 MBH / 217 kW

PEAK ENERGY SAVINGS
14% energy savings / 16% COP
lift at 93°F / 34°C

INCREASED CAPACITY
16°F / 9°C increase in
design temperature

**ESTIMATED WATER
REDUCTION**
98%

THE CHALLENGE

Reducing Water Reliance of CO₂ Systems

A supermarket in Northern California designed its CO₂ refrigeration system with an adiabatic gas cooler to protect against the sudden, extreme heatwaves occasionally experienced in the region. Given the area's moderate climate, the adiabatic system was rarely needed, with temperatures exceeding 75°F (24°C) for just 167 hours in 2023. Despite its infrequent use, it still provided peace of mind on hot days. The supermarket began looking for a solution that could maintain their system efficiency while reducing water costs.

THE SOLUTION

Retrofitting a PX G1300 Pressure Exchanger

In the summer of 2024, the supermarket retrofitted its CO₂ system with a PX G1300 pressure exchanger to reduce water consumption and drive incremental energy savings. The compact 2' x 2' x 4' (60 x 60 x 120 cm) module was easily fitted inside their machine room next to the parent rack.

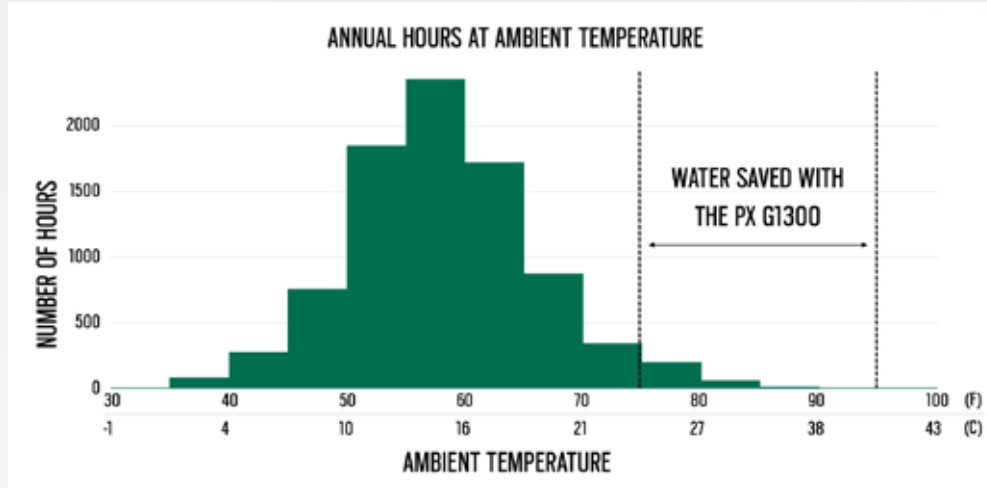


The PX G1300 pressure exchanger

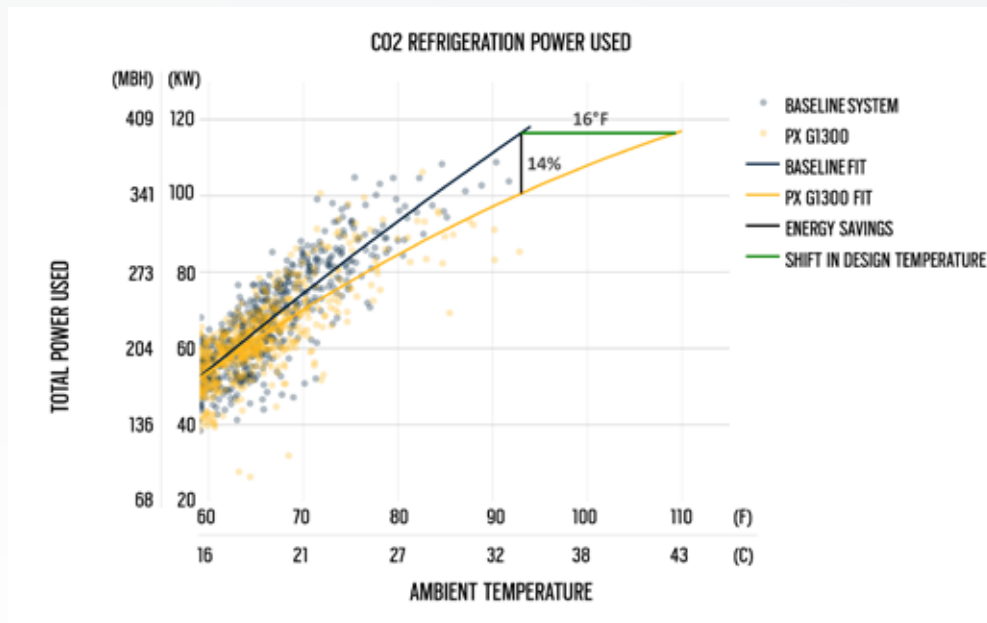
THE RESULT

Reduced Water by 98% While Increasing Efficiency and Capacity

- Water reduction:** Incorporating the PX G1300 pressure exchanger allowed the store to increase its water onset point from 75 to 95°F (24 to 35°C), **eliminating 98% of water usage annually** from the adiabatic cooler. By reducing runtime to only the hottest days of the year, the store was able to avoid the daily water waste of refilling and disposal of the system.



- Incremental energy savings:** By reducing flash gas, the PX G1300 **reduced energy consumption by up to 14% at 93°F (roughly 34°C)**, with an estimated 19,000 kWh of annual energy savings.
- Increased capacity:** The PX G1300 also enabled a **16°F (roughly 9°C) increase in design temperature** to protect the CO₂ system against future heatwaves.
- Sustainability goals:** Incorporating the PX G1300 pressure exchanger also helped the store reach its sustainability goals by reducing energy consumption and water waste.



**Disclaimer: Actual results may vary based on multiple factors including system architecture, cost of electricity, ambient temperature, square footage and size of facility, variable loading of the system, time of day, and geographic location. Findings based on customer testimonials and Energy Recovery's laboratory and field results. Energy Recovery accepts no responsibility for possible errors in catalogues, brochures and other product material, and reliance on data is at your own risk.*

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