

Convenience store chain improves refrigeration energy efficiency

Summary

The Copeland Scroll™ Outdoor Condensing Unit (X-Line Series) for commercial refrigeration offers the highest energy efficiency available today to lower utility bills for operators. Ranging in size from 1.5–6 HP, units are perfectly suited for walk-in and display case cooler and freezer applications. Units in the X-Line Series combine the latest Copeland Scroll compressor technology with variable speed fan motor control, large condenser coils, and a high efficiency fan blade designed to deliver up to 25 percent more energy efficiency annually when compared to standard industry offerings. The slim profile, light weight, wall mount capability, and ultra-quiet design features also offer operators added benefits.

Application

Refrigeration system for walk-in and display case coolers and freezers.

Customer

Maverik, Inc., a convenience store chain with 300 locations across the U.S., is widely considered an industry leader and was named Convenience Store Decisions' 24th annual Convenience Store Chain of the Year award recipient for 2013.

Challenge

Operational efficiency is always top-of-mind for convenience store chains, especially when it comes to issues like reducing energy consumption and limiting downtime due to equipment failures. Recently Maverik, Inc. needed to add refrigeration capacity for its walk-in cooler and freezers and found itself faced with several operational efficiency issues. Maverik needed a new outdoor condensing unit that not only met energy efficiency requirements, but that would operate reliably in extreme summer temperatures. In addition, Maverik has many stores located in close proximity to residential areas, so noise level was a large factor for the chain.



Solution

The store operators worked closely with Jim Alexander of Epic Services in Salt Lake City, Utah and Brooke Woodward, branch manager of Refrigeration Supplies Distributor in Draper, Utah to address the need for energy efficiency and reliability. The group determined that Emerson's X-Line Series was the right solution. Units in the X-Line Series are not only highly efficient, but offer installation flexibility, low noise, and allow technicians to quickly and accurately troubleshoot any issues and avoid unneeded service calls. Another key deciding factor was the ability of the X-Line unit to handle extreme heat.

To test its performance in an extreme application, Epic Services installed an X-Line unit on the rooftop of a Maverik store located in Mesquite, Nevada, which reaches temperatures of 147°F in the month of July.

To answer potential noise concerns in residential areas, the X-Line unit is also significantly quieter than traditional units due to the scroll compressor's low sound and mounting position, along with a unique fan blade design and variable speed fan motor control.

Result

- More than two years after installation, the X-Line unit at Maverick continues to run without issue, with no callbacks.
- Maverik, Inc. has opted to install additional X-Line condensing units in various locations throughout the U.S.
- Epic Services continues to recommend and install X-Line units across a variety of applications, including food service and food retail. To date, Epic has not received service calls for any installed X-Line unit.

The Copeland Scroll™ Outdoor Condensing Unit

ranges in size from 1.5-6 HP, offering energy savings of up to 25% compared to standard industry condensing units, making it perfectly suited for many walk-in and display case cooler and freezer applications. The scroll unit incorporates multiple advances in refrigeration as standard features into a single unit solution, including:



- The latest Copeland Scroll refrigeration compressors which have been optimized for the highest annual energy efficiency
- Ultra-quiet and efficient variable speed PSC fan motors
- Large condenser coils for more efficient heat transfer
- High efficiency fan blade design
- Proprietary electronic algorithms to optimize energy performance
- Exclusive Enhanced Vapor Injection (EVI) circuit on low temp units for added capacity and system efficiency
- Exclusive CoreSense™ Diagnostics to enable faster, more accurate service, along with compressor protection benefits to lower total lifecycle costs

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