

Quietly Saving Money With Smarter Refrigeration

Attractive, quiet equipment designed for increased energy savings



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Stemming operational costs, particularly rising energy costs, is almost always a top priority for convenience store chains. But family-owned Kelley's Market, based in Rockford, Ill., had another consideration regarding their choice of refrigeration equipment when designing and building a new store in their hometown: being a good neighbor.

As their refrigeration contractor walked them through opportunities for improvements in energy efficiency, maintenance and product protection, one aspect of Copeland Scroll™ Outdoor Refrigeration X-Line Units caught their attention: the ultra-quiet operation. They are up to 11 to 16 dB quieter than traditional outdoor units — roughly the difference in volume between a vacuum cleaner and a friendly conversation. Family-owned businesses are often very community-minded. If Kelley's Market could reduce noise in their neighborhood and in their store, they wanted to learn more.

Improving the customer experience while saving energy

Kelley's Market was founded in 1926 by entrepreneurs Walter Williamson and Nate Kelley as the Kelley Williamson Company. Still family-owned and an ExxonMobil distributor, they have been operating convenience stores and fuel stations for more than 90 years, with nearly 50 Kelley's Market stores in operation throughout Illinois and Wisconsin. The trademark of their stores reflects their family values: they pride themselves on running crisp, clean stores offering top-quality products and outstanding service. Among the current management of Kelley's Market decision makers are astute businesspersons, highly focused on operational issues such as energy efficiency, maintenance and product protection. Thus, they put a high value on a refrigeration solution that was both attractive and quiet for the best possible customer — and neighbor — experience.

What they found was outdoor walk-in refrigerator technology that offered energy-efficiency levels that could lower their energy bills by nearly 33 percent; built-in diagnostics that would enable faster, more accurate service; and ultra-quiet, variable-speed fan motors and internal baffling that could cut compressor noise by

more than 50 percent: the Copeland Scroll Outdoor Refrigeration Unit X-Line Series.

Advances in walk-in refrigeration technology in a single unit

Copeland Scroll Outdoor Refrigeration X-Line Units range in power from $\frac{3}{4}$ to 6 HP, making them a great fit for the needs of Kelley's Market, with one X-Line unit powering their walk-in freezer, one for their walk-in cooler, and one dedicated for a merchandising display case. By using the outdoor units instead of the usual self-contained or other indoor refrigeration systems, they would help increase efficiency by removing heat load from the building's air conditioning system — helping to cut both the demand and cost from their HVAC system as well.

Copeland Scroll Outdoor Refrigeration X-Line Units incorporate multiple advances in refrigeration into a single-unit solution, including:

- The latest Copeland Scroll compressors optimized for increased annual energy efficiency — with far lower sound and vibration levels
- Efficient and ultra-quiet, variable-speed, permanent split capacitor (PSC) fan motors
- Larger condenser coils for more efficient heat transfer
- High-efficiency fan blade design
- Internal electronics using proprietary Emerson algorithms to help optimize energy performance
- An exclusive enhanced vapor injection (EVI) circuit to add capacity and system efficiency to freezers and other low-temperature refrigeration equipment
- Exclusive CoreSense™ Diagnostics that both enable rapid, precise servicing and help protect the compressor

The new technology is encased in a lightweight, slim enclosure that could be wall mounted. For Kelley's Market, this meant they could place their units in locations previously not available, without the need to rent a crane for installation. Startup and commissioning for Kelley's Market was trouble-free. And the clean design of the outdoor units offered a more attractive atmosphere for neighbors and customers alike — a big plus for Kelley's Market.

Walking into savings

The Copeland Scroll Outdoor Refrigeration X-Line Units at the new Kelley's Market store in Rockford represented the company's first foray into scroll compressor technology for their stores. From the



first day the store opened, the company saw major operational benefits. In the store's first year, the Copeland Scroll Outdoor Refrigeration X-Line Units delivered energy savings of 29 percent compared to their legacy store technology. Inside the store, the three Copeland Scroll X-Line Units are expected to save about \$2,500 in energy costs per year — a significant future consideration for a company operating nearly 50 stores.

Energy savings are obvious in a monthly bill. Efficiency savings show up in the smooth operation of the store, and by the reduction of the costs of routine and unexpected maintenance. Here, the built-in CoreSense Diagnostics play multiple roles.

The smart way to stay cold

CoreSense Diagnostics continuously monitor the Copeland Scroll Outdoor Refrigeration X-Line Units for fault codes so that service technicians can be called in immediately and directed to a problem, helping to save maintenance time to circumvent critical refrigeration downtime and repair expenses. To avoid unneeded service, the diagnostics can help predict or provide early warnings against common nuisances and failure issues, such as liquid flood-back conditions.

Integrated controls optimize the variable-speed PSC fan motor speed to help maximize the heat transfer to the unit's larger condenser, making additional energy savings and perfect temperature control automatic. The integrated smart systems can combine for optimum performance to help lower total lifecycle costs to go along with the major energy savings.

Inside and outside the market, and throughout the store's neighborhood, the energy efficiency and optimum performance of the Copeland Scroll Outdoor Refrigeration X-Line Units result in a quiet hum — just the way the locals want it.